An Analysis of Recent Male Nuptiality, Sexual Behaviour and Fertility Patterns in Tanzania and Zimbabwe

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ABSTRACT

Traditionally, demographers have studied the determinants of nuptiality, sexual behaviour and fertility patterns from the perspective of women. The 1994 Cairo UN International Conference on Population and Development was an important turning point in demography. Since then, there have been efforts to understand the role of men in shaping nuptiality, sexual behaviour and fertility patterns and how men can be involved in population policies. This analysis of male nuptiality, sexual behaviour and fertility is based on data from the 1992 and 1996 Tanzania Demographic and Health Survey (DHS) and the 1994 Zimbabwe DHS. The aim was to investigate issues of male demography for these two countries. Methods of analysis included descriptive statistics, life table analysis, logistic and hazard regression models.

Results show that most of the socio-economic characteristics are not very important determinants of male demography in these two countries. Age at marriage is higher than that of women but there is little evidence that age at marriage for men is rising. Polygamy remains popular in Tanzania, where the proportion of men in polygamous unions is more than twice that in Zimbabwe. However, intensity of polygamy is low, as the majority of polygamous men have only two wives. Age at first sex is earlier in Tanzania than in Zimbabwe and is falling in both countries, more so in Zimbabwe than in Tanzania. Fertility, measured in terms of the number of children ever born per man, is higher in Tanzania than in Zimbabwe. Then again, the differentials in the rate of childbearing did not widely vary once controls for marriage duration and type of union are made.

The study makes recommendation for the improvement of the quality of demographic data collected from men. Questionnaires need to be more detailed by, for example, including questions on the timing of various unions that men might have. In the study of male fertility, there is also need for information from more than one partner that a man has had. Given the early initiation into sexual relations, the study recommends intervention policies such as early sex education and a wider campaign for safe sex given the large number of single men who have more than one sexual partner.

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The study of nuptiality, sexual behaviour and fertility patterns remains of great importance in sub-Saharan Africa for several reasons. First, marriage is an important institution that shapes fertility patterns. Second, the transition to lower fertility is still the goal of many societies in this region and so understanding marriage patterns serves to understand fertility. Third, the role of sexual behaviour in the spread of the HIV/AIDS epidemic and other reproductive health matters still needs better understanding. Traditionally, these aspects of demography have been studied from women's perspective. This thesis will look at nuptiality, sexual behaviour and fertility from the perspective of men. This chapter first looks at the reasons why male issues have for a long time been on the fringes of demographic research and why it has, in recent years, become important to include them. In addition to providing the rationale for undertaking this work, this chapter also presents background information on the two countries that are the focus of this thesis, Tanzania and Zimbabwe; covering their history, geography, economy, demography and population policies. The chapter ends with a section on the organisation of this thesis, providing a summary of what is covered in the following chapters.

1.1. NUPTIALITY, SEXUAL BEHAVIOUR AND FERTILITY.

Demographers are interested in nuptiality because most children are born within stable unions the majority of which are marital unions. Therefore, changes in nuptiality are bound to affect the number of children born especially in societies where contraceptive use is low. The role of nuptiality in the transition from societies with high fertility to those with lower fertility has been emphasised by many authors. One of the major reasons for declines in fertility is usually changes in nuptiality patterns through an increase in the proportions remaining single and an increasing age at first marriage (Bongaarts 1978; Bongaarts and Lesthaeghe 1984).

Understanding marriage in sub-Saharan Africa is very important because marriage is near universal, hence creating the potential for maximum fertility. It is thus important to understand the different avenues through which children are born and the potential for an increase or decrease in fertility. There is a need to study ages at which people enter unions, the proportions that ultimately marry, the types of unions and the stability of different types of unions. At a time when sub-Saharan African societies are undergoing many social, political and economic changes, nuptiality patterns are likely to be changing and thus affecting patterns of sexual behaviour and fertility.

There is currently a debate going on as to the type of fertility transition that Africa is experiencing and whether the changes observed in nuptiality and fertility are long term or temporary. Opinions include those who think that the transition is a 'crisis-led transition' due to economic hardships that hit most of sub-Saharan Africa in the 1980s, those who think that the transition is due to a reversal in the direction of intergenerational wealth flows, and those who think that there is an increasing parental desire for child quality rather than quantity.

The attention of demographers is called to the study of sexual behaviour not only because it is a factor that affects fertility, but also because patterns of sexual behaviour are instrumental in the spread of the HIV/AIDS epidemic as well as other sexually transmitted diseases. Works by demographers such as Caldwell et al. (1992a), Caldwell et al. (1989) and Caldwell et al. (1991) have pointed to unique patterns of sexual behaviour in sub-Saharan Africa which are believed to contribute to the rapid spread of AIDS. Studies such as these have been a subject of major

criticisms especially from African writers who have found the papers too generalised, stressing the need for researchers to study individual societies (Leblanc et al. 1991; Ahlberg 1994). Moreover, the study of sexual behaviour has a lot to contribute to the understanding of determinants and patterns of underage sexuality that are associated with young ages at birth. This has implications for the health as well as economic well being of young mothers who give birth early and might go on to give birth many times.

Male Issues in Demography

The work by Hopkin and Hajnal (1939) and the debates of Karmel and Hajnal in the late 1940s concerning male and female reproduction rates are probably among the earliest attempts to study men's role in reproduction. The debate centred on the question of why male and female reproduction rates may be very different for the same population (Karmel 1947; Karmel 1948b; Hajnal 1948; Karmel 1948a). After these debates, little attention was paid to men though the number of studies on men has in the 1990s been on the increase (Donadje and Tabutin 1994; Goldscheider and Kauffman 1996; Paget and Timaeus 1994; Francovich et al. 1998; Stupp and Goldberg 1997; Bledsoe et al. 2000).

Traditionally, demographic study of reproduction has focused on women and very little about men's role has been discovered for several reasons. One of these reasons is the belief that men would not be able to give accurate information on events that did not occur to them directly such as pregnancy, childbirth or immunisation. Another reason is that men have traditionally played a very limited role in activities around the house including childcare. It is also easier to interview women than men, as women are usually found at or near the home. For such reasons, even the most recent of surveys still collect only the most basic of demographic information from men.

The past lack of interest in male reproduction can be seen in the absence of male questionnaires from the early demographic surveys. It is only in some of the second rounds of Demographic and Health Surveys (DHS) that information on men is collected from male respondents themselves. Even now, most information is collected mainly for the purpose of knowing what part men play in contraceptive

use for fertility regulation, and for understanding men's role in the spread of HIV/AIDS. Recent rounds of DHS include more expanded male questionnaires, but, as this thesis will show, these have remained basic. Lack of development in this field is also illustrated by the absence of literature based on analysis of data from male questionnaires collected from DHS.

There are now several other sources of information on male demography but these are largely on sexual behaviour. For example, the small-scale independent largely qualitative surveys, such as those conducted by John Caldwell and his colleagues in Nigeria, or the survey conducted by the University of Botswana on men and family planning (Kgosidintsi and Mugabe 1994). There are also the large scale and more standardised WHO Global Programme on AIDS surveys conducted in the late 1980s and early 1990s in sub-Saharan Africa, Asia and Central and Southern Africa (Carballo 1995).

The recent effort to include men in demographic studies is a result of many factors. The most influential has been the feminist movement of the 1990s, which questioned the continuation of studies of marriage and fertility that had little intention of making improvements in women's health. The debates also centred on the unequal responsibilities that women carried in the whole population control effort. The run up to the 1994 International Conference on Population and Development in Cairo saw numerous debates which argued that it was time that men also bore part of the responsibility. The 1994 Cairo International Conference on Population and Development and the 1995 Beijing Women's Conference were important milestones in shifting emphasis away from population control towards reproductive health. Among other issues, the agenda of the conferences made it clear that it was time men were more involved in reproductive and child rearing responsibilities. In addition, the conferences discussed matters of women's empowerment, and sexual and reproductive health; the most pertinent issue for the 1990s being the involvement of men in family life.

Given the tradition of demographic research i.e. reproduction studied from women's perspective, it was recognised that it would be hard to implement many of the resolutions and to fulfil the ambitions of the landmark conferences. Ambitions to make women empowered or to make men more responsible for family life would be

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hard to fulfil unless the demands and motivations of those who are believed to withhold power from women (i.e. men) are understood. Without understanding men's attitudes and fears regarding fertility control it will be a bigger struggle to offer reproductive choice to women. This is especially true for an area such as sub-Saharan Africa which has strong pro-natalist views, where the main purpose of marriage is to be able to have children to ensure the lineage continues, and where men have authority not only over economic resources but also over women's reproduction. For these reasons, it is important that research involving men is undertaken so that appropriate policies can be designed and implemented.

The failure of demographic 'theories' to explain fully why demographic transitions have taken place in some societies and not in others signalled the need to have a more culturally diverse approach to population issues, and to include men, especially where they are the cause of divergence from the norm i.e. monogamous type of families. Recent developments in research methods, for example the use of qualitative research has made it conceivable that men could be included in analysis (Greene and Biddlecom 1996).

This thesis will focus on male nuptiality, sexual behaviour and fertility in Tanzania and Zimbabwe. Despite their economic differentials the two countries were chosen for comparison due to their similar cultural backgrounds. Both are predominantly Bantu populations; with similar Bantu traditions and cultures and despite their different political histories, both countries have had comparatively stable political conditions since their independence. However, there are differences between the two countries, as a result of different economic and political policies adopted after independence. In addition, the two countries have had different levels of commitment to population policies and the demographic picture is different in the two countries. For example not only does Zimbabwe have an older history of family planning programs, it has also had a stronger commitment to family planning than Tanzania. Zimbabwe has already convincingly started its fertility transition while Tanzania has seen only a modest decline in fertility. Due to consistent policies and a more favourable economic environment, Zimbabwe has been very successful in lowering infant mortality levels such that infant mortality in Tanzania is still high

compared to Zimbabwe. This, together with other differentials in social and economic attributes between the two countries, can be seen in Table 1.

1.2 BACKGROUND ON TANZANIA AND ZIMBABWE

This section presents the background of Tanzania and Zimbabwe in terms of their history, geography, economic base, demography and population policies. The map i.e. Figure 1 shows their location within Africa, their neighbours, regional boundaries and zones that were used in this thesis.

1.2.1 Tanzania: History, Geography, Economy, Demography and Population Policy.

Prior to the 1885 Berlin Conference that led to the partition of Africa, the area now known as Tanzania was made up of a number of autonomous kingdoms and chiefdoms. The majority of people of this area belonged to the Negroid and Bushmanoid races, and spoke Bantu, Nilotic, Afro-Asiatic (along the coast) and some Khoisan-like languages. The interior was made up of kingdoms such as the interlacustrine kingdom of Buganda whose chiefdoms extended to the Lake Victoria area (Chittick 1968).

Before the arrival of the Portuguese in the middle of the fifteenth century, the coastal area was under the control of different Arab dynasties. Cities such as Kilwa, Malindi and Zanzibar flourished, their fortunes and importance depending on the ruler of that time (Chittick 1968). Control by the Portuguese lasted until the mid 1700s when the Coast reverted to succeeding eras of control by several Arab dynasties. The trading activities along the coast and in the coastal interior (including a slave trade undertaken mostly by Arabs) exposed the interior to outside influences. In addition, the interior was also influenced by cultures from the South for example from the Lake Nyasa and Lake Tanganyika corridor. One such significant influence was the Nguni invasion of the Southern parts of Tanzania in the 1840s as a result of the Zulu *mfecane* disturbances (Alpers 1968).

European missionaries started arriving in the areas now known as Tanzania sometime in the 1870s and these were well tolerated by the Arabs who controlled the trade routes in the area. However, the arrival of European traders was not so well

tolerated; and a number of conflicts ensued between the traders and the Arabs (Bennett 1968). Following treaties with local chiefs, Germans were granted control of the area in 1885; a control which lasted until the end of World War I, when Tanganyika was made a protectorate of the United Nations with Britain as the mandated power. Efforts to gain independence from the British proved fruitful; Tanzania gained its independence on December 9, 1961. Zanzibar at this time was still under British rule as the British had seized it from the Sultan in 1890. It was granted independence from the British in December 1963, returning to the Sultanate of Zanzibar. The Sultan's reign was short-lived, as on January 12 1964, he was overthrown by a revolution. The United Republic of Tanzania was born from a union of Tanganyika and Zanzibar in 1964.

Tanzania is situated on the eastern side of Africa, covering an area of 940,000 square kilometres. As seen in Figure 1, it is bordered to the East by the Indian Ocean, to the North by Kenya and Uganda, to the West by Rwanda, Burundi and Zaire, to the South West by Zambia and to the South by Malawi and Mozambique. The Mainland is divided into twenty administrative regions while the Zanzibar Islands are divided into five.

i. Tanzania's Economy

Tanzania relies on agriculture [exporting mainly coffee, tea, pyrethrum, sisal] and minerals such as gold, diamonds and Tanzanite. Recently tourism has become one of the biggest earners. The economic performance of the country has been erratic, though the period immediately after independence was one of steady economic growth. There was a strong commitment to involve people in decision-making and to prevent factionalism based on religion or ethnicity. The year 1967 saw the birth of the Arusha Declaration when the country formally announced its political commitment to Ujamaa *(Nyerere's African socialism based on self-reliance)*, which is largely blamed for the economic downhill trend thereafter. Among other things, the declaration advocated education and self-reliance, villagisation and nationalisation of industries, foreign banks and other business concerns.

The period after independence saw the fruits of the commitment to equality through universal health care and education, despite the 1970s being a period of

economic stagnation with a rapid deterioration towards the end of the decade. In the early 1970s, the Gross Domestic Product (GDP) grew at an average of 1.5 percent per year, but come the mid to late 1970s the pace slowed down so that during the 1976-80s the GDP declined by -0.3 percent (Nyoni 1996). The situation in the 1970s was not only a result of bad economic policies, but was exacerbated by a number of external shocks (e.g. oil price hikes of 1973-74 and 1979-80), that aggravated the current account deficit. The deficit grew from 1.3 percent of GDP in 1973-75 to more than 10 percent in 1978-1980 (Nyoni 1996). The 1978-79 war with Uganda led to further deterioration in the terms of trade, and unfavourable domestic factors such as scarce human capital were compounded by high oil prices and the volatility of international economies. Despite economic hardships, the leadership resisted economic restructuring conditions set by lenders.

In the late 1970s to early 1980s the Government of Tanzania was forced to change its position regarding borrowing conditions from the International Monetary Fund. The National Economic Survival Programme of 1981-82 was followed by the Structural Adjustment Programme of 1982-83 (Wangwe et al. 1998). Further deterioration of the economy forced the new government that came into power in 1985 to accept even more radical structural adjustment demanded by the IMF and the World Bank. Adjustment included agricultural reforms, devaluation, trade liberalisation and parastatal reforms (Kiondo 1992). Among the changes introduced were an end to free health care and education, reduction of subsidies on consumer goods, civil service retrenchment and strict wage restraint.

With all these changes, the country is still in recovery, although there have been a number of setbacks. Lapses in monetary control and natural disasters such as the 1996-97 drought followed by the 1997-98 floods (caused by El Nino), have had negative effects on the economy (International Monetary Fund 1999). According to the IMF, the current government that came into power in the mid-1990s has shown better handling of the economy through tougher fiscal and monetary controls (International Monetary Fund 1999). However, the changes introduced through the structural adjustment programmes have had a mixed effect on the people of Tanzania. Trade liberalisation has enabled a few private investors to benefit from the climate of openness in trade. On the other hand, the slashing of public expenditure

has had an adverse effect on the poor. For example, in the health sector, due to devaluation of the Tanzanian Shilling, there has been a huge increase in the cost of drugs, by 300-400 percent since 1988. This price hike, together with minimum patient fees that were introduced for all government hospitals, has been cited as the most important causes of an increase in maternal mortality at the main government hospital in Dar es Salaam (Vuorela 1992). The effects of the economic changes have also been adversely felt in the area of education. A recent survey has shown that while in 1970/71 the government reserved 13.7 percent of the national budget for education, this had dropped to 6.5 percent by 1987 Roy-Campbell (1992). According to Wangwe et al. (1998), literacy rates have decreased from 90 percent in 1986 to an estimated 68 percent in 1992, and school enrolment and retention rates have either stagnated or have been falling.

Though the past few decades have been challenging to Tanzanians, there is a lot of optimism about the country's economic future. Recent economic policies that encourage free trade seem to be the right way forward. There is a recognition by the people themselves that there are now economic activities in which they are free to engage in. Growth of the informal sector is considered likely to be a good sign (Bagachwa and Ndulu 1996). However, there are still economic challenges, such as revenue collection and corruption that will need to be firmly under control before the country can move on at a steady pace.

ii. Summary Demography of Tanzania

Since independence Tanzania has conducted three population censuses (1968, 1978, 1988), a National Family Survey in 1973, a Demographic and Health Survey in 1992 and 1996, a Knowledge Attitude and Practice Survey in 1994, and a full DHS in 1999. These are the major sources of demographic statistics in the country, since the registration of vital events is limited to urban areas and even there coverage is sketchy.

The population size according to the 1988 census is 23.1 million. According to United Nations (1998)'s medium-variant projections, the population in 2000 stands at 33.5 million and will reach 42.3 million in 2010. The estimated population growth rate was 3.2 percent between 1967 and 1977 and 2.8 in the period 1978-1988,

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suggesting a declining population growth rate (Bureau of Statistics (Tanzania) 1989). There have however been concerns about this decline. Briggs (1993) lists a number of shortcomings in the last census, including severe under-enumeration of the residents of Dar es Salaam and other regions, which would have led to false conclusions about the slowing down of population growth.

The distribution of the population is determined by economic activities but overall it stands at 26 people per square mile. Population is very sparse in the central areas of the country (eg. Dodoma) and in the South-East (eg. Mtwara and Lindi) but much denser in agriculturally lucrative areas (eg. Usambara Highlands and Southern Highlands) and in major urban areas (Mwanza, Arusha, Moshi and Dar es Salaam).

The median age at marriage for women is about 18 years and 75 percent of women marry before age 25. The total fertility rate in the three years preceding the 1996 Tanzania DHS was 5.8 children per woman (Tanzania Bureau of Statistics 1997). An increase in the mean age at marriage for women and use of contraceptives are said to be the main reasons for this change (Mturi and Hinde 1994a). The desired family size in Tanzania is still large; the mean ideal number of children among married women was 5.9 and 6.7 among married men, with only 5 percent of men and women regarding a two child family as ideal (Tanzania Bureau of Statistics 1997). These figures raise doubts as to the sustainability of the fertility decline in Tanzania. Knowledge of contraception is high, with more than 80 percent of men and women knowing a method. Seventy one percent of women know a modern method as well as a source of the method. However, contraceptive use remains low as only 16 percent of married women in 1996 were using a method of contraception (Tanzania Bureau of Statistics 1997). Infant mortality rate ($_5q_0$ 0-4 years before the 1996 survey) remains high at 136.5 per 1000; life expectancy at birth according to the 1988 census was 47 years for men and 50 years for women.

The demography of Tanzania would not be complete without a mention of the HIV/AIDS epidemic in the country. The major mode of transmission is through heterosexual sex. According to WHO/UNAIDS (1998a), estimates at the end of 1997 show that 9.4 percent of the adult population were living with HIV/AIDS. According to United Nations (1999), at the end of 1997, given the percentage of people who are infected, Tanzania ranks 12th in the world among countries where the

disease is prevalent. The effect of the pandemic has been enormous and is expected to continue into the next few decades. Projections show that between 1995 and 2000, Tanzanians will lose 9 years from the life expectancy and almost 11 years between 2000 and 2015. The population growth rate is expected to be lower by 0.39 percent in the 2000-2015 period as a consequence of excess deaths from HIV/ AIDS.

iii. Tanzania's Population policy

Like most other African countries, population policy in Tanzania has at some points been non-existent and the rapid population growth has not been considered an issue warranting great attention. The economic hardships of the 1970s and 1980s which were characterised by rapid population growth, increasing urbanisation and food insecurities contributed to the later change of heart of many African governments.

Presently population policy in Tanzania is drafted and implemented by the Planning Commission under the President 's Office. The government has a National Population Policy (NPP), which was launched in 1992, with a broad objective "to reinforce national development through developing available resources, in order to improve the quality of life of the people. Special emphasis shall be laid on regulating population growth rate, enhancing population quality, and improving the health and welfare of women and children. The mutual interplay between population and development shall be borne in mind. Thus, the population policy shall always be the main guide of the national development planning." (Planning Commission 1992).

One of the goals of Tanzania's NPP is to reduce the annual growth rate through a reduction in the number of births by increasing voluntary fertility regulation. Therefore the National Family Planning Programme (NFPP), established in 1989, has put special emphasis on raising the contraceptive acceptance rate. Along with the NFPP, the Family Planning Association of Tanzania (UMATI) and other agencies in the private sector have jointly facilitated the availability of family planning services; encouraging families to space births at least two years apart, and supporting family life education programmes for the young (Ngallaba et al. 1993).

1.2.2 Zimbabwe: History, Geography, Economy, Demography and Population Policy

The Ndebele and the Shona are the two major ethnic groups that inhabit Zimbabwe. Evidence shows that there have been farmers in this area since the 3rd century (Wills 1985), but the Shona people are believed to have arrived in the present day Zimbabwe, in the late Iron Age (past AD 1000). The Shona, who are the oldest and largest group, were primarily agricultural. There is speculation that they came in from the Southern part of the Democratic Republic of the Congo or from the Great Lake Region (Lopes 1996). When they arrived, the Shona mixed with local agricultural communities (*Gokomere*), believed to have also been of Bantu stock, to produce the modern-day Shona. The Ndebele (*people of the long shields*) arrived in Zimbabwe from the present-day Republic of South Africa in the mid-19th century, led by Mzilikhazi who had fled from Shaka, the Zulu leader. They settled around the area now known as Bulawayo, in the Southern part of Zimbabwe (Wills 1985).

The people of this area exchanged goods such as gold for cloth, beads and pottery with traders who traded from the East African coast as early as 1000 AD (Were and Wilson 1969). The Shona are famous for the Great Zimbabwe, a political structure, which declined in the late fourteenth century. In the fifteenth century the Shona established the Mutapa State, which was politically and socially sophisticated.

The first Europeans to arrive in present day Zimbabwe were the Portuguese in search for gold. By the mid fifteenth century they already arrived on the East African coast, and the first Jesuit missionaries arrived around 1560. They were followed by Dominicans and the Missionaries of the London Society who arrived much later in 1859-60 and with Lobengula's (the Ndebele's leader) permission, settled in Matabeleland. The British South Africa Company (BSAC) took control of the area inhabited by the Ndebele in 1890. Despite a number of treaties with the locals, a fierce Anglo-Ndebele war ensued in 1895. Upon Lobengula's death in 1894, the company's influence had already extended to the area of the Shona people, who then united with the Ndebele for the first war of liberation in 1896, the first *chimurenga*. The control of the area by BSAC lasted until 1923, when settlers in Rhodesia, who had grown in number by this time, voted for a colonial self-government.

Africans' demands for independence gained momentum in the 1950s and guerrilla activities started in the mid 1960s. By the early 1970s, this was a serious threat to Ian Smith's government that had declared unilateral independence for the territory in 1965. The second *chimurenga* started to see some success from the mid 1970s onwards. By 1979 the negative effects of the war on the economy led to the Lancaster House Agreement, giving Zimbabwe independence in 1980. Zimbabwe was among the last countries in Africa to attain independence. The legacy of the colonial days remains. It still has a large number of colonial settlers who remained behind after independence, and about 1 percent of the population is white. The Zimbabwean population is also more 'Westernised' than in other parts of Africa excluding maybe Botswana and the Republic of South Africa.

Zimbabwe lies between the river Limpopo in the South and the river Zambezi in the North, a few degrees latitude North of the Tropic of Capricorn. As Figure 1 shows, it is bordered by Zambia in the North and Northwest, by Mozambique in the East, Republic of South Africa in the South and by Botswana in the West. It is divided into nine administrative regions under the jurisdiction of Administrative Officers.

i. Zimbabwe's Economy

Zimbabwe is blessed with abundant mineral resources and good arable land and forests. It has a diversified economy with industry accounting for 35 percent of output and agriculture accounting for 16 percent (World Bank 1995a). The main agricultural exports include tobacco, maize, cotton, sugar and groundnuts. For the first decade of independence the economy of Zimbabwe, unlike most of those in most of Africa, was stable with an economic growth rate of about 4 percent. This was partly due to a well-developed economy and social services inherited from the colonial government as well as the removal of international sanctions that had been levelled against Ian Smith's government.

From the beginning of its years in power, the administration endeavoured to rectify the imbalances in the control of the economy. It began by buying out foreign shareholders in strategic private companies and by imposing affirmative action in government parastatals and the civil service (Lopes 1996). In 1980 the government

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announced its plans to have an egalitarian, democratic and socialist state and published its 'Growth with Equity' policy statement (Auret 1990). Through a large expansion of state spending the government achieved better social indicators for the people of Zimbabwe in the first decade. According to World Bank (1995b), life expectancy increased from 56 years to 62 years, and infant mortality dropped from 128 per 1000 births to 58 per 1000 births in 1990. Investment in education went up to 3 percent of GDP, and considerably more students went to secondary school; 650,000 compared to 75,000 at independence. The health budget was increased from 2 to 3 percent (1990) of GDP.

The government had started on an optimistic footing, planning for an economic growth rate of 8 percent per year (Lopes 1996). This figure proved ambitious, as the average growth in the first decade was 3.2 percent (International Monetary Fund 1996). A large government deficit from the financing of social projects in the first decade, coupled with a slow economic growth and a mismanagement of the economy, led the government to adopt a structural adjustment programme (ESAP) in 1990. By that time, the government deficit amounted to 11.2 percent of GDP in 1992-93 and inflation, which had been about 6 percent in the decade prior to independence, rose to 15 percent in the 1980s and to 46 percent in 1992 (World Bank 1995b). At independence the country's total debt was about 16 percent of GDP but this had increased to 52 percent of GDP in 1985 and to 69 percent of GDP by the end of 1993 (World Bank 1995a).

The ESAP programme of 1990 included the usual dosage of financial sector reforms, enforcement of a realistic exchange rate through devaluation, tightening of public expenditure and reforms in the agricultural sector. Following the 1990 ESAP, the budget deficit decreased from 9.3 percent of GDP in 1990-91 to 8.5, but rose again to 11.5 percent of GDP in 1992-93 (International Monetary Fund 1996). There were further setbacks such as the 1992 famine, the worst in Zimbabweans' living memory, and the period following 1992 was not a stable one as economic growth continued to elude the country. As the country went into a severe depression in 1992, the manufacturing sector output declined by almost 10 percent and agricultural output by 24 percent.

Despite these setbacks, indicators of economic development show that Zimbabwe is still among the top five countries in Africa in terms of income per capita, levels of literacy, education standards and health care facilities as well as in terms of the proportion of GDP spent on human development (World Bank 1995b). However, the changes in recent years put the continuation of the economic well being experienced in the early years of its history in doubt. Real wages fell by about 20 percent between 1991 and 1993 (World Bank 1995a). Government expenditure as a share of GDP has had to be cut down, falling from 46 percent of GDP in 1989-90 to 39 percent in 1993-94. The health budget has been reduced in real terms by 30 percent, preventative care has declined from around 15 percent of the health budget in late 1980s to 12 percent by 1994. The expenditure on education is down to the same level as at independence (World Bank 1995b). Coupled with increased debt payments these reductions have had an adverse effect in many areas.

The future of the economy of Zimbabwe is highly uncertain. The poor economic performance of the past decade needs stern control. Apart from economic challenges, the HIV/ AIDS epidemic and the political situation in the country are likely to cause a lot of disruption in the near future. Given the recent political and economic events, there is fear that Zimbabwe might be heading in the same direction that some other countries in sub-Saharan Africa have taken.

ii. Summary Demography of Zimbabwe

Zimbabwe has a longer history of census taking than Tanzania. Estimates of population are available from the beginning of the century up to 1951 when the census only took account of the non-African population. The total population of Zimbabwe was 10.4 million in 1992, an increase of 6.4 million from the 1961-62 population census. The population of European descent decreased from 2 percent of the population to only 1 percent between 1982 and 1992. The crude birth rate in 1995-1999 was 31.5 per 1000 population and the crude death rate was 17.5 per 1000 population (United Nations 1998). The medium-variant projection shows that by 2010, the population size will reach 12.9 million people and taking the AIDS epidemic into consideration, life expectancy will be 50.4 years between 2010 and 2015 (United Nations 1998).

According to Zimbabwe Central Statistical Office (1995), the median age at first marriage among women is 19.2 years. The mean number of children ever born per woman is 6.3 and the total fertility rate for the three years preceding the survey was 4.3 children per woman. This is a drop from 5.5 children according to the 1988 DHS. Knowledge of contraception is very high as 97.7 percent of all women know a modern method of contraception, and 48.1 percent of currently married women and 56 percent of sexually active unmarried women were using a contraceptive method (Zimbabwe Central Statistical Office 1995). The infant mortality rate is 53 per 1000, under five mortality rate stands at 77 per 1000 and the maternal mortality rate at 303 per 100, 000 live births (Zimbabwe Central Statistical Office 1995).

Zimbabwe is one of the countries hardest hit by the HIV/AIDS epidemic. At least a quarter of the adult Zimbabwean population is living with HIV (WHO/UNAIDS 1998b). As in other countries in sub-Saharan Africa, the main mode of transmission is heterosexual sex. Having one of the highest levels of prevalence in the world means that Zimbabwe is going to lose even more years from one of the highest life expectancies in Africa. Between 1995 and 2000 this will amount to 19.4 years (United Nations 1999). It is expected that the country will lose almost 7 percent of its total population due to the disease and that population growth rates will be almost 1 percent lower in the period 2000-2015. Estimates show that the pandemic has produced almost half a million orphans since its beginning (WHO/UNAIDS 1998b).

iii. Zimbabwe's Population Policy

Zimbabwe has had family planning services since 1953, when volunteers provided this service. In 1965, the Family Planning Association of Zimbabwe was established to co-ordinate family planning services in the country, and from 1967, contraceptives were made available in government health centres (Zinanga 1992). Throughout the 1970s the provision of the service grew to include lay personnel, and in 1973, mobile clinics were introduced to cater for under-served areas. Since 1976, field educators were also allowed to distribute condoms and pills as a way of improving accessibility to family planning services. After independence, the family planning programme was integrated into primary health care and in 1981 the Family Planning

Association became a unit under the Ministry of Health (Zimbabwe Central Statistical Office 1995).

To make the provision of family planning services more acceptable, the name of the body organising family planning services was, in 1984, changed to the Zimbabwe National Family Planning Council (ZNFPC). The government announced that the aim was to provide family planning for the limitation of family sizes as well as a means of improving the welfare of children and women. Duties included promotion of family planning by providing information and services to all sectors of community. The ZNFPC also had a duty to train medical and paramedical personnel in family planning service delivery, and to procure contraceptives for the public sector facilities that supply contraceptives to hospitals and clinics (Zimbabwe Central Statistical Office 1995).

Zimbabwe's family planning services provision has been rated as very strong (Phillips et al. 1999). The strength of the ZNFPC is in the community based distribution programme (CBD) that began in 1976. Community based distributors are selected by their communities, trained on how to educate and motivate people on the benefits of family planning, re-supply established clients with pills and condoms in their homes and refer those in need of non-supply methods to local clinics (Zinanga 1992).

The ZNFPC also has under its wing the Medical/Clinical Unit, which is responsible for delivering services through static and mobile Clinics. There is the Information, Education and Communication Unit, the Training Unit which runs courses for family planning services providers and the Evaluation and Research Unit which keeps an inventory of family planning delivering health units and carries out a number of studies on family planning issues. Another unit that works under the ZNFPC is the Youth Advisory Services Unit. This was established in 1978 in an effort to reduce the number of teenage pregnancies.

Family Planning services are also provided privately, though this sector was still limited (Zinanga 1992). The system in Zimbabwe shows that most other countries in sub-Saharan Africa [like Tanzania] still have a lot to do to improve provision of family planning services.

Table 1.1: Socio-economic and Demographic Background: Tanzania and Zimbabwe.

Characteristics	Tanzania (1996)[@]		Zimbabwe (1994) §	
Population				
Population Size (in millions)	32.1 (mid 1998)		11.6 (mid 1998)	
Percent of population living in urban areas	22.3		19	
Crude Birth Rate (per 1000)	41.0 (1993-1996)		31.5 (1995-2000)✪	
Crude Death Rate (per 1000)✪	15.3 (1993-1996)		17.4 (1995-2000)	
Life Expectancy (in years)✪	47.9 (1995-2000)		44.1(1995-2000)	
Fertility and its determinants	*Female*	*Male*	*Female*	*Male*
Median Age at First Marriage (in years, for women 25-49 years old)	18	25*	19	25**
Knowledge of Modern Contraception (% among married)	87.7	92.8	98.5	99.7
Currently Using Modern Contraception (% among married)	13.3	15.8	42.2	54.4
Total Fertility Rate (children per woman)	5.8		4.3	
Mortality and Health Indicators				
Child Mortality / 1000 ($_5q_0$) 0-4 years before the survey	136.5		77.1	
Percent of Children aged 12-23 months fully vaccinated	70.5		80.1	
Percent of children under 5 malnourished ♦	31.0		16.0	
Percent of Births assisted by a doctor or trained person	46.7		86.6	
Socio-economic Attributes ♦				
Gross National Product (GNP) per capita (In $)	210 (1998)		610 (1998)	
Total Debt/ Gross Domestic Product (GDP)	89.4		82.9	
Total Debt Service/ Exports	13.5		20.8	
Access to safe water (percent of population)	49.0		36.0	
Illiteracy (percent of population aged 15 +)	28		15	
Gross Primary enrolment (percent of school age population)	67	66	119	82.9
Structure of the Economy (1998)				
Agriculture as a percent of GDP	46.3		18.1	
Industry as a percent of GDP	14.1		24.2	
Manufacturing as a percent of GDP	6.8		16.9	
Services as a percent of GDP	39.5		57.7	

Key: [@]Studies in Family Planning (1998) §Studies in Family Planning (1996)

✪United Nations (1998)'s projected medium variant, ♦ (World Bank 1999)

* For men aged 30-59 years ** for men aged 30-54 years

Figure 1: Maps of Tanzania and Zimbabwe: Administrative Regions and Zones
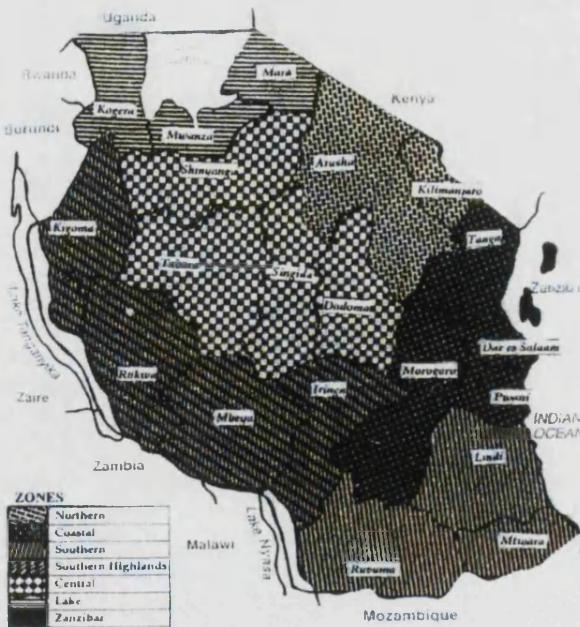
United Republic of Tanzania
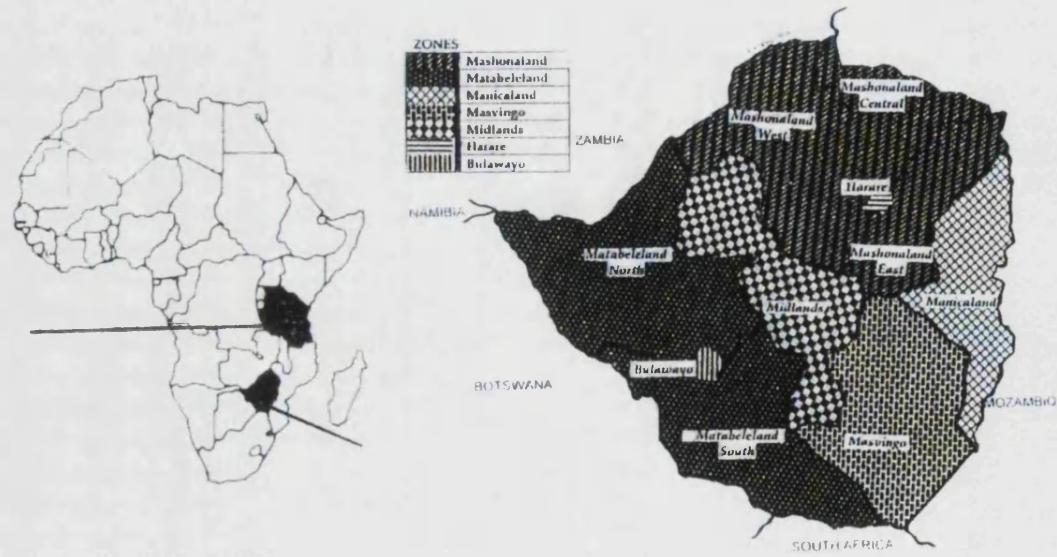
Republic of Zimbabwe

1.3 ORGANISATION OF THE THESIS

The aim of this thesis is to analyse data on male nuptiality, sexual behaviour and fertility in Tanzania, using the 1992 and 1996 Tanzania Demographic and Health Survey (DHS), and comparing this to Zimbabwe, using the 1994 Zimbabwe DHS. These surveys are described in more detail in Chapter Two. It has been found when looking at female demography that socio-economic characteristics, for example residence, education and religion lead to different marriage, sexual behaviour and fertility patterns. Given the socio-economic differences, it is therefore anticipated that the two countries will provide an opportunity to see how these differences affect male entry into marriage, the type of unions, sexual behaviour and fertility patterns. The thesis is divided into seven chapters. This introduction is followed by a brief chapter on the data, and the characteristics of respondents. Four extensive chapters, each covering one aspect of male demography follow this. Each chapter has an introduction, a literature review, a methodology section, and a results and discussions section.

Chapter Two presents the data that were used in analysis, the sampling procedure as well as the variables and the categories used. It also gives a brief description of the characteristics of respondents in the three surveys. This chapter also covers the reasons for using procedures that can take into account the design of the surveys that were used.

Chapter Three concerns family formation and therefore specifically looks at male entry into unions. It begins with an introduction and the importance of studying marriage patterns, and reviews problems that might be encountered when studying marriage in sub-Saharan Africa. It also covers methodologies in the analysis of timing of union formation. The chapter presents the results from analyses of timing of marriage, social and economic differentials in age at first marriage, and changes in the timing of first marriage over age cohorts. Discussion, and some conclusions follow the results.

Chapter Four explores marriage, but specifically looks at the type of unions that men enter into. The literature covers the variety of unions that can define a couple as married in societies in sub-Saharan Africa. Then methods in the study of polygamy are presented before describing the methods used in this thesis and

methodological considerations that had to be kept in mind during analyses. These are followed by results on prevalence, intensity and determinants of polygamy among men and results on the prevalence and determinants of polygamy and rank among married women. These results are followed by discussion and subsequent conclusions.

Chapter Five addresses male sexual behaviour. The main goal is to look at demographic and socio-economic characteristics of respondents that affect the age at first sexual intercourse, what differentiates the time between first sex and marriage, and describes the number of sexual partners that men have. Results on the trends in age at first sexual relations are followed by a discussion and conclusions reached.

Chapter 6 covers male fertility. The chapter starts with an introduction to fertility levels and trends in sub-Saharan Africa. There is a section on problems in studying fertility in general, as well as problems specific to the study of fertility for men. Then follows a section on methods in fertility analysis i.e. what methods are available and which tools were feasible and why. Results on children ever born and determinants of fertility follow. The chapter ends with a discussion and the conclusions arising.

Chapter 7 presents the overall conclusions and policy implications arising from this thesis. The first part of the chapter summarises the major findings, the second part looks at the implications for policy and the third part looks at recommendations for better survey and questionnaire design. The thesis ends with a section on suggestions for further work in the areas covered by this thesis.

2 Data and Characteristics of Respondents

Due to a number of reasons, traditionally demographic data was collected from women respondents only. As described in Chapter One, recent developments have necessitated changes in approach, and the availability of data taken directly from male respondents through recent surveys from the Demographic and Health Surveys (DHS) Programme, has made it possible to look at several aspects of male demography. This chapter presents the background to the data that were used in the analyses. A brief history of the data collected within the DHS programme is presented, followed by a section on how DHS data compares with its predecessors. This is followed by the description of the data collection process in Tanzania and Zimbabwe, covering issues of sampling procedures, as well as information on sample sizes. General data quality issues such as response rates, completeness of reporting and of age heaping are also raised. The chapter then describes characteristics of respondents in these surveys, together with a description of variables and categories that were used. The chapter ends with a note on what methodological aspects of analysis are likely to be affected by the design of the survey and what steps were taken to address this issue.

2.1 THE DEMOGRAPHIC AND HEALTH SURVEYS PROGRAMME

The data used in analyses for this thesis were collected under the Demographic and Health Surveys (DHS) programme. The DHS is a successor to another round of surveys, the World Fertility Surveys (WFS), undertaken in the 1970s and early 1980s, which collected data from women of reproductive age on fertility and child mortality and their determinants. The DHS programme is funded by the US Agency for International Development (USAID) and surveys are conducted by Macro International Inc. in collaboration with respective countries' statistical offices. These are nationally representative household surveys with relatively large sample sizes of about 5, 000 households, providing the means of measuring, and of monitoring indicators, in the areas of population, health and nutrition (Demographic and Health Surveys+ 2000d). A standard DHS survey has a household questionnaire and a woman's questionnaire, which is administered to women of reproductive age, covering background characteristics as well as modules eliciting information on fertility, fertility regulation, marriage, and health of children. In addition modules on consanguinity, female genital cutting, health expenditure, HIV/AIDS, men etc. might be included depending on the country's needs (Demographic and Health Surveys+ 2000a).

The DHS programme also conducts Interim Surveys, Baseline/Follow-up Surveys, Service Provision Assessments (SPA) and other surveys that target a special sub-group of the population. Interim Surveys focus on performance monitoring indicators, and are conducted between the rounds of standard DHS surveys. They tend to have shorter questionnaires. Baseline Surveys are even more limited than Interim Surveys and tend to be less standardised. Service Provision Assessments aim to collect information on health services and their quality, infrastructure and availability. The DHS also conducts specialised qualitative studies using methods such as focus group discussions, in-depth interviews, ethnography, role playing and story completion (Demographic and Health Surveys+ 2000b).

To date, five surveys have been conducted in Tanzania under the auspices of the DHS programme. The first DHS was in 1991/92 (men & women), followed by a Knowledge Attitude and Practice survey in 1994 (men & women), another survey in 1995 (women), and another in 1996 (men & women). An interim survey was

conducted at the end of 1999; men and women were interviewed (Demographic and Health Surveys+ 2000c). Zimbabwe has had three full DHS surveys, the first in 1988 (women and husbands), the second in 1994 (men & women) and the latest in 1999, covering men and women.

2.2 THE 1992 AND 1996 TANZANIA DEMOGRAPHIC AND HEALTH SURVEYS

The data used in this thesis come from the 1992 and 1996 Tanzania Demographic and Health Surveys. The Central Bureau of Statistics conducted both surveys with technical assistance from Macro International Inc.

The 1992 survey included questionnaires on the household, a questionnaire for women and a male questionnaire, which were designed following the Model Questionnaire B (Ngallaba et al. 1993). The aim was to have 7,850 completed interviews from women aged 15-49 that would allow separate analyses in urban and rural areas and which would also allow estimation of contraceptive use in all the regions on the mainland and in Zanzibar. About 9, 560 households were identified yielding a total of 7, 969 household interviews. Out of the households identified, one in four was selected for the male interviews and men aged 15-60 were interviewed. A total of 9, 238 women aged 15-49 were interviewed as well as 2,114 men aged 15-60. Pre-tests took place November-December 1990 and data collection was conducted between October 1991 and March 1992.

The 1996 Tanzania DHS was the third to be undertaken in Tanzania under the DHS programme. Nationally representative data were collected from 7, 969 households, 8, 120 women aged 15-49 were interviewed as well as a sub-sample of 2,256 men aged 15-59. Interviews took place between July and November 1996. As in the preceding 1992 survey, the major language of the survey was Kiswahili, which is spoken by the majority of the population.

The 1996 sample was selected from the same primary sampling units as the 1992 survey. The sample was designed to be self-weighing in all the regions of Tanzania Mainland and Zanzibar. The sampling procedure was three stage, first ward/branches were selected and then enumeration areas within wards and branches were selected (Tanzania Bureau of Statistics 1997). The third stage involved

selecting households from a list of households in the selected enumeration areas. One in every four households was selected for the men's survey apart from a few regions where men in every second household were selected for interviews. Questionnaires were similar to those of 1992, but in addition the women's questionnaire included questions on female genital cutting. Overall, response rates were 82.8 percent for men and 93.5 percent for women.

Characteristics of Respondents in Tanzania

Tanzanian society is predominantly rural and agricultural, and the socio-economic characteristics of its respondents reflect this. The smaller proportion who live in urban areas are involved in small-scale trade and commerce with a large proportion either employed in the civil service, or doing other clerical/ industry work. Despite the dismal economic situation, the level of literacy is quite high following the conscious efforts of past governments to provide primary education for all children and literacy classes for all adults. According to TDHS 1992, seventy-eight percent of men are literate and 42 percent have completed primary school. This marks a deterioration from 96 percent of all children enrolled in primary education in the late 1970s to a lower figure since the late 1980s where only 75 percent of children of school age are enrolled (Roy-Campbell 1992; Wangwe et al. 1998).

About half of all Tanzanians belong to the two major Christian groupings - Catholics and Protestants. Thirty-five percent are Muslims and the rest belong to Other religions that include traditional ways of worship. Most of those who fall in the 'Other' group live in rural areas (98 percent) and have not had formal education. There is a concentration of Muslims in Zanzibar, Coastal and Southern zones, and there is a concentration of those with Other beliefs in the Central and Lake zones. There are very few Muslims living in the Lake zone and very few Christians in Zanzibar. Religious intermarriage is common in Tanzania; 17 percent of couples in 1996 had partners of a different religion than their own.

Tanzanians belong to over 200 small tribes, although most of them are closely related with similar organisation of their societies and related languages. The degree of tribalism is also low due to past *ujamaa* policies. The two DHS surveys collected

information from more than 150 tribes but given the sample size this characteristic was not very useful in analyses.

2.3 THE 1994 ZIMBABWE DEMOGRAPHIC AND HEALTH SURVEY

Data for Zimbabwe are from the 1994 Zimbabwe Demographic and Health Survey (DHS), which is the second of a series of surveys taken by Zimbabwe's Central Statistical Office and the DHS programme. The survey used four questionnaires, the household questionnaire, the women's questionnaire, the men's questionnaire and finally a Service Availability questionnaire. The men's questionnaire did not include a birth history or the mother and child health set of questions that is usual for women's questionnaires.

The 1994 ZDHS used the 1992 Population Census as a sampling frame, selecting eighteen strata: urban and rural strata for each of the eight provinces in addition to Harare and Bulawayo. The sample was selected in two stages: First 230 Enumeration Areas were selected and households within listed, and from this list a sample of households in proportion to the size of the EAs was selected. All women aged 15-49 were eligible for interview, together with men aged 15-54 from households selected from a 40 percent systematic sub-sample of the main list of households. At the national level, the ZDHS sample is not self-weighting since the sample design allowed for an over-sample of smaller strata to make it possible to have indicators for provinces.

Questionnaires were pre-tested in April 1994 and data collection took place during a four-month period from July to November 1994. Data were collected from 5, 984 households out of the 6,483 that had been identified. A total of 6, 128, out of 6,408 identified eligible women aged 15-49, were interviewed. Of the 2,339 eligible men identified, 2, 141 men were interviewed. Among women the response rate was 96 percent and among men this was 92 percent. Refusal rates were less than 1 percent for both men and women, and amongst men, response rates were higher in rural areas where 93 percent of men were interviewed compared to 89 percent in urban areas (Zimbabwe Central Statistical Office 1995).

Characteristics of Respondents in Zimbabwe

Zimbabwe is economically more prosperous than Tanzania and the ZDHS 1994 household data show this. Ninety-nine percent of respondents were semi or fully literate and at least 90 percent of the male household population had a primary education. In Tanzania, almost 58.5 percent and 29 percent had primary and secondary education respectively while 1.9 percent had achieved higher levels of education. Exposure to the media is also more widespread as 38 percent of respondents watched television at least once a week, while 49 percent listened to the radio daily. Almost 63 percent of men live in urban areas. These percentages differ by residence and level of education but in general the access to the media is more developed. Unlike Tanzania, fewer than half work in agriculture (about 40 percent).

Twenty-eight percent of households have electricity (80 and 20 percent in urban and rural areas respectively) and almost 93 percent of urban households have water piped into their houses or plots (Zimbabwe Central Statistical Office 1995). Almost 18 percent of households in rural areas have piped water either to their houses or in their community. Ninety-six percent of urban households have either their own or a shared flushing toilet, but a little over half the rural households do not have a sanitation facility. Eighty-five percent of urban households have houses with cement floors, but only 41 in rural areas where almost 59 percent have earth or dung floors.

Most people in Zimbabwe belong to three main religious groups namely, Christian, Traditional and Spiritual. Almost 50 percent of the men are Christians (Catholic, Anglican, Protestants), 15 percent follow Traditional religions and 26 percent are Spiritualists {Zionist (not the Jewish political movement), Marange, Jekeniseni Churches} (Zimbabwe Central Statistical Office 1995). Spiritualists (also called Apostolics) differ from Christians or Traditionalists in that their belief is a mixture of the two. They, like other Christians, believe in the Bible but they also believe in faith healing and followers do not use modern medicines. Men are polygamous and adhere to strict sexual taboos on extra marital sexual relations (Gregson et al. 1996). About 9 percent of respondents belong to 'Other' religions, this includes all religions that are none of the above including Muslims and Jews.

2.4 THE QUALITY OF DEMOGRAPHIC AND HEALTH SURVEYS DATA

A number of studies have analysed the quality of data collected through the DHS programme. In a series of four papers, the Institute for Resource Development (1990) has looked at the quality of reporting in DHS-I surveys and found that the data suffered from problems that are typical of retrospective survey data. The review covered mostly data from women respondents. However they found that the errors were not so gross as to affect demographic estimates. The data problems identified were more severe in sub-Saharan Africa compared to Latin America and Asia.

For example, in assessing the quality of data used to ascertain eligibility and age in these surveys they found that there was evidence of eligible exclusion of women and this was greater in sub-Saharan Africa. Simulations show that this could in some countries lead to an underestimate of fertility and child mortality of about 4 percent. The Institute for Resource Development (1990) found that reporting of age at first sexual relations was relatively complete. On birth history data, conclusions are that measures of fertility and mortality were very close to those from other sources for the same periods and so they judged the data generally to be of good quality. There was nevertheless evidence of displacement of births. These findings were taken into account in the conducting of the second round of surveys.

Marckwardt and Rutstein's (1996) work used a number of DHS-II surveys to look at factors that could affect the quality of data of DHS surveys and compared the results with those of DHS-I and some WFS surveys. Among the issues they looked at were displacement of women and children at the boundaries of eligibility. In other words, they looked at the extent to which women aged 45-49 were classed as 50-54 or 15-19 year old women as 10-14 so as to avoid detailed questionnaires. In addition they looked at the displacement of birth dates of children outside the window of eligibility (extended health-related questions were levelled on mothers whose children were born after a certain date, usually in the last five years). They also looked at omission of births, distortions in the reporting of *de facto* status, and knowledge of dates of birth of respondents.

Such distortions could be a result of lack of knowledge of dates of events or due to interviewers distorting events so as to lighten their workload. The

repercussions of these distortions vary depending on the severity of the distortions; as well as the measure that one is trying to obtain. For example displacement of women 15-19 to 10-14 age group may not cause a large distortion of fertility levels, while displacement of births from five years to six years before the survey may seriously bias fertility and mortality measures. The presence of distortions was found to be more prevalent in sub-Saharan Africa compared to Latin America, for example. According to the Institute for Resource Development (1990), Zimbabwe's 1988/89 survey in many areas fared better in terms of data quality tests. Most importantly it had a very realistic age structure unlike other surveys in sub-Saharan Africa. In addition, the degree of digit preference was considerably lower than that in other surveys in sub-Saharan Africa; as for example the Myers index amounted to 10.8 compared to 30.6 for Ghana. (Myers Index is an index of preference for each terminal digit and representing the deviation from 10 percent). It also fared better in reporting of age at marriage (almost 77 percent of respondents gave full dates of timing of marriage), although the medians did not behave in the expected manner. The medians for older cohorts were higher than younger cohorts, which is a sign of mis-reporting especially by older cohorts (unless age at marriage is falling).

Marckwardt and Rutstein (1996) found that compared to WFS, apart from surveys in sub-Saharan Africa, most DHS-I and DHS-II fared very well as far as the degree of distortion at the boundaries of eligibility is concerned. However, not only is there substantial displacement for the 45-49 age group for surveys in sub-Saharan Africa, there is evidence that this has got worse compared to earlier surveys. Sub-Saharan Africa also shows substantial net loss of women due to misclassification of *de facto* status (10 percent in some countries) compared to 1 percent in some Latin American countries.

Marckwardt and Rutstein (1996) conclude that overall, there have been gains in the DHS-II round of surveys compared to DHS-I, mostly as a result of alterations to questionnaire design. For example changes on how the age at death of infants was obtained has greatly reduced the degree of heaping at 12 months, especially in sub-Saharan Africa. Extending eligibility from only women who slept in the house the night prior to the survey to usual residents who were away, greatly reduced the loss of respondents which occurred in DHS-I simply due to interviewers' efforts to

lighten the work load. Improvements in data quality, especially in reporting of ages at birth of respondents, and of children are also due to increasing levels of education and the expansion of birth and immunisation recording at health centres.

Cleland (1996) compared the DHS to one of its immediate predecessors, the WFS and concluded that the quality of both surveys data on birth histories has been good in most cases, with satisfactory coverage of deaths and births. This was not the expectation, given the pessimistic view that such data from largely illiterate populations would be of bad quality. Cleland (1996) also notes that the quality of information on infant mortality is very good. However, it is still true that compared to the WFS, the quality of event dating seems worse in DHS, due to reasons already mentioned above e.g. mis-reporting at the boundaries of eligibility.

2.5 THE QUALITY OF THE 1992 &1996 TDHS AND THE 1994 ZDHS DATA

A review of the literature on matters concerning data quality clearly shows that little has been done to assess the quality of reporting by male respondents, and what the possible implications could be. This is probably due to the fact that most of the issues of urgency in the area of population and health such as high fertility rates, contraceptive use and infant and child health are still being assessed from the women's questionnaire. This section looks at the more general data quality issues. Data quality that might specifically affect results on age at marriage, types of marriage, age at first sexual relations and male fertility will be covered in the relevant chapters.

Using the household populations, calculations show that for the 1992 TDHS, the age ratio at age 15 for women was 93 while for men it was 105. (The age ratio is the number of respondents in the reference group divided by the average of the number of respondents in the two immediately adjacent age groups * 100. Normally roughly equal number of respondents are expected in the three ages and the age ratio is expected to be closer to 100). At the upper boundary, it was 90.7 for women while for men the ratio was 139. That is, at the lower boundary, women were displaced outside the boundary of eligibility while for men there was an excess of men at the lower boundary. However, for the 1996 TDHS, the data quality section

shows that there is evidence of a strong displacement of respondents of both sexes to ages outside the boundaries of eligibility (Tanzania Bureau of Statistics 1997). Looking at the household population it is found that the age ratio for women at age 15 was 66 and for men 87, showing that more women than men were displaced to a lower age. For the higher boundary, the extent of displacement was similar and strong with a ratio of 59 for women and 58 for men. In Zimbabwe, calculations show that there is evidence of a larger displacement for women, at age 15 age ratios were 88 for women and 98 for men. At the upper boundary, it was 104 for men and 92 for women, showing that there was an excess of men at age 54 and a deficit of women at age 49.

All household data show that there is considerable age heaping among men and women. For the TDHS 1992, the degree of digit preference is not too severe, though for men the typical pattern of digit preference is apparent. Calculations show a Myers index of 7.93 for men, which is very similar to that obtained from the TDHS 1996 (Tanzania Bureau of Statistics 1997). The 1996 survey scored a Myers index of 9.3 for women aged 10-60 and 7.8 among men of the same age. In the Zimbabwe 1994 DHS, an eyeball test of the distribution of the household population for men shows that in comparison to Tanzania's DHSs there is a lower degree of digit preference. For women, only ages 30 and 40 show a very slightly higher proportion of ages than the ages above or below. Calculations show a Myers index of 4.42.

Completeness of reporting of current age by male respondents in the individual questionnaires shows large differences between the three surveys. As seen in Table 2, even between the two Tanzania surveys the difference is substantial. Generally, in the 1992 TDHS, a higher percent of respondents gave both month and year of birth compared to 1996. Overall, 82 percent of all men were able to give this information compared to 58 percent in 1996. This means that there was more imputation in 1996 than in 1992 since incomplete information has to be imputed. If completeness of date of birth were indicative of better quality, this result would mean that data quality was better in the 1992 survey. However, if respondents gave dates that were not correct this would not necessarily produce better quality data. What could cause such differences in reporting between the two TDHS? The large difference might be due to a difference in interviewing techniques, and one could speculate that having found the 1992 data quality poor, interviewers were

discouraged to accept current ages as correct unless interviewees were definite in their responses.

For Zimbabwe, almost every man was able to give both month and year of birth. In both countries, there are differentials in completeness of information, for example the percentage of older men who were able to give the full information is lower than among younger men. In Zimbabwe there are large differentials by zones of residence with the more rural Masvingo having a considerably lower percentage of men who gave full information, compared to an urban area such as Harare or Bulawayo. There are also clear differentials by levels of education, which are to be expected.

Figure 2.1 provides a graphical presentation of the distribution of men according to reported current ages. It is clear that there is some heaping at some of the expected ages. For example, respondents in all the three surveys favour age sixteen. In Zimbabwe, age 22 stands out, especially because the adjacent ages have a smaller percentage of men. Other ages that show heaping are 24, 28 and age 30, and this is true for all the three surveys.

Table 2.1: Distribution of Men: Completeness of Reporting of Current Age.

Characteristics	Month & Year	Year & Age	Characteristics	Month & Year	Year & Age	Characteristics	Month & Year	Year & Age
TDHS 1992			TDHS 1996			ZDHS 1994		
All Men	82.11	14.34	All Men	58.29	41.30	All Men	96.55	2.92
Age			Age			Age		
15-19	74.73	21.23	15-19	69.34	29.96	15-19	98.53	1.29
20-29	84.24	13.46	20-29	65.64	34.26	20-29	99.54	0.31
30-39	89.35	9.19	30-39	57.03	42.79	30-39	96.39	3.12
40-49	84.13	10.85	40-49	47.03	52.13	40-49	89.09	9.29
50-60	76.84	16.16	50-60	32.22	67.18	50-60	88.20	9.88
Residence			Residence			Residence		
Urban	77.95	20.18	Urban	64.24	35.52	Urban	99.56	0.44
Rural	83.60	12.26	Rural	56.43	43.09	Rural	94.76	4.39
Zones			Zones			Zones		
Northern	82.12	14.71	Northern	48.10	51.90	Manicaland	97.81	2.19
Coastal	82.70	14.22	Coastal	49.76	49.50	Mashonaland	98.14	1.86
Southern	80.58	15.01	Southern	41.03	58.56	Matabeleland	94.00	5.72
S. Highlands	86.44	9.41	S. Highlands	68.44	31.22	Midlands	95.90	4.10
Central	77.56	18.10	Central	67.10	32.60	Masvingo	83.36	11.22
Lake	87.35	10.89	Lake	68.34	31.35	Harare	100.00	0.00
Zanzibar	62.68	31.80	Zanzibar	37.61	60.53	Bulawayo	99.59	0.41
Religion			Religion			Religion		
Muslim	73.34	23.42	Muslim	48.07	51.43	Traditional	95.37	4.63
Catholic	87.17	9.22	Catholic	58.89	40.55	Spiritual	97.60	2.02
Protestant	87.71	9.46	Protestant	67.90	31.74	Christian	98.39	1.51
Other	83.29	11.44	Other	62.91	37.09	Other	84.88	10.78
Education			Education			Education		
0-3 years	77.09	17.19	0-3 years	36.79	62.14	0-3 years	75.71	19.36
4-6 years	81.36	15.22	4-6 years	52.04	47.56	4-6 years	96.01	3.68
7-8 years	84.08	12.78	7-8 years	63.63	36.16	7-8 years	98.73	1.27
9+ years	86.48	12.45	9+ years	80.88	18.59	9+ years	99.80	0.20

Figure 2.1: Distribution of Men by Current Age

Tan92   Tan96   Zim94

41
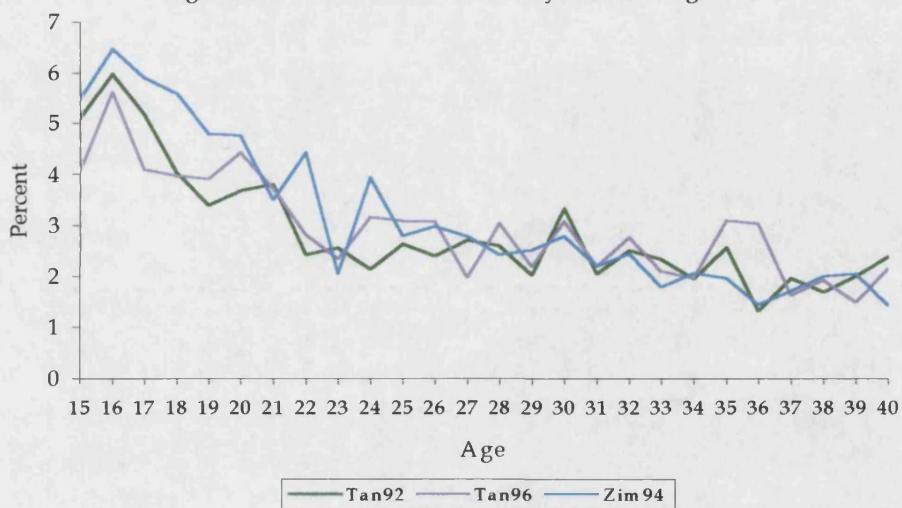
2.6 VARIABLES AND CATEGORIES USED IN ANALYSES

Variables were chosen because they were found to have an influence on the demographic issues that are covered in this thesis. These were selected following the literature review, which is at the beginning of each chapter. The grouping of variables is sometimes the natural grouping, others were chosen with category size in mind. Groups in Tanzania do not necessarily have the same meaning in Zimbabwe. For Tanzania, analyses using couples' data used only the 1996 survey. It was suspected that some of the 'matched' men and women in the 1992 survey might actually not be husband and wife, but men and women in one household. This was because the age differences between spouses were not credible, for example a large percentage of women where more than 20 years older than the men they were matched with.

The most basic of characteristics is age and its categorisation mostly depended on considerations for adequate numbers in the groups so as to get robust estimates. In some cases (e.g. calculation of the Singulate Mean Age at Marriage, SMAM), the conventional five-year age groups were used. In other analyses ten-year age groups were used (e.g. trends in age at first sexual relations) and in other analyses (e.g. determinants of age at first marriage), age was grouped as 20-25, 26-34, 35-44, and 45-60. Whenever unconventional age groups are used, a mention of it will be included in the methodology section of the necessary chapter. For example, in Chapter Six where analysis is based on couples, these were classified first by age of husband and second by age of wife in that union. When classified by age of husband there are two categories: one where the husband is less than forty years old and the other where the man is aged 40 or over. When classified by wife's age there are also two categories: where the wife is aged 29 or under and where the wife is aged 30 and over.

Religion and its categories is one variable that is very different between the two countries. In Tanzania, religion is made up of four categories: Muslims, Catholics, Protestants and 'Other'. The two Christian groups were not grouped into one category 'Christian' because it was felt that they might have different patterns of behaviour. The original Christian Missions to Tanzania monopolised certain areas more than others and the teachings of the two groups on conception tend to be

different. 'Other' in Tanzania is mainly made up of those following 'traditional' religions, which will include animists and ancestor worshipping. In Zimbabwe, there are also four groups, Christian, Spiritual, Traditional and Other. The 'Other' in Zimbabwe is made up of those respondents who follow none of the three religions. Most of the respondents in the 'Other' category in Tanzania are therefore largely the equivalent of the Traditionalists in Zimbabwe.

Place of residence is categorised in various ways: first as a simple categorisation of current residence, second as a respondent's childhood place of residence and third as a combination of current and past residence. The last variable which is labelled 'Current-Past Residence' has four and sometimes three groups showing whether a respondent has changed his residence between childhood and current residence. This means that the four categories are: always urban, always rural, ex-rural and ex-urban. In some analyses those who have moved to or from one type of residence are grouped into one category, this is the case when data on couples is used and so even broader groups are necessary. It is important to note that some individuals might have been born in an urban area, for example, moved to a rural area and then be found again in an urban area at the time of the survey. For Zimbabwe, residence is categorised as Harare & Bulawayo (the main urban centres), other urban and rural.

In Tanzania, zones of residence were constructed with geographical proximity, and with cultural similarities as well as comparable group size in mind. Tanzania has twenty-five administrative regions, twenty on the Mainland and five on Zanzibar, which were grouped into the seven zones as shown in Figure 1. While efforts were made to collect the most similar regions into the same zones, this was not necessarily the result. Tanzania has more than 200 tribes and languages and some of these tribes can be found on different sides of regional boundaries.

Zimbabwe has nine administrative regions (Masvingo, Manicaland, Midlands, Matabeleland North, Matabeleland South, Mashonaland East, Mashonaland West, Mashonaland Central and Harare), and these were grouped into 5 zones. Unlike Tanzania, Zimbabwe has two major tribal groups within which there are variations in the languages spoken. The major two tribes are the Shona and the Ndebele. The Shona people speak Ndau, Shangani, Zezuru, Korekore etc. and are

mainly found in the Mashona zone. The Ndebele are found in Matabeleland and they speak Ndebele, Kalanga etc. In Manicaland are found the Manyika. Zones in Zimbabwe fairly represent tribal divisions in the sense that all the Mashona administrative regions are grouped under one zone of Mashonaland, and the same is true for the Ndebele. However, this does not mean there are no people from the other tribes migrating to other areas.

For the analysis of couples' fertility, (see Chapter Six), zones had to be grouped into broader zones since looking at couples considerably reduced the sample size. As a result, Tanzania Coast stands for North, Coastal and Zanzibar zones, South stands for South and Southern Highlands and Lake stands for Lake and Central. In Zimbabwe, Manicaland and Midlands form one zone; Mashonaland (including Harare and the other Mashonaland regions) and Matabeleland (which included Bulawayo and the other Matabeleland regions) form the remaining two.

Levels of literacy in Tanzania are grouped in three categories, those who can read easily, those who can read with difficulty and those who cannot read at all. In Zimbabwe there are only two groups, those who can read easily and those who can either read with difficulty or not read at all. This is because given very high rates of literacy, these last two groups are smaller in Zimbabwe than in Tanzania.

Education systems in Tanzania and Zimbabwe are very similar though the participation is different. Both countries require seven-year-olds to attend school until they complete their Primary education, which lasts for seven years. Primary education is followed by Secondary education, which is made up of Ordinary Level and Advanced Level, with the O-Level lasting four years and A-Level lasting two years. University education follows secondary education, but there are other channels that people can take after primary or secondary education, for example opting for technical training schools or other vocational training schemes. In both countries, education is categorised into 0-3, 4-6, 7-8 and 9 or more years of education, and occupations are grouped into those working in agriculture and those in non-agricultural occupations.

Information on how variables and categories for the main topic e.g. marriage, age at marriage, and age at first sexual relations were categorised is presented in the methodology section of each chapter.

Table 2.2: Percentage Distribution of Respondents by Background Characteristics.

Background Characteristics		Background Characteristics		Background Characteristics	
TDHS 1992		**TDHS 1996**		**ZDHS 1994**	
Age		*Age*		*Age*	
15-19	23.6	15-19	21.60	15-19	28.2
20-24	14.6	20-24	16.4	20-24	18.7
25-29	12.4	25-29	13.4	25-29	13.5
30-34	12.1	30-34	12.1	30-34	11.2
35-39	9.5	35-39	11.1	35-39	9.1
40-44	7.5	40-44	9.1	40-44	8.9
45-49	7.3	45-49	6.6	45-49	5.2
50-54	6.0	50-54	5.2	50-54	5.3
55-60	6.1	55-59	4.4	-	
Marital status		*Marital status*		*Marital status*	
Ever Married	61.68	Ever Married	61.78	Ever Married	52.45
Never Married	38.32	Never Married	38.22	Never Married	47.55
Type of Union		*Type of Union*		*Type of Union*	
Monogamous	83.84	Monogamous	86.15	Monogamous	91.59
Polygamous	16.16	Polygamous	13.85	Polygamous	8.41
Place of Residence		*Place of Residence*		*Place of Residence*	
Urban	20.06	Urban	27.30	Urban	31.81
Rural	79.94	Rural	72.70	Rural	68.19
Zones		*Zones*		*Zones*	
Northern	9.41	Northern	12.81	Manicaland	8.36
Coastal	18.92	Coastal	25.89	Mashonaland	32.55
Southern	12.91	Southern	12.15	Matabeleland	17.38
Southern Highlands	17.98	Southern Highlands	15.82	Midlands	10.93
Central	19.96	Central	19.59	Masvingo	8.87
Lake	15.89	Lake	8.95	Harare	10.60
Zanzibar	4.92	Zanzibar	4.79	Bulawayo	11.30
Education		*Education*		*Education*	
No Education	20.10	No Education	12.94	No Education	4.10
Primary Incomplete	30.13	Primary Incomplete	28.99	Primary	40.20
Primary Complete	41.58	Primary Complete	46.94	Secondary	51.70
Secondary +	8.18	Secondary +	11.13	Higher	4.00
Religion		*Religion*		*Religion*	
Muslim	35.43	Muslim	37.19	Traditional	14.90
Catholic	28.10	Catholic	30.72	Spiritual	26.80
Protestant	21.57	Protestant	21.76	Christian	49.50
Traditional/None	14.90	Traditional/None	10.33	Other	8.70
Access to mass media		*Access to mass media*		*Access to mass media*	
Read Newspaper weekly	58.75	Read Newspaper weekly	29.20	Read Newspaper weekly	59.70
Watch Television weekly	5.53	Watch Television weekly	21.38	Watch Television weekly	41.00
Listen to radio weekly*	76.02	Listen to radio weekly*	55.21	Listen to radio weekly	51.20
Occupations		*Occupations*		*Occupations*	
Agriculture	67.58	Agriculture	60.52	Agriculture	23.77
Non-agricultural	21.25	Non-agricultural	25.98	Non-agricultural	45.17
Not Employed	11.17	Not Employed	11.76	Not Employed	31.06

*daily for TDHS 1996

2.7 SURVEY DESIGN AND APPROPRIATE METHODOLOGY

The data used in these analyses came from surveys that involved clustering, stratification and sample weights in their design. These three attributes of survey design have an effect on the estimates obtained from data such as these. Issues concerning appropriate methodology were addressed and therefore analyses took account of sampling weights, clustering and stratification.

It is important to include sampling weights in order to get unbiased estimators for the population. Sample weights correct for unequal selection probabilities and hence for a respondent sample weights equal the inverse of that respondent's probability of being interviewed. Accounting for the clustering attribute of the survey is important in order to take into account the fact that observations were not sampled independently. Most standard regression commands assume independence of observations, and so might produce misleading confidence intervals and test statistics.

Analyses in this thesis mostly used the statistical software STATA, which has a collection of commands that consider sample design, i.e. 'svy' commands (Stata Corp. 1999). 'Svy' commands handle stratified and clustered sampling with sampling weights and hence compute standard errors more accurately. In testing the significance of coefficients, 'svy' commands use t-statistics with n-L degrees of freedom, where n equals number of sampled primary sampling units and L equals the number of strata. Non-'svy' commands use z-statistics. 'Svy' commands in STATA produce adjusted Wald tests, which is an important adjustment when n-L is small.

In addition, 'svy' commands in STATA can compute design effects indicators, (*deff and deft*). *Deff* is a ratio that tells us how the variance estimate is affected by the design of the survey. *Deff* is obtained by dividing the design-based variance estimate by an estimate of the variance that would be obtained if a similar survey were conducted using simple random sampling. *Deft* is the square root of *deff.*

3 Family Formation

For most societies, entry into marriage signals the beginning of exposure to childbearing. This chapter looks at differentials and trends in entry into marriage for men. It begins with an introduction on the importance of studying marriage patterns, and reviews difficulties that are usually encountered when studying marriage patterns in sub-Saharan African societies. There follows a literature review that covers determinants of age at marriage for women and men as well as trends that have been observed in this region. The methodology section first reviews literature on the methods of studying of entry into marriage, then presents the methods that were used in the analyses and ends with a section on the quality of data on age at marriage. The chapter then presents results on the timing of marriage, socio-economic differentials in ages at first marriage and finally the results on trends in age at first marriage. The results show that age at marriage is, as expected, later for men than women. There are no large differences in the rates of entry into marriage between the two countries. There are suggestions that age at marriage is rising but data quality prevents definite comments. Finally, a discussion and conclusion section looks at how these results compare with the literature.

3.1 FAMILY FORMATION IN SUB-SAHARAN AFRICA

Demographers are interested in family formation because it is usually within marriage where most childbearing occurs. Marriage is especially important for sub-Saharan Africa societies because of the importance of children for companionship, for lineage continuation, as a source of labour and for security in old age (Bledsoe and Isiugo-Abanihe 1989). In these societies people marry in order to have children; a union without children is an unsuccessful one, bound to be dissolved or to result in other unions. Childbearing starts soon after marriage, though in some societies proof of capability to produce children in the form of premarital conceptions may be sought and may act as an accelerator to marriage (Hill and Marindo 1997). Thus for many societies in sub-Saharan Africa the process of entry into marriage is of great importance to the whole study of fertility, especially since contraceptive use is still low in most areas.

Marriage for women in sub-Saharan Africa used to be described as 'early and universal' (Bongaarts et al. 1984). Though the 'early' part is now subject to variability, the universal part remains largely true. Age at first marriage varies from 17 to 22 or even higher: Throughout the region the proportion of 25-29 year old women who are still single is about 5 percent (or less) and declines further after this age. Currently, celibacy does not play a big role in declines in fertility, but it is nevertheless anticipated that future rises in age at first marriage have more potential to reduce fertility given that contraceptive use within marriage is still low. As most societies in sub-Saharan Africa go through social, economic and political changes, it is anticipated that these will affect marriage patterns and hence fertility. Changing nuptiality patterns might also have implications for premarital fertility in cases where factors causing ages at marriage to rise might also provide more sexual freedom for women and extend the period between menarche and marriage.

Entry into marriage and the proportions married are important not only as determinants of fertility. Age at marriage for women has implications for the health of women and for the children born in unions where the mother is too young. There are also social implications when girls marry too young as they lose opportunities for further education. In sub-Saharan Africa, there has not been a great deal of research in the implications of early marriage. For Britain, young ages at marriage have been

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linked to parents' marital dissolution (Kiernan 1986; Murphy 1985), the same is true for Colombia, Panama and Peru (Goldman 1981). Another association with young ages at first marriage is that this builds the mechanism that maintains polygamy (Casterline et al. 1986). Not much is known about age at marriage for men, and the social or economic implications, if any, of a young age at marriage for men.

3.1.1 Difficulties in the Study of Marriage Patterns

The study of marriage in sub-Saharan Africa is subject to problems, ranging from those culturally specific to this region, to those arising from the absence of a culture familiar with dates. This section first reviews a problem that is specific to sub-Saharan Africa i.e. that of definition of marriage; then moves to problems of knowledge of dates of demographic events that are more general.

i. Definition of marriage

The major problem of defining marriage in sub-Saharan Africa concerns marriage being a process rather than a single event and so creating complexity as to when exactly one can be defined as married. In sub-Saharan Africa the time from when a man shows his intention to marry, to the bride moving to the man's residence may take anything from a few months to a number of years. The time in between is punctuated by negotiations, gift exchanges and ceremonies which represent different 'stages' of the marriage process (van de Walle and Meekers 1994). Though this has been documented as a problem, authors like Isiugo-Abanihe, stress the fact that this issue is confusing only to outside researchers and not to the people themselves for whom it is always very clear whether one is married or not, '...The event called marriage is indeed a remarkable one, involving not only two families but also their villages or towns. Such an event is, therefore, too distinctive for any woman to mistake or confuse it with any of the process that brought it about' (Isiugo-Abanihe 1994).

Another problem that might complicate the definition of entry into marriage concerns the variety of the types of unions that exist in sub-Saharan Africa. These differentials not only reflect different cultures but are also a result of changes brought in by modern religions, colonialism, migration and other socio-economic

changes. As will be seen in the literature review in the following chapter, there are currently many ways that a couple can be legally married in sub-Saharan Africa. A review of customary declarations shows that while many ways to marry exist, there are many similarities between tribes or societies.

The study of nuptiality and specifically that of trends and cross-country comparisons is made complicated by the usage of different definitions of marriage in different demographic surveys. This problem is twofold; first is the use of definitions that are inappropriate for certain societies. For example, the DHS definition of marriage as the time a man and a woman first cohabit (a measure of exposure to childbearing) might be inappropriate for societies where sexual relations precede co-residence, as in parts of sub-Saharan Africa. For such societies van de Walle (1993), has gone as far as to question the relevance of marriage in determining the exposure to childbearing.

Second are the complications that arise when an inquiry uses a different definition from inquiries in the past. For example questions regarding marriage in censuses differ from those posed in surveys such as the WFS or the DHS. Most surveys ask questions referring to the first union, but some might refer to the most recent union, making it hard to compare experiences since the experiences in a first union are very different from those in the second and later unions. Also when inquiries in different countries use different definitions or when interviewers in different parts of the country understand the questions differently, this makes comparisons within a country or between countries and analyses over time very difficult. Van de Walle (1993) gives examples of the problems of definitions of marriage found in the DHS conducted in sub-Saharan Africa, and how questions in different surveys can indicate trends or differentials that are not really there. For example the 1971 and 1981 Botswana censuses, and the 1984 and 1988 surveys show contradictory pictures of the trends in age at marriage for women. Van de Walle puts this down to the two different ways the questions are asked; in the 1984 survey the question asked was 'Have you ever had a partner?' While in 1988 survey the question asked was 'have you ever been married/ lived with a man/woman? '. The 1984 elicited a younger age at marriage that is within the range for women in sub-Saharan Africa while the census data showed a much higher age at marriage.

The other issue concerns the standardisation of questionnaires. As the literature reviewed in the next chapter will show, there are many ways to define marriage. By standardising questionnaires it is hard to see how one can fully get the information that is needed to get rates of marriage as is defined in a particular society.

ii. Knowledge of Dates of Demographic Events

Further issues that affect the quality of results relating to marriage are linked to the problem of lack of knowledge of dates. As in most developing countries, the numerical knowledge of ages is not important in the day-to-day life of most people in sub-Saharan Africa. In many instances the dating of events is not in the same format as is in other parts of the world. For example among the Masai age is measured by the age set to which one belongs, and in the effort to get a numerical response, the information collected will in most cases have age mis-reporting errors.

Date errors are also introduced when there is proxy reporting, such as when the head of a household responds to questions about other family members. This can distort data by causing age heaping at ages ending with 0 and 5, as the proxy reporter might not know the exact ages. Errors can also be introduced when a respondent's appearance, marital status, parity or husbands' ages (in the case of women) are used as a yardstick to measure age. If a woman is married she is likely to be assigned a higher age and this is reversed if a woman is unmarried. Evidence shows that associated attributes are more often used to gauge a woman's age or status than is the case for men (Lesthaeghe et al. 1989).

In cases where respondents do not give satisfactory answers imputation of dates is used and not much is known about how imputation affects the results from such data. Also in surveys, the interview procedure is bound to introduce biases if for some reason those households, or respondents included in the sample, are different from those who are not. As seen in Chapter Two, this could happen by interviewers deliberately misrepresenting ages so as to avoid full interviews, either to save time or to avoid embarrassing questions, or when respondents themselves misreport ages so as to avoid the full interview (Marckwardt and Rutstein 1996).

The problem arising in analysis is that errors in reporting of events might not be randomly distributed among women of different ages, education levels or other socio-economic characteristics. Younger women are more likely to remember the dates of events than older women, or more likely to be more educated than older women and urban residents might be able to fall back on registration certificates which rural women can not. Specific to DHS surveys, the quality of data on age at first marriage varies considerably. For countries in East, Southern and North Africa, between 58 and 86 percent of women provided complete information on date at first union but only about 6 percent of women in West Africa could give the date when they were first married. For those who cannot supply the information this data was imputed. There is no information on how exactly ages were obtained when respondents did not know the dates of their birth.

The DHS Methodological Reports (1990), shows that in six out of the nine surveys conducted in sub-Saharan Africa included in the report, fewer than half of the women were able to report their date of birth. Using the Myers Index, the report found that among the twenty-two developing countries considered, there is some tendency for all nine countries in sub-Saharan Africa to have higher levels of age heaping. (Myers Index measures the amount of preference for ages ending in certain digits by comparing the proportions ending in each of the ten digits with the expected proportion of 10 percent). In addition, for eighteen of the twenty-two countries, there was evidence of exclusion of women beyond the upper age limit and this was most pronounced in sub-Saharan Africa. For this reason, older women in rural areas are more likely to be excluded than are urban women and this might explain why the percent rural in the 50-54 age groups would be higher than that in the 45-49 age group. There is also evidence of mis-statement in the lower age boundaries. The best quality of age reporting was found in Latin America and the Caribbean.

It is therefore important to keep in mind the potential pitfalls when looking at data on marriage and to keep in mind that changes in marriage patterns might be unreal.

3.1.2 Age at First Marriage for Women

Hajnal (1965) points to the existence of two types of marriage patterns. The first, is the European pattern, believed to have existed in Northwest Europe since the seventeenth century, characterised by late marriage for men and women and a high degree of celibacy. The second type is the non-European pattern, characteristic of most developing countries, which is characterised by early marriage with little or no proportion remaining single. While the non-European pattern fits many of the developing countries, there is a lot of variation as Dixon (1971), using 57 countries' census data (1948 – 1964), found. Eleven of the data sets for females did not fit the rules of the European pattern or the non-European pattern as described by Hajnal (1965). That is they had an early age at marriage but high proportions remaining celibate.

Bongaarts et al. (1984) found the non-European pattern to be true for many sub-Saharan African societies, where the early age at marriage for women and a high degree of widow/divorcee remarriage create a system whereby most all women of reproductive age are in potentially productive unions. For sub-Saharan Africa, Bongaarts et al. (1984) also described the variability in the ages at first marriage such as to present a geographical pattern. Using the most recent data at the time, they reported that the average age at marriage for women varied between 17 and 22, being lower in West Africa, higher in the East, and intermediate in central and coastal areas around the Bight of Benin and the Gulf of Guinea.

Singh and Samara (1996) present a more recent picture on the variations in age at marriage for women in different countries. Using DHS data from forty countries they presented ages at marriages for developing countries along with some examples from France, Japan and United States. They find that a general statement can be made that women in sub-Saharan Africa do marry early. However, there is still a lot of variation, for example the median age at marriage ranges from 15.1 years in Niger to 24.8 in Namibia and 23.9 in Botswana. For most of the countries the median ranges from 16 to 19 years, with Tanzanian women having a median of 17.9 in the 1992 TDHS (Ngallaba et al. 1993), and 18.4 in the 1996 TDHS (Tanzania Bureau of Statistics 1997).

Countries in North Africa and the Middle East are not very different from many in sub-Saharan Africa. Yemen in 1991/92 for example had a median age of 15.8, Tunisia had the highest at 21.1, Sudan in 1989/90 had a median of 17.8, Egypt in 1992 a median of 18.5 and Jordan in 1990 and Morocco in 1992 had median ages of 19.7 and 19.6 years respectively. In Asia, Singh and Samara (1996) also found that the lowest median ages were in Bangladesh, where in 1993/94 the median age at first marriage was 14.1, and in India in 1992/93 where it was 16.1 years. Ages at first marriage were higher in other Asian countries such as the Philippines, Sri Lanka and Thailand, which have higher median ages all above twenty years i.e. 21.4, 22.4 and 20.5 years respectively. Ages at first marriage in Latin America also show a lot of variation ranging from 18.6 years in Guatemala in 1987 to 21.2 years in both Colombia in 1990 and Brazil in 1986 (Singh and Samara 1996).

3.1.3 *Age at First Marriage for Men*

Separate studies that have looked at age at marriage for men are not widely available because traditionally surveys covered women only. Where such data are available accounts of men's age at marriage are usually mentioned as a by-product of research on women's nuptiality patterns. A study that included a full analysis of data on men is that by Dixon (1971), which concluded that the two patterns as described by Hajnal (1982) are not really applicable to men. Looking at whether those societies with early marriage also have universality of marriage, and whether those with later ages at marriage also have a high proportion never marrying, Dixon found that for women this was indeed the case for a number of societies, while for men this pattern rarely applied. This shows that it is necessary to study patterns of marriage for men separately since one can not easily infer the experience of men from that of women.

It is mostly from anthropological writings describing pockets of the vast area of sub-Saharan Africa that one can learn more about men's ages at marriage. From these sources one could deduce that age at marriage for men has always been higher than women's. This is partly a result of the social organisation of this region where the elders in society formulated ways to control production as well as reproduction. The construction of age set systems, with each age set responsible for different productive economic activities such as herding or defence, and the formulation of

rigid rules defining when one was ready for reproduction both helped to maintain a large pool of unmarried young men. This also created a surplus of young women who could only be married to men who qualified i.e. older men.

The result of such a system meant that Kurya men of North West Tanzania for example, were not to marry before the circumcision ceremony that took place when the men were aged between twenty and thirty years old. However, this is no longer the case since men now are circumcised as early as their late teens (Rwezaura 1985). Another example is that of the Parakuoy Masai who married many years after circumcision, which took place in their late teens to mid-twenties, although again this has been changing (von Mitzlaff 1988). Though there was a delay in getting married, almost all men eventually got married as shown in the study on the Peul Bande of Senegal among whom only severely disabled or infirm men remained celibate throughout their lives (Pison 1986).

While anthropological studies are a good source of information on marriage, they unfortunately explain the patterns of small groups, which might be peculiar in character (which is indeed the reason they were studied to begin with). Such findings cannot be generalised given the diversity of cultures in sub-Saharan Africa. The Masai or Kurya cultures and ways of life as described are not representative for all of Tanzania let alone sub-Saharan Africa, although they provide a valuable benchmark. In short, there is a deficiency of literature that is based on work on analysed data on male patterns of marriage. Indeed not much is known about the determinants of male patterns of marriage apart from the fact that men are usually much older than the women they marry.

The work of Lesthaeghe et al. (1989) on nuptiality patterns in sub-Saharan Africa used available data to draw a map of proportions single for men and women. For women, Lesthaeghe et al. (1989) found that there was a clear geographical distinction of low and high ages at marriage such as that described by Bongaarts et al. (1984), but for men the pattern differs very much from that of women. Significantly, there was a Central North-South strip of early marriage for males (less than 25 years) which extended into East Africa. Looking at the data for an individual country such as Tanzania, the areas, which in this thesis are classified as Northern and Coastal zone, had the highest SMAM (Singulate Mean Age at Marriage: defined as the

number of years lived in the single state prior to age fifty by those who do marry prior to age fifty) of between 25.3 and 26.5. Relatively high SMAMs of between 24 and 25.2 are found in most of Central, the Southern and Southern highlands (apart from Kigoma and Rukwa which have SMAMs similar to those in the Lake, Tabora and Shinyanga regions). The only countries where the male and female patterns show late marriage (a high SMAM for both men and women) are South Africa, Botswana and Namibia, where male SMAMs were higher than 26.6 years. No data for Zimbabwe were analysed but there is good reason to speculate a late age at marriage given that all her neighbours have high SMAM.

Another study that has looked specifically at men is that on patterns of marriage among Zairean men in Kinshasa (Magnani et al. 1995). They found that age at marriage for men was around 24.9 years and that marriage was near universal with less than 1 percent of men aged forty and over never married. However, the average age at marriage for men in Kinshasa calculated by Lesthaeghe et al. (1989) is considerably lower than what would have been expected given the descriptions about the lateness of marriage (Rwezaura 1985; von Mitzlaff 1988; Mair 1971).

3.1.4 Determinants of Age at First Marriage

Differentials in age at marriage between societies exist because of the different social, cultural and economic characteristics of the different areas. While many factors have been identified as determinants of age at first marriage, it is not always the case that different societies will respond to situations and changes in the same way. This makes the study of nuptiality for specific areas very important.

To encourage later age at marriage some governments have legislated a minimum age at marriage for men and women. For example in Tanzania, the minimum age at marriage for girls is fifteen years and eighteen years for men (Government of Tanzania 1971). Though this might help in raising the age at marriage, one could speculate that in most of sub-Saharan Africa, people might not adhere to such a law either because they are not aware of the regulations or because they feel the rules are not justifiable. Many societies see a girl as old enough to marry when she has had first menses or has developed breasts, which is interpreted as a sign that

a girl is ready for childbearing (Cory 1953; Cory 1955; Cory and Hartnoll 1971; Lockwood 1998; Kenyatta 1979; von Mitzlaff 1988).

One of the most important factors in differentiating ages at first marriage is education. Education delays marriage via different mechanisms. In countries such as Tanzania where all children aged seven have to start primary school, this has the potential to keep students at school until at least age fifteen when they have completed seven years of primary education. Education also works in 'Westernising' people such that ideas are acquired about a way of life that is incompatible with early marriage, for example ideas about wealth acquisition and consumerism; a way of life which is largely impossible without further education. In addition, education empowers women to be able to say 'no' to familial pressure to marry; being at school could provide the necessary justification to resist parental pressure to marry early. Additionally, educated women are more likely to be using contraceptives and hence cutting down the chances of premarital pregnancies that might lead to early marriage.

Another factor that leads to differentials in age at first marriage in sub-Saharan Africa is urbanisation, where a number of factors such an employment in the modern sector, education opportunities, and the mixture of people of different backgrounds and exposure to a different way of life come together. Evidence of the effect of urbanisation on age at marriage is provided for example by Isiugo-Abanihe (1994), who found that urban areas in Nigeria have a SMAM three years higher than to rural areas. There was a difference of 10.8 years in the SMAM between women who had no schooling and those who had tertiary education, 3.5 years with those who had primary and 7.3 years with those who had secondary. In a multivariate model the results showed that those with some primary education married earlier than did those with no education. This might be due to the fact that girls who drop out of school might be pregnant and this might precipitate a quick marriage, or it may possibly mean that men might prefer women with at least some education to those with none.

Religion is another factor that affects the age at which men and women marry. In sub-Saharan Africa it is often the case that Muslim women tend to marry at a younger age than Christian women (Isiugo-Abanihe 1994). This is partly because

Muslim women are likely to attend only Koran schools that last fewer years than other forms of education. Lesthaeghe et al. (1989) found that in several of the countries they looked at, there was a clear slope in age at marriage according to whether women had Koranic education (or were illiterate) or had some years of formal education. In Tanzania, amongst women aged 25-29, those who were illiterate or had only Koranic education had a SMAM about 4 years lower than those with 8 or more years of education. In sub-Saharan Africa, Christians marry later largely because of the link between Christianity and the schools that were started by missionaries as an inducement to attract followers. Those with traditional religions marry early because they are more likely to live in settings that encourage early marriage. They are mostly rural residents who might have strong inclinations to maximise their fertility by early marriage.

The effect of religion on demographic variables might not be uniform throughout sub-Saharan Africa. As Lesthaeghe (1989a) documents, religions such as Christianity have had different impacts on local customs depending on the denomination of Christianity and the resistance put up by societies that wanted to preserve their way of life. In some places evangelising religions managed to merge with traditional systems of belief with resulting religions that are unique to those areas. Even Islam in many ways has mixed with the local culture and religions and Muslim practices and beliefs are not the same all over sub-Saharan Africa. A good example are the Spiritualists (or Apostolics) in Zimbabwe and other parts of Southern Africa, who have combined Christianity with traditional beliefs (Gregson et al. 1996). It might therefore be unwise to make general statements regarding the effect of religion on age at marriage.

Furthermore as regards the differentials in age at first marriage in sub-Saharan Africa, Bongaarts et al. (1984) concluded that at that time, the main explanation for differentials lay in diverse cultures. This was because in the 20-30 year period they covered they found little evidence that age at marriage had increased (apart from Kenya). The cause of the differential was therefore judged to be cultural. Given recent data, the picture seen by Bongaarts et al. (1984) has changed. In many countries age at first marriage for women has been rising, and so education,

religion and urbanisation might make a difference in ages at which people marry (Hertrich and Pilon 1998).

3.1.5 Trends in Age at First Marriage for Men and Women

There has, in recent years, been a debate on changes in ages at marriage and how this might be contributing to the falling fertility in sub-Saharan Africa. Authors such as van de Walle (1993) have been more sceptical of the rise in age at first marriage in sub-Saharan Africa due to concerns regarding errors in age at first marriage data. He points to inappropriate use of data from consecutive surveys and censuses that use different definitions of marriage complicating the interpretation of observed trends. At the time his article was written, the latest information from censuses conducted in the mid-late 1980s was not yet available for some countries in sub-Saharan Africa. Therefore for many countries it was not possible to make consecutive inquiries that used the same definitions. Van de Walle (1993) cautions about interpretation of results even when census data were available, as they would not be directly comparable to survey data.

Another deficiency in studies that look at trends is in the tools of analysis. Most studies of age at first marriage use the SMAM as the major tool of analysis of trends. One of the major assumptions important in the calculation of SMAM is that age at first marriage has been constant. If age at first marriage is changing then the calculated SMAM will represent the changing experiences of the different cohorts that make up the hypothetical cohort used. The result in such cases would be either an under or over-statement of the mean age at first marriage depending on whether age at marriage has been falling or rising. In general, van de Walle (1993) finds that analysis using the DHS data tends to overestimate the SMAM.

One of the few countries for which van de Walle (1993) observes a genuine rise in age at first marriage among women is Tanzania. Using the 1988 census data to look at the trend from 1978 onwards, he found that the proportion single for females is increasing, and that the difference in SMAM between the two censuses is 1.4 years, which he judged as a very large increase. For males the increase was 0.9 of a year, and this prompts the question of whether in some countries in sub-Saharan Africa, ages at which men marry have been changing in the same way as like those of

women. Recent work by Hertrich and Pilon (1998) has found that age at marriage for girls has risen, but still remains low in Niger and the Islands of Sao Tome and Principe where age at first marriage is below 17.5. Only in Cape Verde, Burundi, Comores and Mozambique has age at first marriage for girls fallen. Transition for men is less pronounced as in only eight of the thirty-two countries examined did age at first marriage increase by more than a year a decade. Nevertheless, one study did not find any clear trend in age at first marriage for either men or women (Magnani et al. 1995). They speculate the reason for this is poor data quality.

It would be valid to expect ages at marriages for men to be rising given the adverse economic conditions in most of sub-Saharan Africa. This is one explanation that is given by Hertrich and Pilon (1998) for the changing patterns of marriage in Africa, though conversely, age at first marriage among men is among the highest in one of Africa's economic successes, Botswana. On the other hand, declines in polygyny and the breakdown of other cultural restrictions might actually be lowering the ages at which men first marry. Indeed von Mitzlaff (1988) reports that Parakuoy Masai men have in more recent years been able to marry earlier given the weakening of the age set system and the growth of monetary economy which enables adventurous young men to acquire wealth through trade and then acquire wives earlier in their lives. This used not to be the case among the Masai, among whom a young man could only acquire wealth by inheriting from his father or receiving bequests from his mother (cattle that she owns upon marriage).

3.2 DATA AND METHODOLOGY

This section first reviews the literature on methods used in the analyses of age at first marriage, proportions ever married, trends in age at first marriage and multivariate analysis of the determinants of age at first marriage. Then follows a section on the tools of analysis, an examination of how surveys define marriage and how useful the questions on marriage are in explaining patterns of entry into marriage. Finally data quality issues regarding completeness of reporting of age at marriage and regarding heaping at certain ages and how these might affect the final results are presented.

3.2.1 Methods in the Analysis of Entry into First Marriage

While a variety of ways exist to study entry into marriage, choice of method is usually limited by the type of data at hand as well as by the complexity of the methods involved. One of the most basic measures is Hajnal's Singulate Mean Age at Marriage (SMAM), which uses current status data (Hajnal 1953). There is also life table analysis that is useful when one has censored data, plus other measures that summarise information such as the mean and the median, which give the average age at marriage and the age by which fifty percent have married, respectively. There are also a number of multivariate models that can be used to study determinants of entry into marriage.

i. The Singulate Mean Age at Marriage (SMAM)

The Singulate Mean Age at Marriage measures the average number of years spent in the single state by those who do eventually marry. Assumptions have to be made that marriage patterns by age have been stable over time (and so there is a consistent fall in proportion single with age) and that there is no differential in mortality or in migration by marital status. These assumptions allow one to treat the different age groups at the time of the inquiry as a real cohort, with the experience of each age group representing the experience of a cohort over time. The work by Hajnal (1953) calculated the SMAM using census data on proportions single or ever married, but it is possible to use the same principles with current status survey data on current age and whether one has ever been married or not.

The formula for the SMAM is:

$$\text{SMAM} = \frac{\sum\limits_{0}^{49} S_i - 50 * \left(\frac{S_{49} + S_{50}}{2} \right)}{1 - \left(\frac{S_{49} + S_{50}}{2} \right)}$$

where S_i is the proportion single at age i.

SMAM is therefore calculated in the following steps:

1. Proportions never married at each single year of age up to age 49 are added.

2. An average of proportions that never married by age 50 is obtained by adding the proportions still single at age 49 and 50 and dividing by two. This is then multiplied by 50.

3. To get the proportion that does marry the proportion still single at age 49 and 50 is deducted from 1.

Step 1 gives the number of person-years lived in the single state between birth and age 50 i.e. ΣS_i. By subtracting the result of step 2 from step 1 we get the number of years lived in the single state by those who do marry by age 50, since they had been included in step 1. Dividing by the proportion that does marry by age 50 gives an estimate of age at first marriage (SMAM) (Hajnal 1953).

There is an alternative way to calculate the SMAM. For most populations in sub-Saharan Africa there is in general a very strong correlation between SMAM and proportions still single for women 15-19 (PSW) and for men 20-24 (PSM). So for women SMAM(f) = 15 + 16.5 * PSW and for men SMAM(m) = 16.0 + 13.33 * PSM (Lesthaeghe et al. 1989; Dixon 1971).

The main advantage of using the SMAM is in the ease of its calculation and simple data required, compared to measures that use reported ages at first marriage. However it is not immune to age mis-statements and is liable to give a misleading picture when the assumption that proportions single are stable over time does not hold. The SMAM summarises a lot of information into a single number, making it useful for comparing several comparisons.

ii. The Mean and the Median

The median age at marriage is a more robust measure of location of marriage as it gives the age at which 50 percent of a cohort has married. It is based on retrospective reporting on age at first marriage, and therefore does not include those who will never marry, though this is not a major concern in most of sub-Saharan Africa where virtually everyone ultimately marries. However, where this is not the case the median is calculated without taking into account the proportion that will never marry and might not give a true picture. Van de Walle (1993) demonstrated this when he looked at Kenya and Botswana women's median ages at first marriage. While in Kenya almost everyone marries this is not the case in Botswana and so using the overall median in Botswana distorted the age at first marriage. Normal procedure is to calculate the median as the age by which 50 percent have married, but van de Walle limited the computation to the proportion that will ultimately marry. While the new median for Kenya was not very different to before (as almost all women

marry) the median for Botswana dropped by two years. The median also tends to be younger than the mean because of the way in which marriage ages are distributed.

In the study of trends in age at first marriage, caution is needed when one uses the median to compare younger and older cohorts. In societies where data quality is poor it has been found that the oldest and youngest cohorts tend to have a higher median than the middle cohorts (van de Walle 1993; Smith 1980). This may reflect the pattern of errors where older cohorts report age at formal marriage and not ages when they first started living with a partner, as well as non - reporting of informal unions that did not last. In surveys where living together arrangements are defined as marriage, younger respondents might be assigned a younger age at marriage while respondents who have moved on from living together to formalised unions are assigned a higher age at marriage.

ii. Life Table Analysis

Life table analysis is useful in dealing with the censored nature of age at marriage data. In the analysis of marriage, life tables use data on the age at marriage for ever married respondents and current ages for respondents who are still single at the time of the survey. Life table analysis provides the rates of entering into a union by certain ages, for example, giving the proportion of all respondents that are married by age 15, 20, 25, 30 etc. This allows a year by year and age by age analysis, since in addition to looking at whether the women in a certain age range are married or not, life tables also show at what age the union took place. Life tables are useful in the study of trends, as they allow an analysis of the proportions married by a certain age in the different age cohorts.

The rates of marriage $_nq_i$ for each age range are calculated as follows: taking age fifteen as an example, then the probability of marrying or the marriage rate for this age ($_{15}q_0$) is the proportion of women who are aged fifteen or over at interview marrying up to exact age 15. For marriage rates for the next interval – e.g. fifteen to sixteen we have to exclude women who have married by age fifteen and those aged less than sixteen at interview. The marriage rate, $_1q_{15}$, is then the proportion marrying between fifteen and sixteen among women aged sixteen and above who, had not married by fifteen.

The probability of marrying by age sixteen is then the sum of the probability of marrying by age fifteen and the probability of marrying between age fifteen and sixteen for those unmarried at age fifteen who are aged sixteen and over, this is the cumulative proportion married by age sixteen i.e.

$$_{15}q_0 + (1 - {}_{15}q_0) . {}_1q_{15}$$

which is the sum of the chances of marrying by age fifteen plus the chances of marrying between fifteen and sixteen for those not married by age fifteen

Rates for later ages are found in the same way and the expression for the cumulative proportion can be described as:

$$1 - (1 - {}_{15}q_0)\sum_{15}^{max}(1 - {}_1q_i) \quad \text{(Smith 1980).}$$

While life tables are a more sophisticated way of looking at entry into marriage and differentials by characteristics, again the accuracy of the measures obtained depend on the accuracy of reporting of ages and timing of marriage or dates of other events.

ii. Multivariate Methods for the Determinants of Age at First Marriage

A number of useful multivariate models that can help in understanding the effect of different variables on entry into unions exist. Different researchers choose to model age at marriage in different ways depending on the data available and the degree of sophistication that certain methods require. It is possible to look at marriage through an exploratory approach, i.e. by expressing information found in the data in an algebraic formula. Others model marriage by first considering prior knowledge and experience of how certain variables affect marriage.

For marriage among women a lot of work has taken into account the distribution of marriage by age. Examples are the models designed by Coale (1971), and Coale and McNeil (1972), and then further developed by Rodriguez and Trussell (1980). The Coale and McNeil equation expresses the risk of entering marriage as being made up of a random variable part which represents the age at which women first become available for marriage. The second exponential part represents the delay between becoming available for marriage and meeting the partner, between meeting the partner and the engagement and between the engagement and getting married.

The Hernes (1972) model of proportions ever married assumed that members of a cohort face two opposing forces. As the proportion ever married in a cohort increases, the pressure to marry among the unmarried increases. At the same time their marriage-ability declines as they grow older, i.e. marriage-ability declines with age and the pressure to marry is directly proportional to the proportion of the cohort ever married by age a, G(a).

Hazard models measure the risk of an event happening over certain duration and can be described as models of life tables with covariates added in. Since age at marriage data (from census or retrospective surveys) is of a survival nature (i.e. there is censoring of events, some of which will happen to some respondents after the interview), it is not symmetrically distributed. This means that a different procedure is required, as one cannot use standard statistical procedures to analyse such data. If d is duration and λ (d) is the risk, then in hazard models (unlike in life tables where all respondents are assumed to have the same risk), this risk is assumed to vary according to the characteristics of respondents. The risk for a respondent is made up of a component that is shared by other respondents [u (d)] and the proportionality multiplier that is a specific to respondents with certain characteristics [C_i (d)].

$$\lambda_i (d) = u(d) * C_i(d)$$

In such models it is not only interesting to get the combination of the effect of these explanatory variables, it is also useful to get an estimate of the hazard function itself e.g. obtain quantities such as the median survival time (Collett 1994).

Trussell and Bloom (1988) describe an example of a hazard or rate model that can be used to study the determinants of age at first marriage. This is the proportional hazards (Cox) model, which is a special case of hazard models used under the assumption that C_i (d) does not depend on d. This means that the covariates which move the risk for an individual up or down have the same proportional effect at all durations. The Cox model therefore treats an event as a hazard by looking at the relationship between the survival experience of respondents and explanatory variables. The aim is to see which of the explanatory variables have an impact on the survival times. By assuming that there is some unknown baseline hazard or risk function underlying the process being analysed, the effect of covariates is proportionally to increase or decrease the risk of an event happening. It is because of this proportionality assumption that the Cox model is not appropriate

for modelling first entry into unions. This is because the risks to marriage, as determined by covariates of marriage, are not proportional over time.

McDonald and Diamond (1992) present a method for analysing event history data when the information from respondents is censored both on the right and left i.e. current status with covariates model. They proposed several ways of analysing the effect of covariates on current status data; and using age at menarche as an example, they demonstrated how it is possible to use a proportional hazards and an accelerated life model. Such a model could be adopted to study current status data on marriage.

Other models that can be used to study multivariate determinants of entry into marriage are probability models such as those used to analyse ages at which childbearing begins (Kiernan and Diamond 1983). To predict ages at first birth, conditional probability models of starting childbearing in a particular age group (given that the respondent was childless at the beginning of an age group) were used. The logistic model is based on the logistic function:

$$F(z) = \frac{1}{1 + e^{-z}}$$

such that when z = - ∞ then F (z) moves towards 0 and when z = + ∞ then F(z) moves towards 1, where z is an index of combined risks.

The model follows a probability that is always between 0 and 1; this is a desirable characteristic. The model is obtained from the function by expressing z in a linear form:

$$z = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k$$

where x_i are the independent variables of interest and α and β are constant terms representing unknown parameters.

Substituting the sum of the linear expression for z into the function f(z) gives:

$$f(z) = \frac{1}{1 + e^{-\left(\alpha + \sum_{i}^{k} \beta_i x_i\right)}}$$

Where $x_i, \ldots x_k$ are observation of certain independent variables) for a group of individuals, grouped as to whether they have a certain characteristic (1) or not (0), i.e. the independent variables are being used to look at the probability of having a certain status or not. One can then present the above as a conditional probability statement:

$$P(D = 1 \mid X_1, X_2, \ldots, X_K) = \frac{1}{1 + e^{-\left(\alpha + \sum_{i}^{k} \beta_i x_i\right)}}$$

i.e. the probability of having a certain status given a group of independent variables.

The α and β terms are unknown quantities that have to be estimated from the data. For convenience $P(D=1 \mid X_1, X_2, \ldots\ldots X_k)$ equals $P(X)$, $(D=\text{outcome})$ and so the logistic model can be summarised as:

$$P(X) = \frac{1}{1 + e^{-\left(\alpha + \sum_i^k \beta_i x_i\right)}}$$

The model can be fitted using the maximum likelihood method to get the estimated probability of a person or group of people characterised by a group of independent variables having a certain status (0 or 1). Logistic models are very popular in demography and are used in different types of analysis such as age at first intercourse, age at first marriage, and other demographic events that can take the form of a probability (for example child mortality).

3.2.2 Methods Used in the Analyses

Three of the methods described in section 3.2.1 above were chosen for data analysis. The information on current status was used; as well as self-reporting of age at first marriage (or current age if this information is censored i.e. the respondent was still single at interview).

Current status information was used to look at initiation into unions in the form of proportions still single in five-year age groups, and by socio-economic characteristics. The same information was used to calculate the SMAM, using a programme SMAM (McCaa 1997). An assumption was made that the percentage never married consistently falls with age and whenever this was violated, the value of the proportion never married for the cohort before is assumed. This might prompt the reader to be less confident about some of the results obtained for SMAM.

A more robust technique for analysis is life table analysis, which was used to look at the proportions ever married by selected ages. Differentials by socio-economic characteristics were examined by focusing on the age group 25-39 at the survey date. The resulting marriage rates were also summarised into percentiles, where the 25th percentile gives the age at which 25 percent of respondents had married. The 50th percentile (the median) giving the age at which half the respondents had married and the 75th percentile gave the age at which 75 percent had married. Life table analysis was also used to look at trends in age at first marriage by looking at the proportion of cohorts aged 20-29, 30-39 and 40-49 (at the

survey date) who had been married at different ages. For all differentials in marriage rates, tests for homogeneity of marriage rates were used to see whether the differentials could have arisen by chance. These were the log-rank and the likelihood ratio tests. The log-rank test for homogeneity calculates the log-rank statistic for comparing survival curves of two or more groups. For the likelihood-ratio test for homogeneity, let d_g, $g=1,...,G$ be the total number of events (marriages) in each group and define

$$T_g = \sum_{i \in g} \tau_i \qquad \text{where i indexes the individual failure or censoring times}$$

The $\chi 2$ value with G-1 degrees of freedom is given as:

$$\chi 2 = 2\left[\left(\Sigma d_g\right)\ln\left(\frac{\Sigma T_g}{\Sigma d_g}\right) - \Sigma d_g \ln\left(\frac{T_g}{d_g}\right) \right]$$

The log rank procedure in STATA produces a table showing the number of actual and expected events for each group. The hypothesis that the survival curves are the same is tested using the χ^2 statistic (Stata Corp. 1997).

The log-rank test was also used. This starts with the null hypothesis that risk of initiation into sexual relations is the same for two (or more) groups. It is then expected that the same number of events at any one time will be evenly distributed between the two groups depending on the proportion at risk (tied observations get an adjusted treatment), i.e.

$$E\left(d_{jA}\right) = \frac{n\,'Ad_j}{n_j} \qquad var\left(d_{jA}\right) = \frac{d_j\left(n_j - d_j\right)n\,'An_{jB}}{n_j'^2\left(n\,'-1\right)}$$

The log-rank test first ranks the survival times (observed and censored) in rank order and the difference between the observed number of events and those that were expected is evidence against the null hypothesis. Summing up over all the times of deaths, j gives:

$O_A = \Sigma\, d_j A$

$E_A = \Sigma\, (d_j A)$

$V_A = \Sigma\, var\, (d_j A)$

The test statistic for the equivalence of the rates in two groups is approximately a χ^2 distribution and is given by:

$$\chi_1^2 = \frac{(O_A - E_A)}{V_A} \qquad \text{or as} \qquad \chi_2^2 = \frac{(O_A - E_A)^2}{E_A} + \frac{(O_B - E_B)^2}{E_B}$$

(Armitage and Berry 1994).

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As described in Section 3.2.1 above, logistic regression models were used to look at the determinants of age at first marriage by looking at which characteristics affect the probability of getting married after age 18, 20, 24 and 28. For example, for the probability of marrying after age 18, only those men who were eighteen and over are included in the analysis. They are divided into those whose age at first marriage is at or below eighteen and those who are still single or their age at marriage is after age eighteen, and similarly for other ages. The survey logit command in STATA was used, and results are presented in odds ratios rather than coefficients.

3.2.3 Methodological Issues and Constraints

This section first looks at matters to do with the appropriateness or adequacy of the definitions of marriage used in the three surveys, the possibility of changes in definitions between the two surveys for Tanzania and the extra questions on marriage that were included in the survey. The second part deals with data quality i.e. the quality of reporting of age at first marriage.

i. Definitions of Marriage

Definitions of marriage used in the 1992 and 1996 TDHS are very similar. The questions are also very similar to those in ZDHS, with Zimbabwe putting little emphasis on the difference between formal and non-formal unions. For Tanzania, it is unlikely that the different ways the questions were asked in the two surveys could lead to differentials in how initiation into marriage is recorded.

Tanzania DHS 1992	Tanzania DHS 1996	Zimbabwe DHS 1994
Q1: Have you ever married or lived with a woman? (Yes or No).	Q1: Are you currently married or living with a woman? (Yes, married, Yes, living with a woman or Not in a union).	Q1: Are you currently married? (Yes or No).
Q2: Are you now married or living with a partner or are you now widowed, or divorced or no longer living together?	Q2: Have you ever married or lived with a woman (Y N)	Q2: How many wives do you have?
		Q3: Does (Do) your wife (wives) live in this household?
Q3. How many wives do you have?	Q3: What is your marital status now, are you widowed, divorced or separated?	Q4: If not currently married men where asked whether they have ever been married or lived with a woman.
Q4: How old were you when you started living with your (first) wife or partner?	Q4: How many wives do you have?	Q5: What is your marital status now: are you widowed or divorced?
	Q6: In what month and year did you start living with your (first) wife or partner?	
	Q7: How old were you when you started living with her?	Q6: In what month and year did you start living with your first) wife? And,
		Q7: How old were you when you started living with her?

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Another difference in the design of the three surveys is that they all had different upper age limits, 60 years for Tanzania 1992, 59 years for Tanzania 1996 and 54 years for Zimbabwe 1994.

ii. Data Quality

Completeness of reporting is usually taken as indicative of good data quality. Table 3.1 below shows the variations in completeness of age at marriage questions, giving the percentage of men who were able to give both the month and year and those who gave year of marriage only. The remaining proportion gave responses in either month only, age only, month and age only, or could not give any date at all. For those who responded in any of these other formats, and for those who gave year only, the necessary information was imputed.

As for the reporting of current age, completeness of reporting was better in Zimbabwe than in Tanzania. In both countries, more complete information was provided by younger than older men. The difference by place of residence is bigger in Zimbabwe than in Tanzania, and in Tanzania, Zanzibar stands out as having a very small percentage of men who could give both month and year of marriage. In Zimbabwe, a smaller percentage of men in Masvingo could give both month and year of marriage than in other zones.

The distribution of men by age at first marriage shows that there is a considerable difference in data quality between the surveys although for Zimbabwe and Tanzania 1996 the data is smoother than for Tanzania 1992. There is evidence of considerable heaping in the reports of age at marriage for the 1992 Tanzania survey, and unusually the 1996 TDHS shows some avoidance of the popular ages. The 1994 ZDHS shows very little of the typical pattern of heaping at the common ages and there is an avoidance of age 18. As Figure 3.1 shows, the data for Tanzania in 1992 display a very erratic pattern and considerable heaping at ages 18, 20 and age 25. Table 3.2 shows how certain ages have considerably more respondents than the adjacent ages, and how this differs by survey. Given that it is not known what proportion of ages were imputed in 1992, one could speculate that, as in the reporting of current age, there might have been more imputation in 1996 than in 1992. If completeness signifies better data quality then we should expect better

quality results in Zimbabwe than in Tanzania. However, the fact that most people were able to name the date does not mean that they could give the correct date and so one could still find problems in such data. As the smoothest data is likely to have been heavily imputed, this does not necessarily make the data better quality.

Cumulated ages also show a different picture between the Tanzanian surveys as age at marriage is always earlier in 1992 than in 1996. Why this should be the case is only speculative (might be a real change) since as the section above shows, the questions that were asked in the two survey are not sufficiently different to lead to such a differential. It is likely that in the 1992 survey, men are reporting more on consensual unions while in 1996 men are reporting on the ages that they formally got married. Indeed, as will be seen in Chapter Three, the percentage of men in consensual unions is considerably lower in 1996 compared to 1992. For some zones, the change between the two surveys is very large, making one question whether interviewers were instructed differently in the two surveys.

Table 3.1: Completeness of Age at Marriage Reporting: Distribution by Format of Responses.

Characteristics Tanzania 1996	Month & Year	Year Only	Characteristics Zimbabwe 1994	Month & Year	Year Only
All Men	73.76	22.50	All Men	86.74	11.58
Age			Age		
15-25	87.43	10.22	15-25	97.35	1.99
26-34	79.95	16.57	26-34	93.04	6.48
35-44	74.48	23.25	35-44	82.17	15.91
45-59	59.28	34.24	45-54	76.30	19.62
Residence			Residence		
Urban	71.50	26.06	Urban	93.47	5.59
Rural	74.38	21.51	Rural	81.81	15.97
Zones			Zones		
Northern	65.77	25.53	Manicaland	92.12	6.78
Coastal	66.55	30.31	Mashonaland	89.91	8.75
Southern	70.47	25.32	Matabeleland	76.12	21.50
Southern Highlands	86.67	10.47	Midlands	72.66	26.57
Central	74.31	23.96	Masvingo	58.83	34.44
Lake	81.69	16.03	Harare	99.27	0.00
Zanzibar	30.34	55.79	Bulawayo	90.48	7.48
Religion			Religion		
Muslim	63.65	31.85	Traditional	82.81	13.63
Catholic	78.12	19.20	Spiritual	91.00	8.17
Protestant	83.02	12.90	Christian	89.63	9.79
Other	71.31	24.81	Other	66.44	27.06
Education			Education		
0-3 years	55.32	36.72	0-3 years	67.98	25.07
4-6 years	69.06	26.29	4-6 years	84.36	13.79
7-8 years	81.97	16.38	7-8 years	84.64	14.26
9+ years	77.37	18.04	9+ years	96.04	3.96

Table 3.2:Distribution of Men by Age at First Marriage.

Percentage Distribution				Cumulative Percentage Distribution			
Age	Tanzania1992	Tanzania1996	Zimbabwe 1994	Age	Tanzania 1992	Tanzania 1996	Zimbabwe 1994
15	1.01	1.58	0.53	15	1.66	2.26	2.24
16	2.00	1.31	0.98	16	3.65	3.57	3.22
17	2.29	3.78	2.62	17	5.94	7.35	5.84
18	10.49	4.54	2.99	18	16.43	11.89	8.83
19	6.93	6.11	4.07	19	23.36	17.99	12.90
20	13.72	7.29	7.50	20	37.08	25.28	20.4
21	5.85	9.07	9.51	21	42.93	34.35	29.91
22	8.82	9.73	10.5	22	51.76	44.07	40.41
23	5.19	8.58	9.88	23	56.95	52.65	50.28
24	4.80	8.26	8.91	24	61.75	60.92	59.20
25	12.06	6.98	8.14	25	73.81	67.90	67.34
26	4.52	6.11	5.89	26	78.33	74.01	73.22
27	3.55	4.79	6.51	27	81.88	78.80	79.73
28	3.18	4.48	3.51	28	85.06	83.28	83.24
29	3.20	3.47	3.78	29	88.27	86.75	87.02
30	3.65	2.90	2.51	30	91.91	89.65	89.53
31	0.74	1.43	2.22	31	92.65	91.08	91.75
32	1.44	1.64	1.84	32	94.09	92.72	93.59
33	0.34	0.96	0.99	33	94.43	93.68	94.58
34	1.37	1.11	0.54	34	95.79	94.78	95.12
35	0.91	0.75	0.87	35	96.70	95.53	96.00

Table 3.3: Index of Heaping at Age a:

	18	20	25	30
Tanzania 1992	159	155	133	169
Tanzania 1996	95	97	106	98
Zimbabwe 1994	94	107	105	106

$$\text{Index} = \frac{P_a}{\frac{1}{3} \sum_{a-1}^{a+1} P_a}$$

Shryock et al. (1976)

Figure 3.1: Percent Distribution of Men By Age at First Marriage
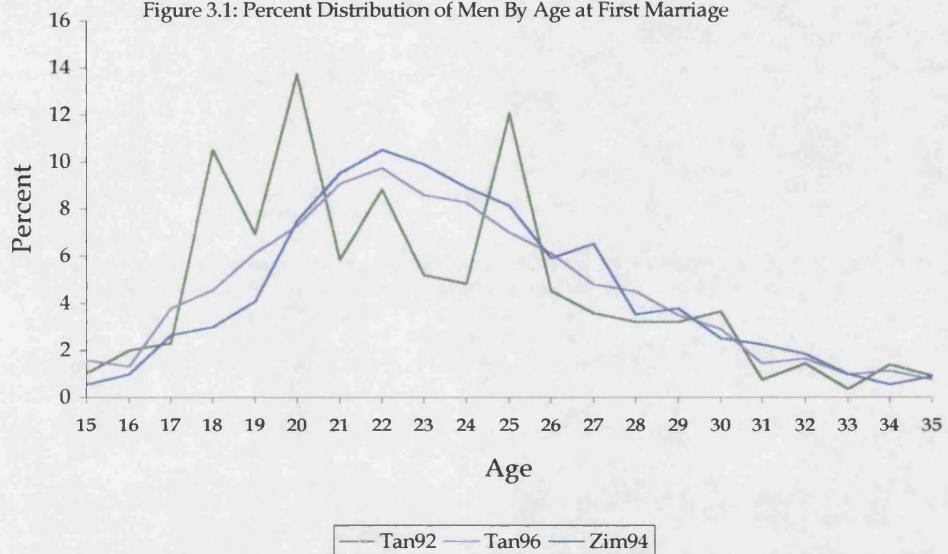
Figure 3.2: Cumulative Percent of Men by Age at First Marriage
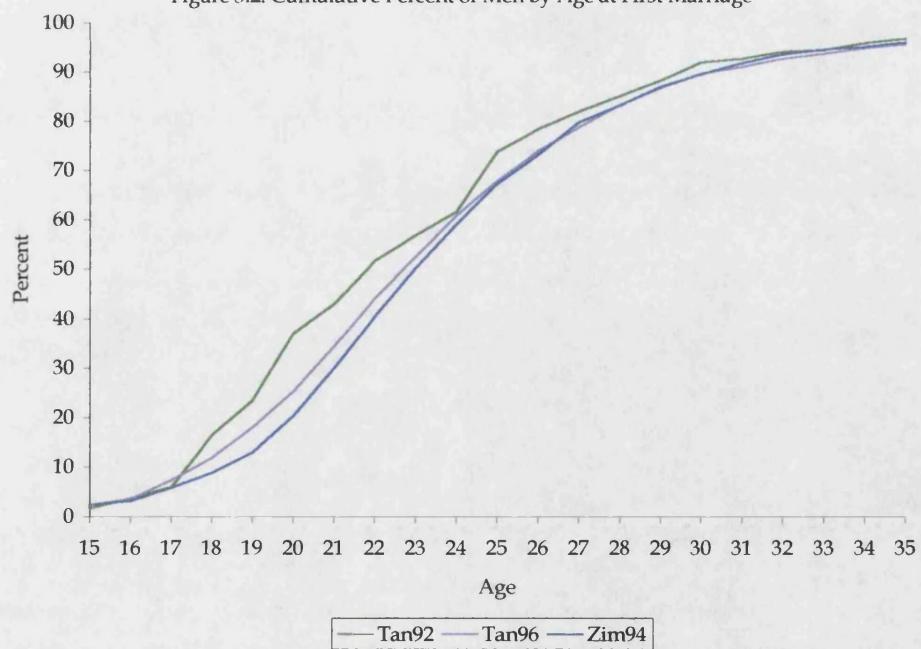
iii. Choice of variables

The choice of variables is based on literature, but it was limited by the questionnaire design. A very important characteristic that would have been useful in the analysis is the tribe to which a respondent belongs. This is because respondents in Tanzania belonged to more than 150 groups, but it was hard to group these into meaningful categories given that only a little more than two thousand men were interviewed in each survey. Instead zones were used as a proxy for similar cultural and economic experiences of respondents in neighbouring geographical areas.

Surveys from the DHS framework were not specifically designed to study marriage patterns and so more useful variables, such as those used by Hirschman (1985) or those used by Kiernan and Diamond (1983) were not included. Variables on characteristics of the family such as parents' education, social class (occupation), status of the parents' union when the children were adolescents, the level of parents' interests in their children; as well as variables that represent respondents' characteristics before marriage (e.g. type of work, residence and education), were not included.

Variables and the categories that were studied have been presented in Chapter Two. For this chapter's section on trends in age at first marriage, age groups in the life table analysis section are grouped into young (15-24), middle (25-39) and old (40-60) for Tanzania (1992), 40-59 for (1996) and 40-54 for Zimbabwe (1994). These are used when comparisons are made by socio-economic characteristics. This was necessary since some characteristics (e.g. zones of residence) have a large number of categories and the conventional five year age groups would have led to too few cases in some zones.

3.3 RESULTS

The first part of this section presents the overall figures as well as differentials in the proportions ever married, the Singulate Mean Age at Marriage (SMAM) and the results of life table analysis, which looked at the proportions who had been married by selected ages. A section on socio-economic determinants of age at first marriage

from logistic models follows and the section ends with results on trends in age at first marriage.

3.3.1 Proportions Ever Married

The pattern of entry into first marriage seen in Tanzania is consistent with the knowledge that for most of sub-Saharan Africa men enter unions later than women do, and that almost everyone eventually marries. The percentage of men who are already married is very small in the young age groups, but increases rapidly in the mid-twenties such that by their late twenties two thirds of men are married. The percentage ever married increasing consistently with age is what is expected when age at marriage is either constant or has not been falling. Overall, the 1992 and the 1996 Tanzania surveys have similar patterns (though slightly different in the 20-24 age group), and there is little difference between the proportion ever married in Tanzania and in Zimbabwe. Given the differences in levels of education in the two countries, it was unexpected that the pattern of entry into unions in Zimbabwe would be similar to that seen in Tanzania.

i. Differentials in the Proportions Ever Married

The overall pattern described above hides many socio-economic differentials, which are found mainly in the 20-24 and 25-29 age groups, with little variation in the other age groups. Results are summarised in Table 3.4. Differentials in these ages are mainly due to delaying effects of prolonged education, urbanisation, religion and very possibly different cultures as represented by the various zones. Overall, the two Tanzanian surveys show different magnitudes of differentials, with the 1992 TDHS showing larger socio-economic differentials than in 1996. On the other hand, Zimbabwe shows a very homogenous picture with few differentials corresponding to the expected socio-economic characteristics.

As expected urban residents showed a tendency to delay marriage when compared to rural residents. In 1992, only about 30 percent of urban men in the 20-24 group are married compared to 43 percent of rural men; the differential is even larger in the next age group. Similarly, the 1996 results show that the proportion ever married is higher among rural men than those in urban areas, with a difference of

75

about 15 percentage points in the age groups 20-24 and 25-29. A very similar differential is seen by childhood place of residence, or when one looks at current-past residence i.e. those who were born in one area but later moved. In Zimbabwe, there are similar differentials by current place of residence, by current-past residence and also by childhood place of residence, though the magnitude of the differential is smaller than that seen in Tanzania. The 1992 and 1996 TDHS show that in most age groups differentials by occupations reveal a higher proportion ever married among men in agricultural occupations. This is not at all the case in Zimbabwe where the only major difference is found in the 15-19 age group, with very little differential in other groups.

Literacy and education levels distinguished the propensity to enter unions and this is seen in both the Tanzania 1992 and 1996 results. In the 1992 TDHS, a higher percentage of those who could not read at all are married than those who read easily or could read easily. However, there is not a great difference between those who are semi-literate and those who are literate. Differentials by levels of education shows significant differentials in the 20-24 age group where in TDHS 1992, only 3.4 percent of those with 9 years or more of education are married compared to 68 percent among those with 0-3 years. The scale of differentials considerably narrows in 1996. For example, only 15 percent of those aged 20-24 with 9 or more years of education have ever been married, compared to 38 percent for the 0-3 group. The effect of literacy and education is also clearly seen in Zimbabwe, and like 1996 TDHS, the differentials are not as wide as those in the 1992 TDHS.

For both surveys in Tanzania, differentials by religion unsurprisingly show that those who have Other religions have the highest percentage married in the 20-24 age group. However, there are unexpected differentials in the other three groups for TDHS 1992. In the 20-24 age group, the percent ever married is slightly higher among Catholic than among Muslim men, and this differential increases in the next two age groups. There is also a difference between Catholics and Protestants, which is larger than that seen between Catholics and Muslims. The 1996 results do not show such disparities as are seen in 1992, but still in the youngest age group Protestant men seem to be slightly lagging behind the other religious groups.

Religious differentials in Zimbabwe are again small, nevertheless, Christians married slightly later than Spiritualists.

Differentials by zones of residence were quite substantial even in the younger age groups but this was especially true for results from the 1992 TDHS. The Northern zone had the lowest proportions ever married in all groups before age thirty. Whereas in the 25-29 group only 39 percent had ever been married, in all other zones about 65 percent had ever been married. This differential is also seen in the 20-24 age group where in the Northern zone, less than 10 percent have ever been married compared to over half the men in the South and Lake zones. In 1996, no one is reported as married in the youngest age groups in the Northern, Lake and Zanzibar zones and only low percentages in the others. The Southern zone is again an exception with more than half the men in the 20-24 age group married, Southern Highlands and Lake zones also show a considerable proportion ever married in this group. In Zimbabwe differentials by zones that stand out are those seen between Mashonaland and Matabeleland. Mashonaland shows a higher proportion ever married, however, Harare the capital, which lies within Mashonaland, does not have unusually smaller proportions ever married in the earlier age groups as one would expect. Matabeleland has one of the most delayed ages at marriage in Zimbabwe.

3.3.2 The Singulate Mean Age at Marriage (SMAM)

The Singulate Mean Age at Marriage in Tanzania in 1992 is virtually the same as that seen in 1996 where the SMAM was 25.2 years. Results are presented in Table 3.4. Differentials show that overall there are some inconsistencies in the direction and magnitude of differentials seen in the two Tanzanian DHS. These might be due to sampling variation, differences in the quality of reporting of age at first marriage or spurious results due to small numbers in some categories.

In both TDHSs, the SMAM for urban areas (26.8) was almost two years higher than the national figure and over two years more than that of rural areas (24.9 years). The effect of urbanisation and other economic advantages on the SMAM is also seen in the differentials by zones of residence. The Northern zone had the highest SMAM at almost 30 years, five years higher than the national figure, followed by the Coastal zone and Zanzibar with a high SMAM of 26 years. These two zones again have

among the highest SMAM in the 1996 survey. As already suggested above, the Southern zone had the lowest SMAM, at 23.2 years, the young ages at marriage in this zone are again seen in the 1996 survey, also a SMAM of 23 years. The results for Zanzibar are consistently among the highest in the two surveys.

In 1992 there is a large difference between those who are illiterate (23.1), those who are literate (26) and those who are semi-literate (who had a SMAM of 25 years). The results from 1996 were slightly non-conventional as literate men had a SMAM of 25.3 years, which was the same as those who were semi-literate or those who were completely illiterate. When education is divided into years of schooling, TDHS 1992 showed that those with 0-3 years had a SMAM more than 5 years lower than those with 9 or more years of education. The difference in 1996 is about two and a half years. For the two middle groups, the direction of the differential in SMAM switches between the two surveys. In 1992, those with 4-6 years of education married earlier as expected, but in 1996 this group marries about two years later than those with 7-8 years of education.

Consistent with the results for the proportions ever married, the highest SMAM in the different religious groups was among Protestants who married at 26.8 years and then Muslims at 26.5 years. Again, this result was unforeseen because Muslims are marrying later than Catholics. In 1996, differentials by religions are minimal even when comparing modern religions with Other religions.

The SMAM in Zimbabwe show a homogenous picture. There is hardly a difference by current place of residence, though there is a difference when one looks at current-past residence, ex-rural residents marrying later than ex-urban residents. However, there is no large difference between those who have either always been rural residents and those rural residents who moved to urban areas. Urban residents that had always lived in urban areas married latest, while urban residents who moved to rural areas married earliest. Differentials by years of education are consistent with expectations, i.e. in generally higher with increasing education.

Differentials by zones of residence show that compared with Tanzania the range of SMAM values is smaller, with Matabeleland having the latest age and Manicaland, Mashonaland and Harare forming a group with the lowest ages at marriage, although not by a large margin. Large differentials by religious groups were expected, but apart from the lower SMAM for Spiritualists there was hardly a difference between Christians and Traditionalists.

Table 3.4: Proportions Ever Married and the Singulate Mean Age at Marriage (SMAM).

Characteristics	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	SMAM	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	SMAM	Characteristic	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	SMAM
Tanzania 1992										*Tanzania 1996*									*Zimbabwe 1994*									
All men	1.95	37.11	69.91	86.71	95.52	96.79	98.91	96.26	*25.4*	2.88	29.29	73.06	93.89	96.51	98.34	97.13	100.00	*25.2*	All men	1.80	26.47	67.78	94.23	98.06	97.93	99.07	99.12	*25.6*
Residence																			*Residence*									
Urban	1.69	33.57	53.20	79.37	98.90	95.28	100.00	96.75	*26.8*	2.27	16.13	62.35	95.18	98.60	98.91	100.00	100.00	*26.4*	Urban	2.12	28.26	63.55	94.93	99.12	97.26	100.00	100.00	*25.7*
Rural	2.04	38.56	75.27	89.89	94.04	97.16	98.51	96.08	*24.9*	3.07	34.28	76.58	93.47	95.93	98.12	96.18	100.00	*24.8*	Rural	1.70	25.21	71.56	93.67	97.26	98.51	98.57	98.70	*25.4*
Childhood Residence																			*Childhood Residence*									
Town/City	2.33	19.63	42.66	73.48	90.05	89.96	100.00	94.11	*29.1*	5.47	13.40	62.79	93.64	98.35	98.34	100.00	100.00	*26.4*	Town/ City	0.00	31.81	63.62	91.32	100.00	96.90	100.00	100.00	*25.7*
Countryside	1.90	41.75	73.64	89.63	96.25	97.49	98.72	96.32	*24.8*	2.42	32.84	74.55	93.94	96.05	98.32	96.67	100.00	*25.0*	Countryside	2.27	24.91	69.43	94.76	97.50	98.19	98.93	98.97	*25.5*
Current-past Residence																			*Current-past Residence*									
Always Urban	3.34	18.45	39.33	60.70	95.40	81.23	100.00	100.00	*29.4*	4.87	12.61	58.18	93.45	95.77	94.98	100.00	100.00	*27.0*	Always Urban	0.00	27.41	58.87	91.57	100.00	97.87	100.00	100.00	*26.2*
Ex-rural	0.00	45.84	58.18	92.31	100.00	100.00	100.00	96.02	*25.2*	0.00	19.14	65.37	96.50	100.00	100.00	100.00	100.00	*26.0*	Ex-rural	6.65	28.73	66.76	96.04	98.70	96.95	100.00	100.00	*25.3*
Ex- urban	0.00	21.98	46.47	100.00	81.44	100.00	100.00	88.87	*26.6*	6.83	15.77	77.82	93.89	100.00	100.00	100.00	100.00	*25.3*	Ex- urban	0.00	40.13	73.66	90.73	100.00	92.76	100.00	100.00	*24.8*
Always Rural	2.21	40.71	77.58	88.87	94.92	97.00	98.35	96.41	*24.6*	2.84	35.84	76.39	93.42	95.24	97.71	95.92	100.00	*24.8*	Always Rural	1.81	22.92	71.13	93.94	96.78	98.95	98.44	98.58	*25.6*
Religion																			*Religion*									
Muslim	0.88	36.86	63.02	74.28	97.81	93.51	100.00	91.61	*26.5*	3.47	26.95	78.60	93.74	95.70	99.05	100.00	100.00	*25.2*	Traditionalist	2.84	29.68	60.30	93.97	97.27	96.41	100.00	100.00	*26.0*
Catholic	2.71	37.80	76.58	93.00	96.53	98.77	99.15	98.48	*24.6*	2.11	29.28	71.27	93.97	96.98	100.00	95.77	100.00	*25.4*	Spiritual	1.40	29.90	74.80	96.04	97.38	100.00	100.00	100.00	*25.1*
Protestant	1.46	20.87	64.51	89.99	91.66	95.74	100.00	96.41	*26.8*	1.91	28.98	68.01	98.30	94.61	93.61	97.73	100.00	*25.2*	Christian	1.67	24.12	62.22	93.87	98.32	97.98	100.00	98.53	*26.1*
Other	4.11	58.61	86.96	87.46	94.57	100.00	95.61	100.00	*23.5*	4.88	35.83	76.58	84.58	100.00	100.00	93.17	100.00	*24.9*	Other	2.86	22.74	91.58	91.60	100.00	95.49	92.76	100.00	*24.6*
Literacy																			*Literacy*									
Easily	1.73	31.76	69.12	84.72	94.81	97.12	100.00	97.61	*26.1*	2.51	28.99	73.68	94.48	97.01	98.00	97.56	100.00	*25.2*	Easily	1.53	25.85	67.67	94.17	99.13	98.32	100.00	100.00	*25.7*
With difficulty	2.94	34.65	68.08	91.13	100.00	100.00	100.00	100.00	*25.2*	1.58	18.05	76.20	97.44	100.00	100.00	100.00	100.00	*25.4*	With difficulty	3.53	29.36	60.32	98.36	98.42	100.00	100.00	97.02	*25.5*
Not at all	2.27	63.42	75.01	94.54	94.68	94.43	96.47	92.62	*23.0*	5.33	37.92	68.00	89.13	91.78	98.25	93.96	100.00	*25.4*	Not at all	0.00	51.92	100.00	80.56	87.92	93.02	95.24	100.00	*22.4*
Education																			*Education*									
0-3 years	3.43	67.77	67.38	95.43	94.75	95.08	96.42	93.27	*23.0*	4.19	38.61	71.73	89.78	94.77	99.03	92.75	100.00	*25.1*	0-3 years	3.40	53.45	82.94	89.90	92.67	96.15	96.83	100.00	*23.9*
4-6 years	1.81	40.58	77.08	100.00	95.61	100.00	98.82	98.19	*24.3*	1.44	27.19	59.70	88.94	92.20	98.79	98.66	100.00	*26.6*	4-6 years	1.49	44.16	82.71	96.26	98.86	100.00	100.00	97.56	*23.9*
7-8 years	1.98	35.34	69.07	88.26	92.97	100.00	100.00	93.97	*25.7*	3.87	30.11	79.01	95.59	100.00	96.48	100.00	100.00	*24.6*	7-8 years	1.59	24.61	70.67	96.13	100.00	97.66	100.00	100.00	*25.4*
9+ years	0.00	3.39	50.46	86.44	91.49	100.00	100.00	100.00	*28.5*	0.00	15.30	46.88	92.94	84.20	100.00	100.00	100.00	*27.6*	9+ years	1.58	24.66	65.09	93.64	98.71	98.73	100.00	100.00	*25.9*
Occupations																			*Occupation*									
Non-agricultural	1.01	20.04	62.46	80.96	98.98	95.22	100.00	100.00	*26.9*	1.75	18.23	64.44	94.86	94.89	96.68	100.00	100.00	*26.5*	Non-agricultural	0.96	26.85	67.24	94.02	98.71	97.95	100.00	100.00	*25.7*
Agricultural	3.11	44.84	72.96	89.86	93.82	97.37	98.44	94.71	*24.6*	4.64	36.74	76.38	93.51	97.16	99.12	96.17	100.00	*24.6*	Agricultural	6.71	25.36	69.94	94.89	96.52	97.89	97.80	97.97	*25.1*
Zones																			*Zones*									
Northern	0.00	8.04	38.49	67.13	94.92	81.93	100.00	100.00	*29.9*	0.00	12.28	77.98	93.28	93.65	93.42	90.51	100.00	*26.1*	Manicaland	0.00	34.57	69.32	93.08	100.00	100.00	100.00	100.00	*25.2*
Coastal	1.38	27.86	70.36	81.75	98.30	94.99	100.00	95.37	*26.1*	5.58	16.81	69.69	87.46	100.00	98.61	100.00	100.00	*26.1*	Mashonaland	4.20	32.66	78.41	97.13	96.28	95.59	100.00	97.28	*24.7*
Southern	3.54	58.36	90.89	89.95	95.79	96.66	100.00	92.50	*23.2*	5.88	55.21	76.88	100.00	100.00	100.00	100.00	100.00	*23.2*	Matabeleland	0.87	15.38	60.28	84.08	95.24	96.83	100.00	100.00	*27.4*
S. Highlands	1.89	40.23	76.70	85.83	98.03	100.00	99.03	100.00	*24.9*	2.23	38.57	74.84	93.44	91.73	100.00	100.00	100.00	*24.9*	Midlands	0.00	9.65	79.19	94.56	95.95	100.00	94.34	100.00	*26.1*
Central	1.75	41.56	69.06	91.86	91.60	100.00	95.74	100.00	*25.2*	3.42	24.81	77.58	98.55	97.60	97.57	100.00	100.00	*25.0*	Masvingo	0.00	18.72	58.50	94.65	100.00	100.00	100.00	100.00	*26.5*
Lake	3.17	55.21	64.00	100.00	95.00	100.00	100.00	91.42	*23.9*	0.00	39.89	68.86	95.30	96.00	100.00	89.23	100.00	*25.0*	Harare	2.44	33.33	58.97	93.10	100.00	100.00	100.00	100.00	*25.7*
Zanzibar	3.45	18.29	76.54	81.26	100.00	100.00	100.00	100.00	*26.1*	0.00	26.52	56.58	82.72	88.58	100.00	100.00	100.00	*27.3*	Bulawayo	0.00	21.28	60.53	93.55	100.00	93.10	100.00	100.00	*26.3*

3.3.3 Proportion of 25-39 year old men Married by selected ages: Life table analysis

Table 3.5 presents the summary of differentials in percentile ages at first marriage for all men. As was the case in the last section the picture for Tanzania differs between the two surveys, with 1996 results showing a slightly later age at marriage compared to 1992 and Zimbabwe having higher percentiles compared to either TDHS.

Then more detailed comparisons are presented for the different characteristics focusing only on the age group 25-39. Table 3.6 shows the marriage rates between selected ages for men aged 25-39 together with accompanying medians. Even for just this age group, life table analysis confirms that marriage for men is late with very few men marrying in their teens. Again, the 1992 TDHS paints a picture of earlier marriage rates than the other two surveys. By age nineteen, about 13 percent had been married compared to about 8 percent in 1996. Between age nineteen and twenty-four there is a large increase in marriage rates so that the medians are reached at the same age in both TDHS. Summaries of marriage rates show that the median is 24 years in 1992 and 1996. By age twenty-nine, there is little differential in all three surveys. Zimbabwe shows a slower marriage rate compared to Tanzania, especially when compared to the 1992 Tanzania survey, which displayed the fastest marriage rate. For this age group the median in Zimbabwe is a year later.

i. Differentials in the Proportions Ever Married and Median Ages at First Marriage

Only differentials for characteristics that show significant differentials are discussed. A larger proportion of men who were in polygamous unions married earlier, reflecting the fact that such men are more likely to be in a setting conducive to early marriage. In Tanzania, both the 1992 and 1996 results suggest that marriage is earlier in rural areas, though the extent of the differential is again different between the two surveys. Looking at childhood place of residence also shows that the median is significantly higher for men who grew up in towns and other urban areas. However, in Zimbabwe the differential by current residence, by childhood place of residence, or by current-past residence was not statistically significant.

A significant differential in all surveys was that those who work in agriculture entered marriage earlier compared to those in non-agricultural occupations. In the 1992 TDHS the median for those in non-agricultural occupations

is 3 years later while in 1996 this difference is only two years. The difference in marriage rates between men working in agriculture and those working outside agriculture follow the pattern already seen above in the differences by place of residence. In Zimbabwe, this was also significant with men in agricultural occupations marrying earlier.

Differentials by levels of literacy were large and marginally significant in Tanzania, and were small and not significant in Zimbabwe. Both 1992 and 1996 Tanzania results show that marriage rates for those with 0-3 and 4-6 years of education are very similar, with roughly a fifth of men in these groups married by age 19 and about 60 percent by age 24. Those with 7-8 and 9 or more years of education show a slower rate in entering marriage, but eventually have the same proportion ever married by their late twenties as those with lower education.

Differentials by religious groups for men in this age group show that only in 1992 was the differential at all significant with proportions ever married among Protestants lower at all points. This group had a median that is 3 years later than that of those following Other religions. In 1996, differentials are not significant and it is unusual that Muslims had the most delayed entry into marriage, since Muslim women tend in general to marry earlier than other women. Zimbabwe again shows that differentials were small, showing up more in marriage rates before age 19. Differentials in the medians are nevertheless seen between Christians (median=25 years) and all the other groups who have identical medians of 24 years.

Zones of residence show quite a variation. In Tanzania for both surveys the differential are wide, but, as for other characteristics this is not so much the case for zones in Zimbabwe. While some zones show different pictures in the two surveys, the Southern zone maintains its place within the group of zones with a low median. Even at age 19, slightly more than a quarter of men in this zone were married compared to about 10 percent in the other zones. The Lake zone changes from a relatively low median in 1992 to a high median in 1996 and Zanzibar also changes from having one of the lowest medians for this age group in 1992 to among the highest in 1996, joining the same group as the North and Coastal zones. It is as expected that the Northern and Coastal zones have the lowest proportions ever married by different ages and higher medians because these are the most developed

zones with better education opportunities and a higher percent of urban population. In Zimbabwe, the most delayed entry into marriage for all men, and especially, for those in the age group 25-39 is found in Matabeleland with a median of 26 years. The remaining zones fall into two groups: those with a median of 24 years (Manicaland, Mashonaland, Masvingo and Midlands) and those with a median of 25 years in the two urban centres i.e. Harare and Bulawayo.

Table 3.5: Differentials in Percentile Ages at First Marriage for *All Men*.

Characteristics	25th	50th	75th	Characteristics	25th	50th	75th	Characteristics	25th	50th	75th
		Percentiles				Percentiles				Percentiles	
Tanzania 1992				Tanzania 1996				Zimbabwe 1994			
All men	20	23	27	All men	21	24	28	All men	22	25	29
Age				Age				Age			
20-29	20	24	28	20-29	22	25	28	20-29	22	25	28
30-39	20	24	27	30-39	21	24	28	30-39	22	24	28
40-49	19	22	25	40-49	21	24	29	40-49	21	25	29
50-60	20	23	28	50-60	20	25	30	50-60	22	26	31
Type of Union				Type of Union				Type of Union			
Monogamous	19	22	25	Monogamous	21	24	27	Monogamous	21	24	27
Polygamous	19	21	25	Polygamous	19	22	25	Polygamous	20	23	27
Residence				Residence				Residence			
Urban	21	25	30	Urban	22	26	30	Urban	22	25	29
Rural	20	23	26	Rural	21	24	28	Rural	22	25	28
Childhood residence				Childhood residence				Childhood residence			
Town/city	22	25	30	Town/city	23	26	29	Town/city	22	25	30
Countryside	20	23	27	Countryside	21	24	28	Countryside	22	25	28
Current-past Residence				Current-past Residence				Current-past Residence			
Always Urban	23	26	33	Always Urban	22	26	30	Always Urban	23	27	30
Ex -Rural	20	25	29	Ex -Rural	22	26	30	Ex -Rural	22	25	28
Ex-Urban	20	25	28	Ex-Urban	23	26	29	Ex-Urban	21	24	28
Always Rural	20	23	26	Always Rural	21	24	28	Always Rural	22	25	28
Religion				Religion				Religion			
Muslim	20	24	27	Muslim	21	25	28	Traditional	22	25	29
Catholic	20	23	28	Catholic	21	24	28	Spiritual	22	25	28
Protestant	21	25	28	Protestant	22	25	29	Christian	22	25	29
Other	19	21	25	Other	20	23	29	Other	21	25	28
Literacy				Literacy				Literacy			
Easy	20	24	28	Easy	22	25	28	Easy	22	25	29
With difficulty	20	22	26	With difficulty	21	24	27	With difficulty	21	25	29
Not at all	19	21	26	Not at all	20	24	29	Not at all			
Education				Education				Education			
0-3 years	19	22	26	0-3 years	21	24	28	0-3 years	21	25	29
4-6 years	19	22	26	4-6 years	21	24	30	4-6 years	21	24	28
7-8 years	21	24	28	7-8 years	22	24	28	7-8 years	22	25	28
9+ years	24	26	30	9+ years	25	27	31	9+ years	22	25	29
Occupation				Occupation				Occupation			
Agricultural	20	22	26	Agricultural	21	24	28	Agricultural	21	24	28
Non-agricultural	21	25	29	Non-agricultural	22	26	30	Non-agricultural	22	25	29
Zones				Zones				Zones			
Northern	24	26	32	Northern	23	26	29	Manicaland	22	24	29
Coastal	20	25	28	Coastal	22	26	30	Mashonaland	21	24	28
Southern	18	21	25	Southern	20	23	27	Matabeleland	22	26	29
S. Highlands	20	24	27	S. Highlands	21	23	27	Midlands	22	25	28
Central	20	24	27	Central	21	24	28	Masvingo	22	25	28
Lake	20	22	24	Lake	21	25	29	Harare	22	25	29
Zanzibar	20	25	27	Zanzibar	21	24	28	Bulawayo	23	25	29

Table 3.6: Proportion of 25-39 Year Olds Married by Selected Ages.

Men 25-39	Age	Total	Failure	Median	Men 25-39	Age	Total	Failure	Median	Men 25-39	Age	Total	Failure	Median
Tanzania 1992					**Tanzania 1996**					**Zimbabwe 1994**				
	19	687	0.1264	24		19	795	0.0817	24		19	695	0.0537	25
	24	608	0.4828			24	742	0.4183			24	670	0.4025	
	29	360	0.7956			29	470	0.7891			29	423	0.7745	
	32	99	0.8717			32	122	0.8870			32	108	0.8849	
	39	41	0.9613			39	50	0.9785			39	40	0.9817	
Type of Union					**Type of Union**					**Type of Union**				
Monogamous	19	453	0.1261	23	Monogamous	19	553	0.0762	24	Monogamous	19	492	0.0618	24
	24	402	0.5435			24	521	0.4379			24	471	0.4402	
	29	210	0.8978			29	317	0.8670			29	281	0.8685	
	32	47	0.9630			32	75	0.9504			32	66	0.9502	
	39	17	1.0000			39	28	1.0000			39	25	1.0000	
Polygamous	19	78	0.2308	21	Polygamous	19	66	0.1212	21	Polygamous	19	38	0.0263	23
	24	60	0.7051			24	58	0.7879			24	37	0.6579	
	29	23	0.9615			29	14	0.9848			29	13	0.9737	
	32	3	0.9744			39	1	1.0000			39	1	1.0000	
Log-rank test: Chi2(1)=13.33 p=0.000	39	2	1.0000		Log-rank test: Chi2(1)=42.66 p=0.000					Log-rank test: Chi2(1)=9.28 p=0.002				
Childhood Residence					**Childhood Residence**					**Childhood Residence**				
Town/ City	19	100	0.0891	25	Town/ City	19	151	0.0596	26	Town/ City	19	159	0.0373	25
	24	92	0.3564			24	142	0.2914			24	155	0.3478	
	29	65	0.6868			29	107	0.7173			29	105	0.7125	
	32	19	0.7878			32	28	0.8478			32	29	0.8735	
	39	7	0.9151			39	12	0.9783			39	7	1.0000	
Countryside	19	585	0.1315	23	Countryside	19	642	0.0855	24	Countryside	19	536	0.0585	24
	24	515	0.5042			24	599	0.4458			24	515	0.4186	
	29	294	0.8147			29	363	0.8049			29	318	0.7923	
	32	79	0.8867			32	94	0.8956			32	79	0.889	
Log-rank test: Chi2(1)=3.72 p=0.054	39	33	0.9667		Log-rank test: Chi2(1)=1.73 p=0.188	39	38	0.9785		Log-rank test: Chi2(1)=2.22 p=0.137	39	33	0.9778	
Residence					**Residence**					**Residence**				
Urban	19	150	0.0867	26	Urban	19	221	0.0804	26	Urban	19	274	0.0145	25
	24	137	0.3133			24	206	0.3125			24	271	0.3564	
	29	103	0.6604			29	154	0.7011			29	177	0.7429	
	32	36	0.8090			32	44	0.8505			32	49	0.8821	
	39	14	0.9682			39	16	0.9952			39	13	0.9953	
Rural	19	537	0.1374	23	Rural	19	574	0.0822	24	Rural	19	421	0.0785	24
	24	471	0.5293			24	536	0.4589			24	399	0.4319	
	29	257	0.8325			29	316	0.8221			29	246	0.7946	
	32	63	0.8883			32	78	0.9011			32	59	0.8871	
Log-rank test: Chi2(1)=17.88 p=0.000	39	27	0.9570		Log-rank test: Chi2(1)=11.93 p=0.001	39	34	0.9720		Log-rank test: Chi2(1)=2.65 p=0.103	39	27	0.9743	
Current-Past Residence					**Current-Past Residence**					**Current-Past Residence**				
Always Urban	19	51	0.0392	26	Always Urban	19	95	0.0632	27	Always Urban	19	103	0.0097	27
	24	49	0.2941			24	89	0.2526			24	102	0.2816	
	29	36	0.5630			29	71	0.6504			29	74	0.6625	
	32	15	0.7451			32	20	0.8058			32	23	0.8875	
	39	4	0.9150			39	8	0.9871			39	3	1.0000	
Ex-Rural	19	98	0.1122	25	Ex-Rural	19	125	0.0938	25	Ex-Rural	19	171	0.0174	25
	24	87	0.3265			24	116	0.3516			24	169	0.4012	
	29	66	0.7161			29	83	0.7355			29	103	0.7899	
	32	20	0.8506			32	24	0.8798			32	26	0.8813	
	39	9	0.9813			39	8	0.9970			39	10	0.9938	

Continues....

Group	t	n	S	N	Group	t	n	S	N	Group	t	n	S	N
Ex-Urban	19	49	0.1400	25	Ex-Urban	19	56	0.0536	25	Ex-Urban	19	56	0.0862	24
	24	43	0.4200			24	53	0.3571			24	53	0.4655	
	29	29	0.8144			29	36	0.8230			29	31	0.8020	
	32	4	0.8144			32	8	0.9115			32	6	0.8380	
	39	3	0.9072			39	4	0.9705			39	4	1.0000	
Always Rural	19	487	0.1354	25	Always Rural	19	517	0.0835	24	Always Rural	19	365	0.0773	24
	24	428	0.5394			24	483	0.4687			24	346	0.4267	
	29	228	0.8341			29	280	0.8215			29	215	0.7934	
	32	59	0.8932			32	70	0.8996			32	53	0.8926	
Log-rank test: Chi2(3)=21.52 p=0.000	39	24	0.9603		Log-rank test: Chi2(3)=15.67 p=0.001	39	30	0.9722		Log-rank test: Chi2(3)=5.00 p=0.172	39	23	0.9702	

Religion

Group	t	n	S	N	Group	t	n	S	N	Group	t	n	S	N
Muslim	19	240	0.1488	24	Muslim	19	297	0.0800	25	Traditional	19	120	0.1111	24
	24	206	0.4917			24	276	0.3600			24	112	0.4444	
	29	123	0.8120			29	192	0.7867			29	70	0.7922	
	32	27	0.8937			32	48	0.8873			32	20	0.8688	
	39	9	0.9591			39	20	0.9839			39	11	0.9614	
Catholic	19	207	0.1429	23	Catholic	19	242	0.0531	24	Spiritualists	19	174	0.0511	24
	24	180	0.5286			24	232	0.4449			24	167	0.4318	
	29	99	0.8016			29	136	0.7929			29	100	0.7937	
	32	31	0.9026			32	37	0.8710			32	22	0.9018	
	39	10	0.9757			39	19	0.9804			39	9	0.9877	
Protestant	19	157	0.0503	25	Protestant	19	184	0.0899	24	Christian	19	344	0.0344	25
	24	151	0.3396			24	172	0.4074			24	337	0.3610	
	29	105	0.7317			29	112	0.7689			29	223	0.7393	
	32	30	0.8127			32	27	0.9104			32	60	0.8820	
	39	15	0.9532			39	7	0.9756			39	17	0.9843	
Traditional	19	83	0.1647	22	Traditional	19	72	0.1622	23	Other				
	24	71	0.6118			24	62	0.5946			24	54	0.4737	24
	29	33	0.8544			29	30	0.8364			29	30	0.8840	
	32	11	0.8544			32	10	0.8942			32	6	0.9072	
Log-rank test: Chi2(3)=14.26 p=0.003	39	7	0.9418		Log-rank test: Chi2(3)=4.22 p=0.239	39	4	0.9365		Log-rank test: Chi2(3)=6.45 p=0.092	39	3	1.0000	

Education

Group	t	n	S	N	Group	t	n	S	N	Group	t	n	S	N
0-3 years	19	143	0.2148	22	0-3 years	19	127	0.1154	24	0-3 years	19	79	0.0625	25
	24	65	0.6107			24	84	0.4231			24	75	0.4000	
	29	23	0.8419			29	24	0.8055			29	48	0.7537	
	32	16	0.8687			32	17	0.8718			32	19	0.8444	
	39	6	0.9672			39	5	0.9670			39	12	0.9359	
4-6 years	19	104	0.1887	22	4-6 years	19	64	0.1061	24	4-6 years	19	106	0.1161	23
	24	49	0.5849			24	41	0.5000			24	99	0.5446	
	29	16	0.8689			29	13	0.7620			29	51	0.8357	
	32	7	0.9532			32	9	0.8362			32	15	0.8795	
	39	2	0.9532			39	2	0.9752			39	11	0.988	
7-8 years	19	359	0.0861	24	7-8 years	19	507	0.0816	24	7-8 years	19	154	0.0755	24
	24	225	0.4472			24	330	0.4505			24	147	0.4088	
	29	64	0.8009			29	100	0.8309			29	94	0.7758	
	32	32	0.8694			32	41	0.9248			32	26	0.8924	
	39	7	0.9652			39	5	1.0000			39	11	0.9949	
9+ years	19	81	0.0617	26	9+ years	19	97	0.0206	27	9+ years	19	353	0.0226	25
	24	64	0.2716			24	83	0.1856			24	346	0.3559	
	29	28	0.5978			29	33	0.6063			29	228	0.7575	
	32	20	0.7863			32	18	0.7835			32	48	0.9067	
Log-rank test: Chi2(3)=29.01 p=0.000	39	1	0.9466		Log-rank test: Ch2(3)=27.25 p=0.000	39	4	0.9351		Log-rank test: Chi2(3)= 1.04 p=0.308	39	6	0.9915	

Literacy

Group	t	n	S	N	Group	t	n	S	N	Group	t	n	S	N
Literate	19	510	0.0975	24	Literate	19	609	0.0665	24	*Literacy Literate	19	562	0.0404	24
	24	463	0.4386			24	576	0.4084			24	547	0.4000	
	29	288	0.7837			29	365	0.7830			29	342	0.7838	
	32	77	0.8788			32	97	0.8951			32	77	0.8959	
	39	26	0.9553			39	35	0.9825			39	23	0.9873	

Continues…

Literacy

Category	Age	N	Value		Category	Age	N	Value		Category	Age	N	Value	
Semi-literate	19	61	0.1875	22	Semi-literate	19	76	0.1429	23	Semi/ Illiterate	19	129	0.1119	25
	24	52	0.5938			24	66	0.5195			24	119	0.4104	
	29	26	0.8185			29	37	0.8955			29	79	0.7384	
	32	8	0.8911			32	5	0.9884			32	30	0.8448	
	39	4	0.9844			39	3	0.9981			39	17	0.9667	
Illiterate	19	116	0.2185	21	Illiterate	19	110	0.1228	25					
	24	93	0.6134			24	100	0.4035						
	29	46	0.8343			29	68	0.7499						
	32	14	0.8343			32	20	0.8332						
Log-rank test: Chi2(2)=8.90 p=0.012	39	11	0.9632		Log-rank test: Chi2(2)=7.63 p=0.022	39	10	0.9444		Log-rank test: Chi2(1)= 1.04 p=0.308				

* Only two groups for levels of literacy in Zimbabwe since there were very few men aged 25-39 who were illiterate.

Occupations

Category	Age	N	Value		Category	Age	N	Value		Category	Age	N	Value	
Agricultural	19	488	0.1569	23	Agricultural	19	531	0.0980	24	Agricultural	19	165	0.0877	24
	24	419	0.5533			24	488	0.4861			24	156	0.4620	
	29	222	0.8409			29	278	0.8399			29	92	0.8249	
	32	54	0.8854			32	63	0.9117			32	20	0.9006	
	39	26	0.9535			39	27	0.9748			39	9	0.9716	
Non-agricultural	19	192	0.0521	26	Non-agricultural	19	249	0.0516	26	Non-agricultural	19	456	0.0348	25
	24	182	0.3177			24	239	0.2976			24	444	0.387	
	29	131	0.6831			29	177	0.6977			29	282	0.7801	
	32	44	0.8375			32	54	0.8489			32	74	0.9015	
Log-rank test: Chi2(1)=26.50 P=0.000	39	15	0.9750		Log-rank test: Chi2(1)=32.73 p=0.000	39	21	0.9884		Log-rank test: Chi2(1)=13.59 p=0.001	39	23	0.9978	

Zones

Category	Age	N	Value		Category	Age	N	Value		Category	Age	N	Value	
Northern	19	64	0.0625	26	Northern	19	89	0.0444	25	Manicaland	19	76	0.0348	24
	21	60	0.2969			24	86	0.4000			24	37	0.2866	
	29	45	0.5920			29	54	0.8311			29	3	0.6433	
	32	19	0.7499			32	12	0.9115						
	39	6	0.9500			39	4	0.9469						
Coastal	19	131	0.0758	25	Coastal	19	228	0.0866	26	Mashonaland	19	309	0.0638	24
	24	122	0.3485			24	211	0.2900			24	163	0.3832	
	29	86	0.7196			29	164	0.6850			29	12	0.3832	
	32	27	0.8654			32	54	0.8236						
	39	10	0.9551			39	24	0.9840						
Southern	19	92	0.2609	21	Southern	19	101	0.0784	23	Matabeleland	19	148	0.024	26
	24	68	0.7065			24	94	0.5196			24	71	0.2077	
	29	27	0.8826			29	49	0.8295			29	6	0.2077	
	32	8	0.9368			32	14	0.9053						
	39	2	0.9368			39	7	1.0000						
S. Highlands	19	132	0.1037	24	S. Highlands	19	144	0.0680	24	Midlands	19	104	0.0119	24
	24	121	0.4889			24	137	0.4966			24	63	0.1248	
	29	69	0.8217			29	74	0.8422			29	3	0.1248	
	32	18	0.8811			32	14	0.9053						
	39	7	0.9676			39	6	0.9324						
Central	19	142	0.1119	24	Central	19	126	0.1008	23	Masvingo	19	87	0.0165	24
	24	127	0.4476			24	116	0.5116			24	33	0.2564	
	29	79	0.8057			29	63	0.8758			29	3	0.2564	
	32	19	0.8286			32	11	0.9752						
	39	13	0.9592			39	1	0.9752						
Lake	19	99	0.1667	22	Lake	19	76	0.1184	24	Harare	19	82	0.0435	25
	24	85	0.6078			24	67	0.3816			24	53	0.4054	
	29	40	0.8768			29	47	0.7555			29	7	0.4054	
	32	6	0.9440			32	13	0.8729						
	39	2	0.9813			39	6	0.9746						
Zanzibar	19	27	0.1071	23	Zanzibar	19	33	0.0606	25	Bulawayo	19	80	0.041	25
	24	25	0.5000			24	31	0.4242			24	54	0.2128	
	29	14	0.8600			29	19	0.7732			29	7	0.4096	
	32	2	0.8600			32	4	0.7732						
Log-rank test: Chi2(6)=43.72 p=0.000	39	1	0.8600		Log-rank test: Chi2(6)=28.01 p=0.000	39	2	0.9244		Log-rank test: Chi2(6)=11.27 p=0.080				

3.3.4 Determinants of Age at first Marriage

The above description showed that there are some socio-economic differentials in age at first marriage. This section presents results from logistic regression models that were used to analyse the probability of marrying after a certain age for a group of men who had reached that age, given a set of socio-economic characteristics. Results are shown in terms of odds ratios and are presented in Tables 3.7 to 3.10.

i. Probability of Marrying after age eighteen (Table 3.7)

In all three surveys, the odds for marrying by age eighteen are not significantly lower whether the man is an urban or rural resident. This was still the case when current residence was replaced by childhood place of residence or by current-past residence where one's movement to or from a rural area was expected to have an effect. Type of occupation also did not make a difference in any survey.

Looking at religion, the group of men following Islam formed the reference group in Tanzania; in Zimbabwe, Spiritualists were the reference group. Only in the 1992 TDHS did religion make a difference, as Protestant men were almost two and a half times more likely to marry after age eighteen compared to the reference group. Men following Other religions were not significantly different while Catholic men had 47 percent higher odds compared to men in the reference category.

Education is one of the most important determinants of age at first marriage and even at age eighteen significant differentials by this characteristic were expected. In TDHS 1992, those who have 7-8 years of education formed the reference group and the odds of marrying after age eighteen for those who had 4-6 years of education are about half of those with 7-8 years of education. Odds for those with 0-3 years of education were about three-quarters lower. Men with the highest level of education were slightly more than two and a half times more likely to marry later. This was also true in TDHS 1996 where the odds were even higher, but only this group shows a significant differential in this survey. The same is true in Zimbabwe were only those with the highest level of education had odds of marrying after age eighteen significantly higher those of the reference group [OR=2.23**].

For Tanzania, the Central zone was used as the reference. As the Southern zone is the most out-lying in terms of proportions ever married, odds of marrying

after age eighteen are significantly lower by about 60 percent. There are, however, a lot of similarities in the odds for other zones, for example men in Coastal and Zanzibar zones have about ten percent lower odds of marrying later compared to the reference group. Northern and Lake zones are the only two zones that show a significant differential in both the 1992 and the 1996 survey, with odds of marrying after age 18 being about 4 times higher than the reference group. In TDHS 1992, as suggested when looking at SMAM and at medians, few differentials are seen in Zimbabwe, where Mashonaland is used as the reference group. Matabeleland and Midlands are only just marginally different with odds about two times higher than those of the reference group. Harare and Bulwayo as expected show highest odds of marrying after age eighteen.

In both countries, at the most only three socio-economic characteristics show some effect on the odds of marrying after age eighteen. The non-significance of a lot of the variables might be due to the fact that few men are married at this juncture and so differentials at this age might not be systematic or specific to men with certain characteristics.

ii. Probability of Marrying after age twenty (Table 3.8)

As in the previous models, both TDHS 1992 and TDHS 1996 show no significant differential for men living in an urban area compared to those in rural areas, and this was again true when this characteristic was replaced by childhood residence. With men in agriculture used as the reference, working in non-agricultural occupations has a marginal effect in 1992 Tanzania survey, with 40 percent higher odds of marrying after age 20 compared to the reference group, but this group had no effect in the other surveys. In Zimbabwe, as before, the odds of marrying after age twenty for the two main urban areas as expected higher, though the probability is now smaller than at age eighteen.

As before, the TDHS 1992 shows that there is a significant differential between Protestants, about 84 percent higher odds; and Catholics, [OR=1.38*]. Followers of Other religions were not significantly different from Muslims who formed the reference group. In the other two surveys, religion does not make a significant differential in the odds of marrying after age twenty. Education again

makes a difference, more so in TDHS 1992. For the TDHS 1992, those with 0-3 and 4-6 years of education had about 50 percent lower odds of marrying later as compared to those with 7-8 years of education. In both Tanzanian surveys, men with 9 or more years of education show significantly higher odds of delaying marriage, more so in 1996, where the odds are more than three times higher. [1992 OR=1.92*, 1996 OR=3.12***]. Education is not a significant factor in delaying marriage after age 20 in Zimbabwe.

In Tanzania, two zones of residence show a significant differential from the Central zone. In the TDHS 1992, men in Northern zone were about and a half times more likely to marry after age twenty compared to men in Central zone. As before, men in the Southern zone are about 50 percent less likely to marry after age twenty. Similarly men in the Lake zone had odds that are about a third lower than the reference category. In 1996, differentials by zones of residence that were seen in 1992 are still present, Northern zone still has higher odds (OR=1.64). Zanzibar shows a significant differential only in the 1996 TDHS having OR=0.52**. As before, at this age Zimbabwe shows no differentials at all.

iii. Probability of Marrying after age twenty-four (Table 3.9)
Results from models that looked at the probability of marrying after age twenty-four showed that for the 1992 Tanzanian survey, urban residence does significantly increase the odds of marrying after age twenty-four, [OR=1.73**]. The 1996 TDHS and the 1994 ZDHS show no significant differentials for this characteristic.

For TDHS 1992, only followers of Other religions are significantly different from the reference group, they had about 46 percent lower of delaying marriage post age twenty-four. As before there is no effect of religion in either TDHS 1996 or in ZDHS 1994. Education has an effect in all the three surveys but in Zimbabwe this is true only for men with 9 or more years of education, with odds about a third higher than the reference group. In TDHS 1992 those with 9 or more years of education were almost two and a half times (in 1996 OR=4.45***) more likely to marry after age twenty-four. Peculiarly in TDHS 1996, men with the lowest level of education have odds of delaying marriage that are 47 percent higher than those with 7-8 years of

education. This group did not show a significant differential in 1992 or in Zimbabwe and so one can not say whether this is a systematic pattern.

For TDHS 1992, differentials by zones of residence show the Southern zone having a very low probability of delaying marriage. Again this differential is very reduced in 1996, [Southern zone TDHS 1992 OR=0.30*** and though not significant in TDHS 1996, OR=0.97]. Men in Lake and Zanzibar also show lower odds (almost 50 percent lower in TDHS 1992). Zimbabwe shows no differentials at all.

iv. Probability of Marrying after age twenty-eight (Table 3.10)

For marriage delays after age twenty-eight, results for TDHS 1992 show place of residence significantly affects the odds of marrying after age twenty-eight. Odds for urban residents are about two and half times more than those of rural residents. For Zimbabwe, Other urban areas had odds that are 60 percent higher compared to the reference group (rural residents).

The ZDHS and the 1996 TDHS show no significant differentials by religious persuasion. In TDHS 1992, compared to Muslims, Catholics were not significantly different, (OR=1.05). Protestants and followers of Other religions had lower odds compared to the reference category, OR=0.45** and OR=0.56* respectively. In Tanzania, Northern zone remains significantly different from the reference group, with odds more than four times higher in 1992 but only about 71 percent higher in TDHS 1996. The difference for Coastal zone is not statistically significant in 1992 while in 1996 this zone had slightly more than twice the odds of the reference group. The Lake zone also shows 86 percent higher odds in 1996 though in 1992 the differential was not significant. Even at this late stage, the homogeneity between the zones is still seen in Zimbabwe where no significant differentials are seen.

This section has shown that few characteristics make consistent and strong differentials in age at first marriage. The lack of consistent differential by place of residence was unexpected, suggesting that marriage patterns in urban areas might not be so different from those in the rural areas. The results from Zimbabwe suggest that marriage patterns of men in this country are more homogenous than is the case in Tanzania where the 1996 survey shows more homogeneity than the 1992 survey.

Table 3.7: Probability of Marrying after Age 18: Odds Ratios and 95 Percent Confidence Intervals.

Variable	Categories Tanzania 1992	%	Odds Ratios	[95%	CI]	Categories Tanzania 1996	%	Odds Ratios	[95%	CI]	Categories Zimbabwe 1994	%	Odds Ratios	[95%	CI]
Married by Age 18	Yes	11.91				Yes	8.37				Yes	5.62			
	No	88.09				No	91.63				No	94.38			
Residence	Urban	26.72	0.87	[0.61	1.26]	Urban	23.99	0.83	[0.51	1.35]	Harare &	24.11	2.61*	[0.85	8.06]
	Rural (ref.)	73.28	1.00			Rural (ref.)	76.01	1.00			Other Urban	10.48	1.35	[0.61	2.97]
											Rural (ref.)	65.41	1.00		
Religion	Muslim (ref.)	32.85	1.00			Muslim (ref.)	31.41				Traditional	15.92	0.64	[0.35	1.17]
	Catholic	27.50	1.47*	[0.97	2.22]	Catholic	30.41	1.21	[0.71	2.06]	Christian	49.71	1.04	[0.58	1.86]
	Protestant	24.31	2.38**	[1.34	4.24]	Protestant	23.97	0.88	[0.50	1.57]	Other	8.63	1.47	[0.65	3.33]
	Other	15.35	1.19	[0.68	2.09]	Other	14.21	0.83	[0.39	1.73]	Spiritualists (ref.)	25.74	1.00		
Education	0-3 years	21.40	0.27***	[0.15	0.47]	0-3 years	14.24	0.73	[0.44	1.20]	0-3 years	10.93	0.82	[0.42	1.63]
	4-6 years	25.88	0.44***	[0.27	0.69]	4-6 years	24.79	1.06	[0.60	1.87]	4-6 years	14.32	0.87	[0.46	1.64]
	7-8 years (ref.)	42.46	1.00			7-8 years (ref.)	50.31	1.00			7-8 years (ref.)	24.05	1.00		
	9+ years	10.27	2.61*	[0.84	8.15]	9+ years	10.66	4.13**	[1.54	11.07]	9+ years	50.70	2.23**	[1.08	4.62]
Zone	Northern	11.71	2.97*	[1.23	7.17]	Northern	12.44	3.91***	[1.83	8.34]	Manicaland	10.19	1.39	[0.55	3.48]
	Coast	18.72	0.89	[0.53	1.51]	Coast	19.79	1.09	[0.62	1.92]	Matabeleland	21.74	2.04*	[0.91	4.55]
	Southern	10.61	0.39***	[0.25	0.62]	Southern	10.39	0.98	[0.53	1.84]	Midlands	15.02	1.87*	[0.94	3.69]
	S. Highlands	16.64	1.34	[0.76	2.37]	S. Highlands	18.34	1.48	[0.87	2.52]	Masvingo	11.17	1.04	[0.53	2.03]
	Central (ref.)	23.05	1.00			Central (ref.)	19.64	1.00			Mashonaland (ref.)	41.89	1.00		
	Lake	16.82	0.64*	[0.39	1.06]	Lake	16.40	1.76*	[0.90	3.46]					
	Zanzibar	2.45	0.87	[0.39	1.97]	Zanzibar	2.99	0.75	[0.32	1.76]					
Occupation	Non-agricultural	30.04	1.52	[0.93	2.50]	Non-agricultural	30.54	1.47	[0.87	2.47]	Non-agricultural	73.62	1.13	[0.67	1.92]
	Agricultural (ref.)	69.96	1.00			Agricultural (ref.)	69.46	1.00			Agricultural (ref.)	26.38	1.00		
Age	18-25	29.40	0.59	[0.29	1.19]	18-25	31.77	2.27**	[1.29	3.99]	18-25	38.74	1.15	[0.57	2.33]
	26-34	26.02	0.59	[0.34	1.03]	26-34	25.89	1.20	[0.71	2.03]	26-34	26.67	1.16	[0.58	2.33]
	35-44	20.30	0.66*	[0.37	1.19]	35-44	23.48	1.55*	[0.93	2.59]	35-44	21.88	0.81	[0.43	1.52]
	45-60 (ref.)	24.28	1.00			45-60 (ref.)	18.87				45-60 (ref.)	12.72	1.00		

N=1765, F(17,307)=7.43, Prob>F=0.000   N=1939, F(17,308)=3.18, Prob>F=0.000   N=1736, F(16,196)=2.44, Prob>F=0.002

*p<0.1 ** p<0.05 ***p<0.001

Table 3.8: Probability of Marrying after Age 20: Odds Ratios and 95 Percent Confidence Intervals.

Variable	Categories Tanzania 1992	%	Odds Ratios	[95%	CI]	Categories Tanzania 1996	%	Odds Ratios	[95%	CI]	Categories Zimbabwe 1994	%	Odds Ratios	[95%	CI]
Married by Age 20	Yes	29.13				Yes	19.30				Yes	14.3			
	No	70.87				No	80.70				No	85.6			
Residence	Urban	26.92	1.19	[0.87	1.63]	Urban	23.75	1.31	[0.80	2.13]	Harare & Bulawayo	25.5	1.76 *	[0.98	3.16]
	Rural (ref.)	73.08	1.00			Rural (ref.)	76.25	1.00			Urban	10.9	1.22	[0.72	2.07]
											Rural (ref.)	63.4			
Religion	Muslim	32.68	1.00			Muslim	30.84	1.00			Traditional	17.1	1.06	[0.63	1.76]
	Catholic	27.29	1.38 *	[0.96	1.99]	Catholic	30.39	1.05	[0.71	1.56]	Christian	49.6	1.28	[0.83	1.97]
	Protestant	24.58	1.84 **	[1.19	2.87]	Protestant	24.37	1.01	[0.68	1.50]	Other	8.72	1.16	[0.66	2.03]
	Other (ref.)	15.45	0.88	[0.50	1.58]	Other (ref.)	14.40	0.86	[0.50	1.49]	Spiritualists (ref.)	24.5	1.00		
Education	0-3 years	22.38	0.42 ***	[0.26	0.68]	0-3 years	14.68	0.84	[0.56	1.26]	0-3 years	12.1	0.70	[0.42	1.16]
	4-6 years	26.33	0.58 ***	[0.40	0.83]	4-6 years	24.47	0.92	[0.62	1.36]	4-6 years	15.1	0.72	[0.44	1.19]
	7-8 years (ref.)	41.26	1.00			7-8 years (ref.)	49.99	1.00			7-8 years	23.6	1.00		
	9+ years	10.03	1.92 **	[1.02	3.63]	9+ years	10.86	3.12 *	[1.73	5.62]	9+ years	49.0	1.46	[0.92	2.33]
Zone	Northern	11.84	2.37 ***	[1.35	4.18]	Northern	12.86	1.64 *	[0.93	2.87]	Manicaland	10.0	1.25	[0.62	2.50]
	Coast	18.39	1.09	[0.72	1.65]	Coast	19.51	1.01	[0.62	1.63]	Matabeleland	22.3	1.40	[0.82	2.37]
	Southern	10.69	0.45 ***	[0.29	0.68]	Southern	10.46	0.60 **	[0.37	0.98]	Midlands	14.8	1.26	[0.81	1.94]
	S. Highlands	16.82	1.44	[0.89	2.31]	S. Highlands	18.67	0.93	[0.61	1.44]	Masvingo	10.8	1.08	[0.60	1.92]
	Central	23.31				Central	18.62				Mashonaland (ref.)	41.9	1.00		
	Lake	16.51	0.65 *	[0.39	1.08]	Lake	16.87	1.30	[0.73	2.33]					
	Zanzibar	2.44	0.64	[0.34	1.19]	Zanzibar	3.00	0.52 **	[0.28	0.96]					
Occupation	Non-agricultural	29.09	1.39	[0.94	2.07]	Non-agricultural	28.83	1.19	[0.77	1.86]	Non-agricultural	72.8	0.95	[0.42	1.61]
	Agricultural (ref.)	70.91	1.00			Agricultural (ref.)	71.17	1.00			Agricultural (ref.)	27.1	1.00		
Age	20-25	22.55	0.91	[0.55	1.51]	20-25	24.92	1.38	[0.92	2.08]	20-25	29.8	1.10	[0.65	1.38]
	26-34	28.55	1.15	[0.76	1.74]	26-34	28.49	1.13	[0.77	1.66]	26-34	30.5	0.84	[0.61	1.97]
	35-44	22.27	0.94	[0.65	1.36]	35-44	25.83	1.49 **	[1.03	2.15]	35-44	25.0	0.61 *	[0.49	1.43]
	45-60 (ref.)	26.63	1.00			45-59 (ref.)	20.76	1.00			45-60 (ref.)	14.5	1.00	[0.38	0.98]

N=1595, F(17,307)=8.19 Prob>F=0.000   N=1758, F(17,307)=4.06 Prob>F=0.000   N=1514, F(16,196)=2.67 Prob>F=0.001

*p<0.1 ** p<0.05 ***p<0.001

Table 3.9: Probability of Marrying after Age 24: Odds Ratios and 95 Percent Confidence Intervals.

Variables	Categories Tanzania 1992	%	Odds Ratios	[95%	CI]	Categories Tanzania 1996	%	Odds Ratios		[95%	CI]	Categories Zimbabwe 1994	%	Odds Ratios	[95%	CI]
Married by Age 24	Yes	51.98				Yes	52.72					Yes	49.17			
	No	48.02				No	47.28					No	50.83			
Residence	Urban	26.26	1.73*	[1.02	2.94]	Urban	22.76	1.11		[0.75	1.63]	Harare& Bulawayo	26.14	1.17	[0.76	1.79]
	Rural (ref.)	73.74	1.00			Rural (ref.)	77.24	1.00				Urban	10.92	1.15	[0.80	1.66]
												Rural (ref.)	62.94	1.00		
Religion	Muslim (ref.)	31.82				Muslim (ref.)	30.06					Traditional	17.93	0.79	[0.52	1.18]
	Catholic	27.82	0.98	[0.69	1.40]	Catholic	31.25	0.95		[0.67	1.34]	Christian	50.71	0.99	[0.70	1.40]
	Protestant	25.15	1.01	[0.68	1.51]	Protestant	23.67	0.96		[0.67	1.37]	Other	7.96	0.87	[0.46	1.65]
	Other	15.21	0.54**	[0.33	0.87]	Other	15.01	0.87		[0.52	1.43]	Spiritualists (ref.)	23.40	1.00		
Education	0-3 years	23.99	0.85**	[0.55	1.32]	0-3 years	16.37	1.47	**	[1.03	2.10]	0-3 years	14.81	1.31	[0.82	2.08]
	4-6 years	28.97	0.69**	[0.47	1.01]	4-6 years	26.61	1.28		[0.90	1.84]	4-6 years	17.28	0.93	[0.62	1.40]
	7-8 years (ref.)	36.99	1.00			7-8 years (ref.)	46.68	1.00				7-8 years (ref.)	24.38	1.00		
	9+ years	10.05	2.42**	[1.25	4.68]	9+ years	10.34	4.45	***	[2.65	7.47]	9+ years	43.53	1.32*	[0.97	1.79]
Zone	Northern	11.05	2.55	[1.34	4.83]	Northern	12.42	2.03	**	[1.26	3.27]	Manicaland	7.86	0.81	[0.55	1.21]
	Coast	18.25	0.85	[0.44	1.63]	Coast	19.47	1.59	**	[1.03	2.48]	Matabeleland	16.46	1.51	[0.91	2.51]
	Southern	10.72	0.30**	[0.15	0.57]	Southern	10.46	0.97		[0.62	1.53]	Midlands	10.59	0.94	[0.65	1.35]
	S. Highlands	17.97	0.86	[0.45	1.62]	S. Highlands	19.07	0.97		[0.62	1.50]	Masvingo	8.02	1.06	[0.63	1.78]
	Central (ref.)	23.37				Central (ref.)	18.47					Mashonaland (ref.)	30.93	1.00		
	Lake	16.26	0.48**	[0.27	0.85]	Lake	17.22	1.39		[0.84	2.27]	Harare & Bulawayo	26.14			
	Zanzibar	2.39	0.45*	[0.20	1.04]	Zanzibar	2.89	0.75		[0.33	1.67]					
Occupation	Non-agricultural	28.46	0.93	[0.64	1.35]	Non-agricultural	26.25	0.99		[0.70	1.41]	Non-agricultural	72.04	0.89	[0.62	1.27]
	Agricultural (ref.)	71.54	1.00			Agricultural (ref.)	73.75	1.00				Agricultural (ref.)	27.96	1.00		
Age	24-25	7.47	0.83	[0.47	1.45]	24-25	9.58	0.75		[0.46	1.22]	24-25	11.66	0.68	[0.41	1.13]
	26-34	34.11	0.96	[0.65	1.43]	26-34	34.31	0.85		[0.61	1.17]	26-34	37.22	0.86	[0.60	1.24]
	35-44	26.60	0.94	[0.66	1.34]	35-44	31.11	0.93		[0.68	1.27]	35-44	32.01	0.55**	[0.40	0.77]
	45-60 (ref.)	31.82	1.00			45-59 (ref.)	25.01					45-60 (ref.)	19.11	1.00		

N=1337 F(17,304)=5.54 Prob>F=0.000   N=1448   F(17,301)=3.37 Prob>F=0.000   N=1202   F(16,196)=2.14   Prob>F=0.007

*p<0.1 ** p<0.05 ***p<0.001

Table 3.10: Probability of Marrying after Age 28: Odds Ratios and 95 Percent Confidence Intervals.

Variables	Categories Tanzania 1992	%	Odds Ratios	[95%	CI]	Categories Tanzania 1996	%	Odds Ratios	[95%	CI]	Categories Zimbabwe 1994	%	Odds Ratios	[95	CI]
Marred By Age 28	Yes	76.13				Yes	76.23				Yes	74.77			
	No	23.87				No	23.77				No	25.23			
Residence	Urban	26.43	2.49 **	[1.43	4.34]	Urban	21.52	0.96	[0.63	1.46]	Harare & Bulawayo	21.91	1.43	[0.82	2.48]
	Rural (ref.)	73.57	1.00			Rural (ref.)	78.48	1.00			Urban	9.90	1.60**	[1.00	2.56]
											Rural (ref.)	68.19	1.00		
Religion	Muslim (ref.)	32.06	1.00			Muslim (ref.)	29.98				Traditional	18.55	0.84	[0.48	1.47]
	Catholic	26.87	1.05	[0.68	1.62]	Catholic	31.60	0.96	[0.59	1.54]	Christian	52.00	0.99	[0.60	1.63]
	Protestant	24.87	0.45 **	[0.22	0.93]	Protestant	22.07	0.92	[0.54	1.56]	Other	8.68	0.94	[0.48	1.84]
	Other	16.21	0.56 *	[0.29	1.06]	Other	16.35	1.34	[0.73	2.46]	Spiritualists (ref.)	20.76	1.00		
Education	0-3 years	26.95	0.95	[0.51	1.77]	0-3 years	17.85	1.30	[0.83	2.06]	0-3 years	18.75	1.55	[0.90	2.67]
	4-6 years	32.12	0.76	[0.48	1.21]	4-6 years	28.83	1.52 *	[0.97	2.39]	4-6 years	19.61	1.28	[0.82	1.99]
	7-8 years (ref.)	30.98	1.00			7-8 years (ref.)	43.07	1.00			7-8 years (ref.)	26.54	1.00		
	9+ years	9.96	1.85	[0.76	4.54]	9+ years	10.25	2.91 ***	[1.73	4.91]	9+ years	35.09	1.52*	[0.96	2.42]
Zone	Northern	11.05	4.36 ***	[2.38	8.00]	Northern	12.79	1.71 *	[0.94	3.11]	Manicaland	10.19	0.98	[0.58	1.66]
	Coast	17.51	1.05	[0.63	1.75]	Coast	19.19	2.12 **	[1.18	3.80]	Matabeleland	40.89	1.22	[0.72	2.07]
	Southern	10.82	0.60	[0.32	1.13]	Southern	11.52	1.03	[0.56	1.90]	Midlands	23.10	0.81	[0.49	1.32]
	S. Highlands	18.64	1.41	[0.81	2.45]	S. Highlands	18.08	0.98	[0.53	1.81]	Masvingo	14.63	0.61	[0.32	1.16]
	Central (ref.)	24.05				Central (ref.)	19.04				Mashonaland (ref.)	11.19	1.00		
	Lake	15.44	1.00	[0.46	2.15]	Lake	16.46	1.86 *	[1.01	3.40]					
	Zanzibar	2.50	0.40 *	[0.13	1.18]	Zanzibar	2.91	0.70	[0.28	1.76]					
Occupation	Non-agricultural	27.96	0.62	[0.30	1.28]	Non-agricultural	24.91	1.05	[0.68	1.63]	Non-agricultural	71.44	1.03	[0.61	1.73]
	Agricultural (ref.)	72.04	1.00			Agricultural (ref.)	75.09	1.00			Agricultural (ref.)	28.56	1.00		
Age	28-34	30.91	1.07	[0.66	1.75]	28-34	31.20	0.56 **	[0.35	0.89]	28-34	34.88	0.47**	[0.31	0.72]
	35-44	31.46	0.73	[0.48	1.11]	35-44	37.64	0.79	[0.56	1.13]	35-44	40.78	0.43**	[0.29	0.64]
	45-60 (ref.)	37.63	1.00			45-60 (ref.)	30.26	1.00			45-60 (ref.)	24.34	1.00		
	N=1121 F(16,300)=4.02 Prob >F=0.000					N=1206 F(16,292)=2.97 Prob>F=0.001					N=942 F(16,195)=2.09 Prob>F=0.010				

*p<0.1 ** p<0.05 ***p<0.001

3.3.4 Trends in Age at First Marriage

Trends in age at first marriage were analysed by looking at the rates of entry into marriage for different age cohorts. This involved life table analyses as well as age as an independent variable in the multivariate logistic models seen above. In comparing the trends, the focus is on the 20-29, 30-39 and 40-49 age groups. Results are presented in cumulative percentages ever married at different ages and are shown in Table 3.11 and graphed in Figures 3.3 to 3.5.

Both of Tanzania's 1992 and 1996 surveys suggest that age at marriage has been rising; the 1992 results showing a larger rise than the 1996 data. In Figure 3.3, the distributions for the different cohorts in 1992 show that rates of entry into marriage for the oldest cohort are always above those for the 20-29 and 30-39 year olds. The rates for the two younger cohorts are very similar, suggesting that entry into marriage for these two has not changed much. In 1996 the same picture is presented (Figure 3.4) up to age 26, where the proportion ever married up to this age is always higher for the oldest men but similar for the two younger cohorts. After age 26, proportions ever married are higher for the younger cohorts. Since some of the younger men are not yet married and their information is censored, it is not possible to know what the final ages at marriage will be for such respondents as one has no information to analyse after this point.

However, there are differences between the results of the two surveys and the first is in the size of the differential in the cumulative proportions ever married at different ages. From TDHS 1992, there is an indication that there is a very large change from the older to the younger cohorts while in 1996 the change is there but is smaller. In 1992 by age 24, 60 percent of the 40-49 age group are married, for the 20-29 and 30-39 groups the percent is similar at about 50 percent and 48 percent respectively. On the other hand, the figures for 1996 show that at age 24, 41 percent had been married in the 20-29 group, 42 percent in the 30-39 and 46 percent in the 40-49 group. Obviously, the difference between the oldest and the two younger cohorts is not as large as in 1992, but they both show that little change occurred between the oldest and the other two groups but there is no change after that.

Zimbabwe (as in Tanzania 1996 results) show that there has been little change in age at first marriage. For the three younger cohorts there is little difference in

proportions ever married by age 19, but the oldest cohort shows a higher proportion ever married at this age. Unlike Tanzania where the two younger cohorts have moved to a later pattern, in Zimbabwe it is only the youngest cohort that has moved to a later pattern with the two oldest cohorts being similar. This means that the change to a later age at marriage in Zimbabwe occurred more recently, and might still be going on.

No useful insights are gained by looking at the median ages at first marriage for the different age cohorts. Two of the three surveys show a typical pattern of age mis-reporting (especially by older men) that lead to inconsistent medians. The inclusion of a variable for the different age cohorts in the logistic models was not useful in illuminating whether the odds of marrying after a certain age were higher or lower compared to the oldest cohorts (i.e. reference groups). The results obtained were at most inconsistent. Older men sometimes had a higher probability of marrying after certain ages compared to younger men, while in some models older men had higher odds.

Table 3.11: Cumulative Ages at First Marriage by Age Cohorts.

Cohort	Age	Beginning Total	Cumulated Failure	Age	Beginning Total	Cumulated Failure	Age	Beginning Total	Cumulated Failure
	Tanzania 1992			Tanzania 1996			Zimbabwe 1994		
20-29	19	544	0.1329	19	663	0.0689	19	668	0.0489
	21	466	0.2930	21	622	0.1733	21	642	0.1146
	23	293	0.4079	23	472	0.3311	23	504	0.2923
	24	229	0.5036	24	277	0.4142	24	285	0.3762
	25	158	0.5284	25	206	0.5224	25	223	0.4835
	27	67	0.7258	27	138	0.7051	27	149	0.6494
	28	43	0.7697	28	48	0.7641	28	60	0.7543
	29	26	0.8051	29	24	0.8004	29	31	0.8245
	30	10	0.8406	30	12	0.8004	30	11	0.8245
			Median=24			Median=25			Median=25
30-39	19	428	0.1363	19	506	0.0738	19	421	0.0605
	21	374	0.2956	21	477	0.1786	21	404	0.1860
	23	305	0.4457	23	423	0.3359	23	350	0.3302
	24	240	0.4804	24	342	0.4214	24	288	0.4395
	25	225	0.5378	25	298	0.5049	25	241	0.5140
	27	201	0.7398	27	255	0.6641	27	209	0.6465
	28	124	0.7589	28	173	0.7165	28	152	0.7256
	29	105	0.7945	29	146	0.7864	29	118	0.7744
	30	89	0.8268	30	110	0.8350	30	97	0.8349
	32	75	0.8711	32	85	0.8900	32	71	0.8895
	35	41	0.9320	35	50	0.9504	35	40	0.9552
	39	14	0.9678	39	16	0.9861	39	12	0.9882
			Median=24			Median=24			Median=24
40-49	19	318	0.1723	19	349	0.1274	19	300	0.0726
	21	269	0.4154	21	315	0.2355	21	281	0.1650
	23	190	0.5538	23	276	0.3961	23	253	0.3498
	24	145	0.6000	24	218	0.4654	24	197	0.4158
	25	130	0.6400	25	193	0.5402	25	177	0.4818
	27	117	0.7969	27	166	0.6427	27	157	0.6436
	28	66	0.8523	28	129	0.6981	28	108	0.7063
	29	48	0.8738	29	109	0.7341	29	89	0.7393
	30	41	0.9015	30	96	0.7756	30	79	0.7855
	32	32	0.9446	32	81	0.8421	32	65	0.8383
	35	18	0.9631	35	57	0.8947	35	49	0.8878
	49	12	0.9877	49	38	0.9876	49	34	0.9891
			Median=22			Median=24			Median=25
50-60	19	241	0.1700	19	210	0.1370	19	110	0.1228
	21	205	0.3887	21	189	0.2603	21	100	0.1842
	23	151	0.4980	23	162	0.3790	23	93	0.2632
	24	124	0.5263	24	136	0.4566	24	84	0.3596
	25	117	0.5385	25	119	0.4840	25	73	0.4211
	27	114	0.6883	27	113	0.5936	27	66	0.5351
	28	77	0.7166	28	89	0.6621	28	53	0.5877
	29	70	0.7652	29	74	0.7169	29	47	0.6140
	30	58	0.8057	30	62	0.7489	30	44	0.6667
	32	48	0.8785	32	55	0.8037	32	38	0.7632
	35	30	0.9028	35	43	0.8584	35	27	0.7982
	60	24	0.9762	60	31	0.9817	60	23	0.9955
			Median=23			Median=25			Median=26

Tests: Tanzania DHS 1992: Log-rank test: Chi2 (4)=43.04, p=0.000
          Tanzania DHS 1996: Log-rank test: Chi2 (4)=15.04, p=0.005
          Zimbabwe DHS 1994: Log-rank test: Chi2 (4)=27.67, p=0.000

Figure 3.3: Cumulative Ages at First Marriage by Age Cohorts, (TDHS 1992).
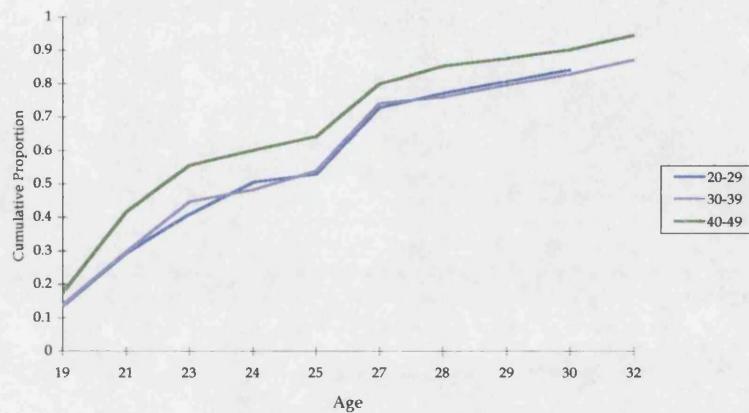
Figure 3.4: Cumulative Ages at First Marriage by Age Cohorts, (TDHS 1996).
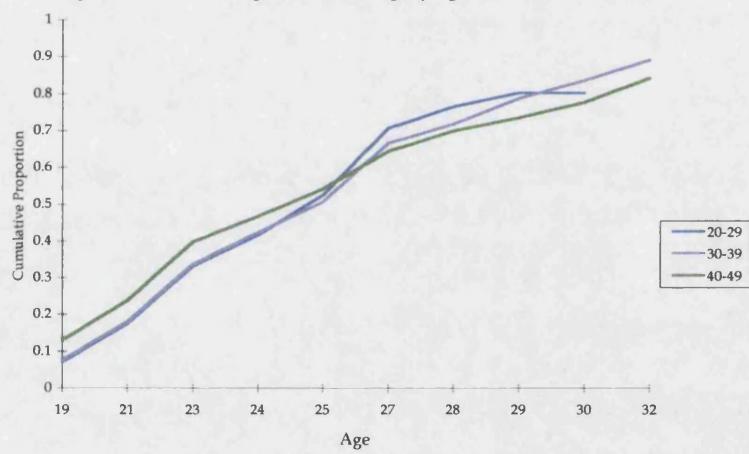
Figure 3.5: Cumulative Ages at First Marriage by Age Cohorts, (ZDHS 1994).
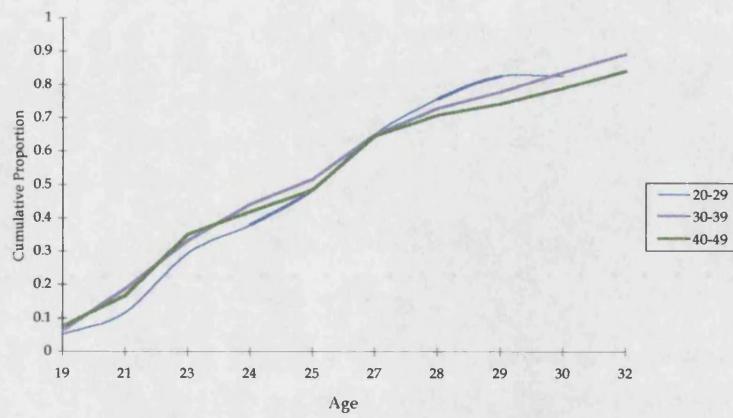
3.4 DISCUSSION AND CONCLUSIONS

The aim of this chapter was to explore the process of entry into marriage and to look at socio-economic differentials and trends in men's age at first marriage. Differentials, such as those seen between women with different characteristics, were expected. Zimbabwe, being economically more advanced than most countries in sub-Saharan Africa, was expected to show a pattern of nuptiality that is different from Tanzania's.

Entry into marriage was studied in terms of proportions ever married by different ages and the results from both Tanzania and of Zimbabwe showed that very few men get married in their teens or early twenties. Despite being disadvantaged in terms of economic and demographic indicators (as seen in chapter one), the overall pattern of entry into marriage in Tanzania is not very different from Zimbabwe. The difference in the mean age at first marriage between Tanzania (in 1996 SMAM=25.2) and Zimbabwe (25.6) is small. While lack of differentials in age at marriage for men has been found to be small (Dixon 1971), some differential was still expected. The economic advantage of Zimbabwe in terms of higher income, more education opportunities, urbanisation and exposure to the media did not translate into a higher ages at marriage for men.

However, there were some differentials between different socio-economic groups within the two countries. While few men married in their teens, at the univariate level certain groups had a faster rate of entry into marriage. These are groups that, given nuptiality patterns among women, were expected to have earlier entry into unions. Among followers of Other religions, those who have never been to school, those who work in agriculture and those who live in the Southern zone in Tanzania or Mashonaland in Zimbabwe, between four and five percent of 15-19 year olds were already married.

While there were some inconsistencies due to small numbers in some categories, the Singulate Mean Age at Marriage and the medians show more or less the same picture of differentials. In Tanzania, using medians to look at differentials by current residence confirmed that men in urban areas marry later. It also confirmed that the more traditional religions have younger ages at marriage, but that medians for the other modern religion groups were similar. Education was among

the variables that at this stage showed the widest differential, causing a difference of three years (TDHS 1996) and four years in (TDHS 1992) between those with 0-3 and those with 9 or more years of education.

Another important differential was between the zones in Tanzania. The most developed zones, Northern and Coastal, had as expected, the most delayed entry into marriage. The lowest age at marriage was in the Southern zone. The delayed ages at first marriage in the Northern zone are a reflection of the fact that this zone has historically had high levels of education. According to Roy-Campbell (1992), approximately 85 percent of school age population in this zone were enrolled in government schools, even as far back as 1965. The Northern and the Coastal zones are also more diversified in terms of the economic base. The Southern zone on the other hand is one of the least developed in the country with limited opportunities for work other than agriculture. There is however wide availability of agricultural land as the area is sparsely populated due to low birth rates as well as high out-migration (especially of young men). The zone has also been found to have early ages at marriage among women, which has been linked to early initiations into adulthood for girls as young as seven. Zanzibar being a zone dominated by Muslims, the conventional assumption would be that marriage would be early as is the case for women, but high levels of polygamy might be the cause of the observed delay in marriage in this zone.

When compared to Tanzania, Zimbabwe shows more homogeneity in ages at first marriage. For example, there is no large difference in the median ages by current place of residence, by levels of literacy or by religion. Even for education, which was the variable of greatest differential, the median for those with 9 or more years of education was the same as those with 0-3 years, (although those with 4-6 had a median that is one year lower). For zones, the largest differential in the median is two years, with four zones (Midlands, Masvingo, Harare and Bulawayo) having the same median. In addition, the zone with the highest median (Matabeleland) was unusually not one of the main urban centres as would have been expected. However, this result is consistent with the explanation in the work of Meekers and Wekwete (1997) who found that women's ages at marriage in this zone were also higher than

in other areas. Their explanations for delayed marriage in this zone include high out migration and lack of availability of agricultural land.

While the univariate analyses showed that some characteristics make a difference in the proportion of people ever married at different ages, few remained as important when analysed in a multivariate framework. For example, for Tanzania, current place of residence makes a difference only in the 1992 TDHS and then only in affecting the odds of marrying after age twenty-four and twenty-eight. In the ZDHS, there were significant effects of delayed marriage for men that lived in the two main urban areas. This one characteristic is usually strongly associated with large differentials in age at first marriage for women, but was not so for men. This is probably because even in rural areas, men have to acquire the means to marry. A man will have to await an inheritance or venture out to look for employment. In addition, young men are likely to be in competition for wives with older more established men who might be in better position to marry additional wives. It was also expected that education would lead to a big differential but this was only true in Tanzania. In Zimbabwe, a significant differential in delaying marriage post age 18, 24 and 28 was observed only for the group of men with nine or more years of education. Higher proportions with men with education and a more diversified economy might explain this lack of differential in Zimbabwe. Homogeneity in age at marriage between the zones is probably a reflection of the homogeneity of its population that is made up mainly of two tribes. One of these tribes makes up 80 percent of the population; unlike Tanzania where there are 120 tribes. The lack of strong differentials in age at first marriage for men is probably indicative of a state that is specific to men. It is suggested that there are well-established patterns of behaviour that will be hard to change even when economic and social changes take place. For example, men might be expected to marry in their mid-late twenties irrespective of their circumstances.

Not surprising, results were more consistent with the literature when similar logistic models were used to look at the odds of marrying after certain ages for women. For example, the 1996 results for women show that marriage starts as early as age nine such that by age fourteen fifteen percent of women were married. Similar variables as those used in models for men were used i.e. type of place of residence

(or childhood place of residence), religion, education (or literacy), zone of residence and whether the woman works or not. Results showed that differentials are very pronounced and statistically strongly significant.

For women the most important covariates were education and levels of literacy. The probability of marrying after age fourteen showed that education, literacy and whether the respondent was employed were important. Education and literacy raised the odds for delayed marriage. While residence type and religions did emerge as significant, this happened only in the models predicting the odds of early marriage. The rest of the models showed that indeed residence did raise the odds of marrying later, and the odds did go up as we moved to the probabilities of further delay. For example the probability of marrying after sixteen for urban residents is only 14 percent higher than for rural residents. This goes up to 31 percent, 63 percent, 63 percent and 78 percent when we looked at the probability of marrying after eighteen, twenty, twenty-two and twenty-four. Education groups for women (those with and those without primary education as there were very few women with more than primary education) consistently showed that having primary education and above always raised the odds of marrying later. For the probability of marrying after age fourteen and sixteen primary education raised the odds by at least twice, while the probability of marrying after age twenty and twenty-two are only 82 percent and 65 percent respectively.

The importance of religion was seen in the models of the probability of marrying after age sixteen, eighteen, twenty, twenty-two and twenty-four. Though the Protestants do not stand out as an odd group both Catholics and Protestants did. Muslims on the other hand show the typical pattern seen in the literature i.e. Muslim women tended to marry earlier. For example the odds of marrying after sixteen, compared to followers of Other religions, are 30 percent less for Muslims, and they are 20 percent, 39 percent, 50 percent and 45 percent less for the probabilities of marrying after eighteen, twenty, twenty-two and twenty-four respectively. Concurrently women in Zanzibar married earlier as shown by the odds ratios. It is suggested that while Islam is important in women marrying early, it is not the case for men. Other zones that are of importance are residence in the Northern zone which delays marriage compared to the Central zone. But the Southern zone, which

for men was an area with early marriage, this was not the case for women. Women in this area did marry earlier than in all the other zones, but not significantly so after controlling for other variables.

The chapter concludes that age at marriage for men in Tanzania and Zimbabwe is later than for women and that there are few variations between socio-economic groups. For Tanzania, apart from education and zones of residence, few other variables are important as determinants of age at first marriages when socio-economic variables are looked at in a multivariate framework. The lack of strong differentials is probably due to the fact that the DHS questionnaires might not be asking the right questions regarding factors that might affect entry into marriage for men. There are differentials in age at first marriage by cohorts, with larger differentials in the 1992 survey than the 1996. Both suggest that there has been a change between the oldest cohort compared to the two youngest. Zimbabwe also shows that the rate of entry into marriage has changed but the difference is between the two oldest and the youngest cohort. In both countries the summary measures such as the median and the SMAM give unreliable results so that one cannot tell by how much age at marriage has risen. There are inconsistencies in the reporting of ages at first marriage between the two surveys in Tanzania, a result of small numbers in some groups, which give spurious results.

In conclusion, it is important to note that the above results still have to be treated with caution. The major problem that remains unresolved concerns the differences in the magnitude of differentials by background characteristics that were seen between the 1992 and 1996 TDHS. Data quality checks did not fully resolve which results to trust though one is inclined to trust the 1996 results, which showed less heaping of responses. This is however compromised by the fact that completeness of reporting of current age (Chapter Two) and of age at marriage could have been worse in the latter survey to result in more imputation. While less heaping is a good sign, more imputation does not necessarily mean better data quality. The lack of strong differentials for men's patterns of marriage could also be due to the fact that DHS surveys are based on theorisations about women, different type of questions might be necessary if one is to uncover factors that affect male patterns of family formation.

4 Types of Unions

This chapter looks at the types of unions that men formed in Tanzania and Zimbabwe. It first reviews literature on the variety of ways that a couple can be defined as married in some societies in sub-Saharan Africa, then it presents methods in the study of polygamy, and lastly describes those used in this analysis. Methodological considerations that had to be taken into account in data analysis are discussed; as well as other issues of data quality. Results show that, especially in the 1992 TDHS, a sizeable proportion of men in Tanzania are in consensual unions, and there is evidence that certain socio-economic groups have higher prevalence of this type of union. As expected, in both countries the prevalence and intensity of polygamy are moderate compared to societies in West Africa. Multivariate analyses for men show that few of the expected socio-economic determinants of polygamy as demonstrated in demographic and anthropological literature are statistically important. The prevalence of polygamy among women conforms more closely to the expected patterns as found in the literature. This was also true for determinants of rank of women in polygamous unions.

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4.1 TYPES OF UNIONS IN SUB-SAHARAN AFRICA

The interest of demographers in types of unions lies in the potential for different forms of unions to produce different family and fertility patterns. This is because different types of unions lead to varying exposures to conception, different living arrangements and patterns of sexual relations, contraceptive use, breastfeeding and other postpartum practices. For example, the different types of unions carry varying risks of marital dissolution (widowhood or divorce) that shorten the length of time that an individual is in a relationship. Most of the demographic implications of different types of unions concern those that involve a large number of partners such as polygamous unions. The prevalence of polygamous unions has implications for the age difference between spouses and between parents and their children; patterns that might reinforce the superiority of men.

As well as affecting the power relations within the household, polygamy is practised more commonly by individuals with certain characteristics, which also affects demographic outcomes. Demographers are interested in types of unions because the predominance or absence of certain types of unions in a society might be an indicator of its position in the transition from a more traditional way of life to a more modern one. Goode (1963) speculated that with the spread of education and other modernisation influences, practices such as polygamy would decline, and that such a move towards nuclear families could have implications for societies in sub-Saharan Africa.

Types of unions shape sexual behaviour patterns with consequences for the risks of sexually transmitted diseases. While monogamous unions might be assumed to be the safest due to the number of partners involved, women in such unions might be at a higher risk of being infected by their husbands. Orubuloye et al. (1991) write of men in monogamous unions engaging in commercial sex more often than do men in polygamous unions. This is because if a monogamous wife is abstaining following a birth, the husband is more likely to look for sexual relations from commercial sex outlets than would be the case if he had other wives.

Different types of unions have implications for living arrangements and might have an effect on the welfare of women, and on children's health. On the living arrangement of polygamous couples, Kenyatta (1979) gives an account of

polygamous households among the Kikuyu of Kenya, among whom co-wives in a polygamous marriage would all live in one compound with their husband, each with her own hut for her and her children (Kenyatta 1979). Cory and Hartnoll (1971) describe the same setting for the Haya of Tanzania, Cory (1955) the Nyamwezi of Tanzania, and Cory (1953) the Sukuma of Tanzania. Not much is known of the current living arrangements for polygamous unions, although Bledsoe (1990) noted that the decline in the formal recognition of second wives has produced what are known as 'the outside wives'; usually illicit liaisons outside the marital union. This means that where in the past co-wives would together live in one compound; this is no longer necessarily the case.

It is not clearly known whether in these modern times where co-wives are not likely to reside in one compound with the polygamous husband, with which of the wives the husband would most likely live. The practice of leaving older wives in the rural areas and taking a new one in town when men move, suggests that second or higher order wives are more likely to live with husbands. However, the house that was established first is usually the family house. Among the Haya, the house belonging to the first wife is known as the 'big' house and this is known as the official residence of the man (Cory and Hartnoll 1971).

For individual women, the effect of polygamy on fertility is a mixed one; different societies would require separate analyses for a conclusion to be reached. Polygamous women are more likely to be in a setting that encourages high fertility. For example, they are more likely to be uneducated rural residents with less knowledge of the world, be less Westernised, and be in rivalry with co-wives in producing more children for the man and to use less contraception (Nyblade and Menken 1993). Lower fertility for women in polygamous union is likely to be because such women are likely to have been married before, and spent some time in the divorced or widowed state and so less total time in a union. Their lower fertility could also be due to lower frequency of intercourse or to infertility.

Pebley and Mbugua (1989) found that monogamous women in Cameroun, Ghana, Ivory Coast, Kenya, Lesotho and Senegal had higher fertility than polygamous women, regardless of rank. However, when the rank of the women is taken into account the pattern was not consistent. Senior wives in Kenya and Lesotho

had lower fertility than junior wives did, but the difference between senior and junior wives in Cameroun and Ivory Coast was very small. In Senegal, senior wives have higher fertility. Pebley and Mbugua (1989) found that despite the differentials in fertility between women in polygamous and monogamous unions in Kenya and Ivory Coast, the periods of postpartum abstinence within the two types of unions were not significantly different. In Cameroun and Ghana polygamous women abstained for 2-3 months longer than those in monogamous unions; although in Lesotho the reverse was the case. Chojnacka (1980) also gives similar inconclusive evidence on several societies in Nigeria. In Tanzania, according to Mturi and Hinde (1997), polygamously married women have slightly lower fertility. According to Mturi and Hinde (1994b), they were more likely to have longer birth intervals and the risk of conception for polygamous women is seven percent lower than for women in monogamous unions since they tended to abstain for longer and to have lower frequency of intercourse.

The effect of polygamy on the population is that it enables those women who would not find single men to marry and those who get divorced or widowed to have children. For men and for the population polygamy increases fertility. For men, polygamy allows them to have access to sexual relations when pregnancies or abstinence would prevent them. The practice also further lengthens the reproductive life span of men that would otherwise end when their first wives reached menopause.

Lazo (1994) shows the importance of studying the different types of unions for fertility analyses. This work shows that Brazilian women in consensual unions tend to have higher marital fertility than women in other unions. On the stability of unions, Pilon (1994) shows that among the Muba-Gurma of North Togo levirate marriages are the most stable while marriages established by abduction of the bride are the most unstable. The work also found that the way a union is contracted is similar to the way it is dissolved. It is easier to dissolve a union that has been easy to form than arranged marriages where the families are very involved and where a bride price has been paid. These marriages are more stable than those formed by abduction. Goldman (1981) also found that consensual unions are subjected to higher risk of dissolution than are legal marriages

It is thus clear that one cannot really say whether monogamous women have higher or lower fertility when compared to polygamous women. In addition it is important not only to look at individual societies but also important to differentiate between the ranks of the wives. Deficiency in the knowledge of how other types of unions might affect demographic issues makes this area relevant for research.

4.1.1 Difficulties in the Study of Types of Unions

As already mentioned in chapter three, the major problem that is encountered when studying marriage in sub-Saharan Africa is that of definition of marriage (Isiugo-Abanihe 1994; Pilon 1994). Another issue concerns the many ways that unions are established in sub-Saharan Africa, which make identification of unions very challenging. Defining whether an individual is married is complicated by the fact that in most of sub-Saharan Africa, marriage can be a process of negotiation, changing the status and type of union over time. Alternatively, this whole process can be skipped; as a result, what is marriage in one society might not be considered so in another. The resulting mix of different stages of union and the different types of union can be confusing; especially to one not familiar with the culture.

Another problem is that data on marriage is collected at one point in time and rarely are full marriage histories collected. This makes it difficult to study how and when a union changes from one form to another. For example an individual can be married into a monogamous or polygamous union, divorce after a number of years and remarry soon after into a union different from the first. The fact that an individual is currently in one form of union might not explain everything about that individual's nuptial history. Associated with the above problem is that even when a marriage history is collected, the data is usually affected by recall errors and omissions. Respondents might not remember the dates when they got married or they might omit unions that did not last. What starts as a 'living together' arrangement is most likely to change into marriage as years go by or if children are born of that arrangement.

4.1.2 Types of marriages in sub-Saharan Africa

Given the social, economic and religious diversity that is characteristic of sub-Saharan Africa, the processes that lead to marriage and the types of unions produced are very diverse. This section reviews some of the ethnographic accounts of the different forms of unions that exist in sub-Saharan Africa. It is not possible to cover all the different types of unions and reasons that can lead to unions in such a diverse region, especially since ethnographers tend to concentrate on societies which for one reason or another stand out.

Marriages in most of sub-Saharan Africa are predominantly exogamous i.e. people have to marry outside their descent group. Traditionally all marriages were arranged and officiated at the family or clan level. However, the arrival of foreign religions, education, urbanisation and other changes, have brought in other ways that marriages can be contracted, not always requiring the approval of the extended family, though in many cases parental approval is still sought (Meekers 1994a). Increasing mobility and urbanisation has meant that couples are likely to meet and marry people of different backgrounds.

i. Types of Union by Method of Initiation

Demographers rarely study the different ways that unions are initiated. In most cases attention has been more focused on the number of partners in a union, though Meekers (1994a) has shown how it is possible to get more information. This section first looks at other forms of initiating a union, which could be defined as consensual by Western definition, but which, in the majority of African societies in which they occur, are considered formal.

Consensual unions

In demography, these are defined as those unions where a man and a woman live together as a couple, but have not gone through a marriage ceremony. There are a number of reasons why couples decide to live in such a union. It could be that the couple is not sufficiently economically well placed to get married, and living together is then a way of avoiding the expenses of gifts, the bride price and marriage ceremonies necessary for there to be a full process. The union might not have the

blessings of the families, or the couple might not be ready to make a commitment (Cory and Hartnoll 1971; Meekers 1994a).

Consensual unions can be entered into voluntarily or by coercion. They could be a result of elopement or bride abductions, both of which were, and might still be, recognised as legitimate ways of forming a union in different parts of sub-Saharan Africa. Elopement (*kutisiza*) or flight marriages (*kutizira*) among the Shona of Zimbabwe, are preludes to many 'formal' marriages. In the case of an elopement, a girl will arrange to elope with a boy, and arrangements for a marriage ceremony would be made later, usually at a faster speed than would have otherwise been the case. Holleman (1952) reports on a survey covering more than 700 marriages in the Sabi Reserve (part of Mashonaland, Zimbabwe) which showed that more than forty percent of all marriages were preceded by an elopement. A similar practice is found among the Haya of Northwest Tanzania where a couple may also elope (*kulehya*), and formalise the union after negotiations and bride price payments (Cory and Hartnoll 1971). The Sukuma of Central/ North Tanzania also have similar variations (Cory 1953).

Marriage could be contracted by abduction, known as *putugnu* among the Moba-Gurma of Togo or *kushutura* among the Haya of Tanzania. Abduction among the Haya could either mean 'real' abduction in the sense that the girl is an unwilling bride (this practice is now outlawed), or could be 'staged' abduction so as to lessen the blame that the girl would carry for agreeing to such a union (Cory and Hartnoll 1971). Among the Moba-Gurma 'real' abduction no longer exists and abduction of a girl is by pre-arranged consent. In Tanzania abduction of brides is prohibited as a measure against violation of women's rights as well as a measure against the spread of HIV/AIDS.

Marriages could also be a result of direct economic exchanges such as bride-wealth paid by labour. This occurs when the groom cannot afford proper bride-wealth, known as *puokpedu or puokuu* among the Moba-Gurma of Togo, *kuzwarira* among the Shona of Zimbabwe (Holleman 1952; Meekers 1994a), and *kuhaha* or *kuhanira* among the Sukuma of Tanzania (Cory 1953). Marriages can be contracted by parents before the bride and groom are even born, where in return for a loan, a family will promise a bride at a future date. An example is child betrothal, known as

puopaab among the Moba-Gurma of Togo, where a child is offered for future marriage as a form of gratitude for a favour rendered or as a means to cement a friendship between families.

Another type of union which has the potential to cause a confusion as to whether one is married or not, is what are known as a "woman-to-woman" union. Not much is known about the demographic implications of these types of unions, however, Rwezaura (1985) gives a description of such unions. These unions are practised when a couple has reached old age without producing an heir (specifically a male heir), and an arrangement is made to acquire a child for the 'house'. In these cases the old woman of the house will 'marry' a young woman who will be expected to produce children who will bear the name of the house. The old woman will choose with whom the bride will have children, and the chosen man is usually a relative of the old woman's husband. Sometimes the chosen young woman will live under the protection of the older woman for many years before she is ready for childbearing, however, no sexual relations with the chosen man will take place during this time. The status of the young woman during this time is that of 'the wife of the old woman'. In other cases such unions enable single, usually wealthy, women who did not produce children, to obtain sons and hence have someone to look after them in old age and to carry on their names.

Such unions can be found among the Kurya of North Tanzania, among whom such unions are known as *mokamona*, that is a relationship between a sonless house represented by a married woman or widow and a young woman (Rwezaura 1985). Children born of such unions, according to Kurya Customary Law, belong to the old woman that brought in the girl. The Nuer of Sudan and the Simbiti of Tanzania are also known to practice woman to woman marriages.

While a multitude of ways of getting married exists, many countries have attempted to simplify the situation by defining what is a legal union. According to the Tanzania Law of Marriage Act of 1971: 'Marriage means the voluntary union of a man and a woman, intended to last for their joint lives. Where it is proved that a man and a woman have lived together for two years or upwards, in such circumstances as to have acquired the reputation of being husband and wife, there shall be a rebuttable presumption that they were duly married'. In Tanzania for all purposes of

the law a man and a woman who have lived together for 2 years are considered to be husband and wife. The Act also recognises different forms of unions that are conducted under customary laws or by religious and civil appointees and so examples of the types of marriages mentioned above would be legal (Government of Tanzania 1971).

Since very little data are collected on the different forms of unions that exist, it is only possible to speculate which social groups are more likely to opt for which type of unions. Economic exchange marriages are more likely to be practised in the rural areas where it would make good economic sense. Such unions are also likely to be more readily acceptable in rural rather than urban areas. Pure consensual unions in the Western sense where a couple decides to live together with no societal or parental disapproval are more likely to be found in urban areas than in rural areas, because of less social control. In some countries large differentials do occur between urban and rural areas. Goldman (1981) found that 'consensual unions in Colombia, Panama and Peru are especially frequent among women in rural areas, among women with little education, and among women who enter unions at young ages'.

ii. Types of Unions by Number of Spouses

In sub-Saharan Africa, the most studied of unions involving more than one partner is polygamy; practised to different degrees in different parts of the continent. Polyandry is not common but is practised for example by the matrilineal Kagoro and Kadara of Northern Nigeria and the Lele of the Kasai Basin in the Congo (Mair 1971).

The usual assumption is that it is possible for the practice of polygamy to exist because of unbalanced sex ratios (i.e. too many women compared to men), or because of above normal levels of celibacy among men. Chojnacka (1980) found that it is possible for sex selective rural to urban migration of men in prime marriageable ages to distort the sex ratio in both rural and urban areas in opposite directions; creating conditions conducive to polygyny in the rural areas. However, while sex ratios might be an enabling factor is some circumstances, this is not the main factor as on the whole most sub-Saharan Africa societies have relatively well-balanced sex ratios (Clignet 1970). Reasons that enable polygamy to exist include the large age difference between spouses, rapid remarriage of widows and divorcees, widow

inheritance, near non-existent female celibacy, high mortality of men at higher ages and a fast growing population. Goldman and Pebley (1989) used data from Cameroun, Senegal and Sudan to show that the excess number of marriageable women was generated by these factors and the differences in the prevalence of polygamy in these countries could be accounted for by the differences in the prevalence of these factors.

Compared to other societies that also practice polygamy, the percentage of men involved in polygamy is higher in sub-Saharan Africa than in other parts of the world. Between 1 and 7 percent of married men in North Africa and the Middle East are polygamous but as many as 20 to 50 percent among married men in West, Central, East and Southern Africa (Goldman and Pebley 1989). Within sub-Saharan Africa, more recent DHS data show that prevalence is comparatively low among women in Eastern and Southern areas of Africa with a prevalence of between 11 and 31 percent in rural areas and 7-11 percent in urban areas. Prevalence is highest in West Africa, in the coastal regions and the Sahel, where half the married women are in polygamous unions. Within West Africa prevalence is lower in Ghana and Nigeria and highest in Togo, Benin and Burkina Faso (Hertrich and Pilon 1998).

This geographical pattern was also found by Blanc and Gage (2000), for example, between 9 (Rwanda) and 28 (Burkina Faso) percent of men aged 20-54 were in polygamous unions. They also noted that the intensity of polygamy (i.e. the number of wives that a polygamous man has) is about two. The proportion of men with three or more wives ranged between 7 percent in Rwanda to almost 25 percent in Cameroun. The lower prevalence and intensity of polygamy might be linked to the absence of post-partum restrictions in Rwanda.

4.1.3 Determinants of Polygamy in sub-Saharan Africa

Whether an individual is polygamous or not, is a function of many factors. For men, having multiple wives and a large number of children might be a prestigious status to have. Polygamy is also important in forming alliances and political connections that are not readily possible with a small family. Polygamy might be practised for economic reasons but also depends on social organisation and the traditions that make it necessary. The age of the individual is an important factor and so prevalence

of polygamy increases with age, unless polygamy was rising in that population for other reasons. Since contracting a marriage is expensive, unless a man is well off, it will take time before acquiring additional wives. As polygamous status can also be acquired by inheriting deceased relatives' wives, it is in most cases later in life that a man might have old-enough relatives whose widows they can inherit. Another reason why polygamy increases with age is that if a man has an infertile wife, it might take a number of years before a decision is reached to acquire another wife.

One of the results of, as well as a necessary condition for polygamy, is the large age difference between husbands and wives in such unions. Despite the importance of this feature in African marriages not many studies have been conducted on this area. However, the topic is important because it affects fertility in several ways. Age difference between spouses might influence women's chances of conceiving through reduced frequency of sexual intercourse due to widowhood. Age differences where a man is much older might also affect power relations within a household; meaning that the older dominant husband will decide on household spending and might make discussions on family planning or utilisation of health care facilities harder.

In sub-Saharan Africa a large age difference is a feature that is necessary for polygamy to survive and in areas where polygamy is widespread the age difference between spouses is usually larger (Lesthaeghe 1989b). Since a man in a polygamous union will start as a monogamist and then acquire a second wife as he ages, the age difference between a man and his first wife is usually small. As he grows older and acquires more wives who are usually younger than the first wives, the gap becomes larger. In sub-Saharan Africa it is rare to find men who are younger than their wives. The few cases that exist might be men who acquire additional wives, through 'inheriting' widows from relatives. In Islam, for example, to provide protection to a widow by marrying her is worth extra blessings and so some men might end up with wives older than they are for this reason.

For Botswana the typical five years differential in ages at first marriage between men and women is considered small, and is attributed to both high levels of education attained by women and the lower prevalence of polygamy in this society. The 1971 Botswana Census recorded a SMAM of 24.3 years for women and 29.3

years for men. One could speculate that for Botswana the gap is smaller because women's age is closer to the men's rather than the other way round as this has been found to be the case for many societies, Casterline et al. (1986).

According to Orobaton (2000), men in sub-Saharan Africa also practice polygamy for pleasure and not necessarily to acquire more children or status. The same has been found true by Lee and Feng (2000), as among the Qing nobility, polygamy was usually for pleasure and not for higher fertility motives. In general, the variation in the prevalence of polygamy is for different reasons in the diverse societies of sub-Saharan Africa, and also differing reasons have caused its erosion in some parts of the continent. Factors such as religion; as well as modernising influences such as industrialisation, urbanisation, education and Westernisation are responsible for the change.

One of the factors that accounts for differences in prevalence is the different laws concerning polygamy that exist in different countries. In North Africa, polygamy is illegal in Tunisia, restricted in Algeria and Morocco and allowed in Egypt. In sub-Saharan Africa, polygamy is illegal in Guinea and Côte d'Ivoire, although this has not reduced polygamy in these West African countries. For example, Cote D' Ivoire, which abolished the practice in 1964, still has some groups with a high proportion of polygamous unions (Lesthaeghe et al. 1989). However, abolition of polygamy in Botswana has been cited as one of the factors that led to decline of the practice (Timaeus and Graham 1989). In Tanzania, a man and a woman can decide at the onset of their union whether the man will be allowed to have more wives or not. Alternatively a man can later ask his wife for permission to take on another wife. This is likely to be granted either from the perceived advantages of polygamy or because the woman might have no choice. This of course only applies to traditional, Muslim or civil marriages (Government of Tanzania 1971).

For most societies in sub-Saharan Africa polygamy is practised in order to produce a large number of children that will ensure lineage continuation. Most societies practice ancestor worship and it is considered a major failure if an individual dies without children (especially sons), who will perform sacrifices for the souls of the departed family. For this reason, multiple wives act as an insurance against childlessness especially in areas with infertility problems. The central areas of

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sub-Saharan Africa (Congo, Zaire, and Cameroun) are known to have had higher than average rates of infertility, and at the same time these areas also had a high incidence of divorce, remarriage and polygyny (Lesthaeghe et al. 1989). The major causes of infertility in sub-Saharan Africa are gonorrhoea, syphilis and chlamydia infections or complications following abortion or unhygienic conditions at childbirth, and diseases like malaria that can cause pregnancy wastage and neonatal mortality (Belsey 1976). The mutually enforcing cycle of sexually transmitted diseases, infertility and multiple partnerships kept the practice of polygamy alive.

It is documented that childlessness is a valid reason to acquire extra wives. Kenyatta (1979) for example, describes the procedure among the Kikuyu that will determine whose fault it is that a union has not produced children. If the woman is suspected of barrenness then the husband will ask one of his age mates to have intercourse with his wife. If she does not conceive then the man will either divorce her or take on an extra wife. A barren woman is always the subject of ridicule and other taunts such as those of being a witch and in many areas barrenness is believed to be punishment for practising witchcraft. It is thus more likely that a senior wife in a polygamous union will be infertile compared to junior wives.

Polygyny is practised to allow women the period of postpartum abstinence. This allows men uninterrupted access to sexual relations during their wives' pregnancies or following the birth of a child, (though exceptionally in Rwanda, sex is prescribed soon after birth, to ensure the good health of the baby (Locoh 1994)). The difference in the prevalence of polygamy between West Africa and regions in the East and South of Africa is said to be linked to differences in the adherence to postpartum taboos and longer breast-feeding in the West of Africa. In some regions, reports from older women show that periods of breastfeeding and abstinence used to be as long for Eastern and Southern African women. Current shorter durations demonstrate the erosion of this practice; and the lower rates of polygamy in these areas might be linked to the erosion of a practice that used to be widespread (Lesthaeghe 1989b). However, for Tanzania, Hinde and Mturi (1996) found that the long durations of breastfeeding have not declined much in recent decades.

There is an economic rationale for the practice of polygamy. Wives and children are a source of wealth through the labour they provide; as well as support

for old age. Boserup (1970) linked higher prevalence of polygamy to societies with low levels of agricultural technology compared to where pastoral activity is important. Lower prevalence of polygamy in Botswana for example, has been linked with the spread of pastoralism as the main type of agricultural production, an occupation that does not require a large labour input. Another example of the economic advantages of polygamy is given by Caldwell et al. (1989) who accrue some of the difference in polygyny rates between the East and West Africa to the fact that more women in West Africa are involved in trade. Since their work may take them away from their homes for considerable lengths of time, women may themselves encourage their husbands to take up another wife so that they have childcare help and can then fully engage in trade. There are even cases of powerful women traders 'marrying' wives for their husbands, a practice similar to the woman-to-woman marriages described above. The idea held by many scholars, that polygamy is immoral or undesirable to all women, is not held by all women in sub-Saharan African societies. In many cases they will feel that polygamy is a mutually beneficial arrangement.

Being polygamous is also determined by modernising influences such as education, urbanisation, industrialisation and religion. Education for women can have two opposing effects on the probability of a woman being polygamous. On the one hand an educated woman is less likely to find such a union acceptable and might divorce rather than to grant permission for a husband to marry additional wives. On the other hand, since she is educated, she might not have a choice but to marry into polygamy, since as she ages she will not be a first choice for many men. An educated woman if sterile could also seek medical advice and so is less likely to provide a husband with a reason to marry additional wives. For men, education might also discourage polygamy by instilling nuclear family ideals. On the other hand, education in many sub-Saharan societies might be the pathway to wealth and this might empower them to have additional wives, some of whom will be 'outside' wives.

4.1.4 Trends in Polygamy

Goode (1963) speculated that with 'Westernisation' of Africa, the practice of polygamy would decline and that in time it would disappear, as more women became educated and economically independent. While some changes have been taking place in African society, the practice is still prevalent in many areas and might never completely disappear. Most recent DHS data confirms that polygamy remains high in the West, moderate in the East and low in the Southern areas and Rwanda and Burundi. In Ghana and Kenya the percentage of women in polygamous unions has declined in consecutive surveys though for other countries the change is very small. For example in Kenya polygamy among women dropped by 10 percent between 1977 and 1993 (29.5 to 19.5 percent) (Kenya Central Bureau of Statistics 1993). In Uganda the prevalence declined from 33 percent of women in polygamous unions in 1988-89 to only 30 percent in 1995 (Uganda Statistics Department 1996). The Ghana Fertility Survey of 1979-80 shows that the proportion of women polygamists was 35 percent, falling to 33 percent in the 1988 DHS and further to 28 percent in the 1993 DHS (Ghana Statistical Office 1994). Senegal has seen very little change between 1978 at 48.5 percent and 1992 at 47.3 percent (Ndiaye et al. 1997). The 1996 Zambia DHS reports the same level of polygyny among women percent as in 1992: 17 percent in both years (Zambia Central Statistical Office 1997).

Changes that could bring about declines in prevalence of polygamy are numerous and most stem from changes in those institutions that traditionally supported the practice. Changes in agricultural practices, increasing economic hardship making acquisition of wives costly, spread of education and Christianity (in some places), decline in postpartum taboos about sex and breast feeding, the decline in the prevalence of sterility and the spread of Western ideas of small conjugal families are among the reasons.

The effect of religion in promoting or suppressing the prevalence of polygamy in sub-Saharan Africa is not as clear-cut as one would expect. Christianity in its pure form should discourage multiple unions but it does not seem to be wholly successful and in places such as in Zimbabwe, there has even been a fusion of Christian ideas with African beliefs to produce a new system that encourages polygamy. For the countries that Timaeus and Reynar (1998) looked at (Kenya,

Ghana, Senegal, Uganda and Zambia), it was found that in all but one, the effect of Christianity was to lower the prevalence of polygamy. However, they found that Christianity had no significant effect in Kenya. Interestingly, they found that intensity was highest among followers of non-modern religions. While Islam allows up-to four wives, the most Islamic of states in the North of Africa are the least polygamous as compared to the more Christian societies further south in sub-Saharan Africa.

The higher prevalence of polygamy in West Africa compared to Eastern and Southern African countries is an example of how the decline in the practice of post-partum abstinence and breastfeeding could lower polygamy. However, while the prevalence of polygamy might be falling in some societies, other forms of unions are replacing formal polygamy. Bledsoe (1990) notes that Sierra Leone has been undergoing a lot of changes, with these, social controls on marriage have become less constricting. As a result new forms of unions that provide alternative avenues for childbearing have been emerging. Bledsoe (1990) writes of the increasing numbers of women in *deuxieme bureaux* (unrecognised second or higher order wives) and notes that these women are usually more educated and economically more independent than the average Sierra Leonean woman. Such women opt to become 'outside' wives rather than formally marry into a polygamous union, despite the worse deal they seem to get by being in such arrangements. As 'outside' wives they are not socially recognised as wives and are often sidelined when it comes to attention and child care provisions from the men or families of the men. These sorts of unions give men a chance still to have a large number of children while escaping the economic costs.

4.2 DATA AND METHODOLOGY

This section first reviews methods for analysing data on types of unions and then gives an account of the methods used in this study. Finally, the section looks into data limitations and assumptions that had to be made during analyses.

4.2.1 Methods in the Analysis of Type of Unions

Though the above account points to the variety of unions that are found in sub-Saharan Africa, the DHS format allows only a limited study of the nuptiality picture.

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This is because, to study all the above a different set of questions and surveys would be required.

In the formal demographic study of polygamy, several methods in differentiating societies by the degree to which they practice polygamy have been developed. As presented by van de Walle (1968), the following are the main indices of polygamy. The prevalence of polygamy, p, equals the proportion of men in polygamous unions, the intensity of polygamy, w, equals the average number of wives per polygamous man, m is the polygyny ratio, i.e. a ratio of currently married women to married men and f is the proportion of women in polygamous unions. These are interrelated through the equation:

m = p w + (1-p) = 1+ p (w-1).

The proportion of married women in monogamous unions can be obtained as:

(1-p) / m = 1-p/ 1+ p (w-1).

The proportion of women who are in polygamous unions is:

f= p w / m = p w / 1+ p (w-1).

The proportion of married women who are first wives is:

p / m = p/1+p(w-1); and,

the proportion of women who are junior wives is:

p (w-1) / m = p (w-1)/ 1+p (w-1).

Traditionally, the analysis of polygamy has been limited to using women as the unit of analysis i.e. by differentiating women who are polygamous from those who are monogamous. This misses out on some of the features of polygamy, as the results reflect both the prevalence and intensity of polygamy: the odds of a union being monogamous versus being polygamous can be given as: p +p(w-1)/1-p=pw/1-p.

As discussed by Timaeus and Reynar (1998), there are valid reasons why it is desirable to use marriage as the unit of analysis. This essentially involves distinguishing monogamous women from first wives in a polygamous union (which addresses the prevalence of polygamy). There are also insights to be gained by taking polygamous unions as the unit of analysis and to distinguish junior from senior wives (which addresses the determinants of intensity of polygamy). These two aspects of polygamous marriage might be driven by different determinants. For several reasons, women who marry married men (i.e. into polygamy) might be different from those who marry single men. Junior wives are more likely to be

younger than monogamous wives and are likely to have married at an older age or to be widows or divorcees. As lineage continuation is of great importance, senior wives are more likely to be childless, which is usually a reason for the husband to marry an additional wife.

There are therefore further insights to be gained by taking marriage as the unit of analysis instead of the individual, hence differentiating those unions that remained with two partners from those that acquired extra partners. That is, differentiating monogamous women from first wives in a polygamous union. The odds that a married woman is a first wife in a polygamous union rather than monogamously married are therefore equivalent to the odds that a union is polygamous: $p/1-p$.

With polygamous unions as the unit of analysis, the odds of being a junior wife rather than the senior wife in a polygamous union are given as: $p(w-1)/p=(w-1)$, which is equivalent to an index of intensity of polygamy.

4.2.2 Methods Used in the Analysis

The prevalence of consensual unions was studied by looking at the proportion of married men currently in consensual unions, defined as those unions where there has not been a formal ceremony. The difference in the prevalence of consensual unions is presented in percentages and the significance of the relationship between consensual unions and demographic and socio-economic characteristics are tested using survey design adjusted Pearson statistics.

Several methods were used to analyse polygamy in Tanzania and to compare the experience, first to that of Zimbabwe, and then where possible with other countries in sub-Saharan Africa. Proportions of men in polygamous unions, (p), are presented in percentages and adjusted Pearson statistics are used to test the strength of the association between the proportion of men in polygamous unions and demographic and socio-economic characteristics. Another aspect of polygamy that was studied is the intensity of polygamy, defined as the average number of wives per polygamous man, (w). Logistic models (described in Chapter Three) were used to determine which characteristics are important in predicting the odds that a

married man is polygamous when more than one variable is controlled for. As in the work of Timaeus and Reynar (1998), analysis was done to see whether there were significant factors that affect the intensity of polygamy; and for this section the matched couples' data for Tanzania and Zimbabwe were used. In differentiating the characteristics of women who are senior from those who are junior in a polygamous union, husbands' characteristics were added to measure if there were significant differentials in intensity of polygamy.

The prevalence of polygamy among women was studied by looking at the percentage of married women in polygamous unions. Logistic models were used to see which differentials are important in predicting the probability that a marriage is polygamous by looking at monogamous women separately from first wives in a polygamous union. This was only possible for Tanzania, since polygamous women in Zimbabwe did not respond to the question on their rank. Therefore for Zimbabwe, all monogamous women are contrasted with all polygamous women. This section also examines factors that affect whether a woman is a senior or junior wife, given that she is polygamous. These are factors that identify which women marry single men from those who marry polygamous men. This was, again, only possible for Tanzania.

The 1996 Tanzania DHS and 1994 Zimbabwe DHS were also used for a check on the reporting of marriage type by men and women, by cross-tabulating couples' responses on the type of union they were in.

4.2.3 Methodological Constraints and Assumptions made

The different types of unions that can be studied using data from the DHS are limited to the distinctions between formal and consensual unions, and between monogamous and polygamous unions. Given the complexity of marriages in sub-Sahara Africa the distinctions used in the DHS type of surveys are not as informative as they could be. Questions could be asked, for example, regarding the stage of the union (whether bride wealth had been paid or not) or what form their marriage took (e.g. formal, elopement or abduction). While this might compromise data comparability within and between countries, it is conceivable that additional questions specific to certain societies could be asked (Meekers 1994a).

The first constraint that has to be taken into account concerns the ways in which questions were asked in the two Tanzania surveys that might make such results not completely comparable. A confusion that could arise is that the distinction is supposed to be made between those who are formally married and those who are living together (in a consensual union). What exactly living together means can be confusing both to those working with the data as well as to respondents. It could mean cohabitation of couples that are formally married and live in one house or it could mean living together as a form of union. Given the criteria that were used to define a respondent as married or not (Chapter Three), there is the possibility that some consensual unions that do not involve cohabitation may be missed out. In this study to avoid the confusion, the term consensual unions is used to describe those couples who are not formally married but have a regular partner (whether they live in one house or not). This makes it possible for a man to be in a consensual union and to be polygamous at the same time. The Zimbabwe survey did not distinguish consensual from formal unions, comparison with Tanzania on this aspect was therefore not possible.

Another constraint built into the DHS data is that not enough questions were asked to compile marriage histories of respondents. As stated above, marriage in sub-Saharan Africa is a fluid institution that can change several times in an individual's lifetime, and asking a question at one point in time does not provide the analyst with enough information. For example, a woman could marry into a monogamous union, become polygamous and then revert to monogamy either through divorce or widowhood. For men, there was no extra question on the number of unions in which they had participated, while for women the information on whether a woman had been married more than once was available. An assumption was made that a response regarding current status as married, divorced, widowed, monogamous or polygamous, indicates that this has been their status at least for some time.

For women, an assumption has to be made that the women know for sure what type of union they are in, and what their rank is, if polygamous. There is always the possibility that a woman might not know for sure whether her husband has other wives and even if she is aware of other wives she might not know what her

rank is in the union. This is very possible for women whose husbands leave their wives in rural areas to live in urban centres or in the case of separate households. It could also be speculated that women in polygamous unions might deliberately mis-state their union type since polygamy is considered less desirable. However, while this might be true for a very small group of the educated or the elite, it would be rare, as for most women there is nothing unusual or shaming about polygamy. On the other hand, an assumption has to be made that men are not exaggerating the number of wives they have, polygamy being prestigious for men.

When differentiating women in monogamous unions from first wives in polygamous unions, or when looking at whether the women in polygamous unions are senior or junior wives, an assumption is made that the rank they are in at interview date has been stable. In addition, given that it is at the survey date that socio-economic characteristics of respondents are collected, an assumption has been made that these characteristics applied at the time the union was taking place. To fully study the dynamics of polygamy, it would have been useful to have information such as how many times a man has been married as well as the timing of these unions. These would enable one to pinpoint, when for example, men become polygamous for the first time and be able to identify the circumstances that led them to become polygamous.

4.3 RESULTS

This section first presents results on the prevalence of consensual unions among currently married men and how the distribution differs by socio-economic characteristics. A section on the prevalence of polygamy among men presents results on the distribution of such men as well as results of logistic models that show which characteristics have a significant effect on the odds of a man being polygamous. Then results on the probability that a married woman is polygamous and the probability that a polygamous woman is the senior or the junior wife are presented. The section ends with a check on reporting of type of unions by couples and the cohabitation arrangements of couples.

4.3.1 Prevalence of Consensual Unions in Tanzania

The 1992 TDHS shows that 22 percent of men who were currently in a union were in consensual unions i.e. according to the definition of marriage in DHS these men have not gone through a formal ceremony, but were living with a woman. From the 1992 results this seemed to be an important feature of nuptiality among Tanzanian men. However, the 1996 figures show that the prevalence of this type of unions is about 8 percent. Both surveys show that the proportion in consensual unions decreases with age, more so in TDHS 1996. Following on from the preceding chapter and given the higher prevalence, the 1992 TDHS continues to show stronger socio-economic differentials than the 1996 TDHS. To look at these differentials, the analysis is presented separately for men aged less than 40 years and for men aged 40 and over. These results are presented in Tables 4.1 and 4.2.

In TDHS 1992, a higher percentage of rural residents were in consensual unions as compared to urban residents, among men under 40. However, this differential was not very strong, and when looked by childhood place of residence or by current-past residence, there is no differential at all. The picture in 1996 is the reverse of that in 1992, where prevalence was higher among urban residents. There were also differentials by current past residence, which showed that prevalence was lowest among men under 40 who have either always lived in rural areas or who have moved there from urban areas.

Another very significant differential seen in 1992 is that of religious groups. The prevalence of consensual unions is higher among men who follow Other religions (both for men aged under and over 40) and almost 65 percent of men aged less than forty were in consensual unions. Given religious restrictions, it was unexpected that a high proportion of Catholic men would also be in consensual unions, and that even among Muslim men, 12 percent are in such unions. However, in 1996, the two Christian groups show results that are more realistic although still beyond the conventional for Muslim men where 15 percent of young men are in consensual unions. This significant differential disappears among men aged 40 and over.

In 1992, differentials by literacy and levels of education are again strong only among men aged less than 40. The percent of men in consensual unions is highest among those who cannot read at all and among those with 0-3 years of education. By levels of education, prevalence is lowest among men with 9 or more years of

education. In 1996, there are no significant differentials for this variable. In 1992 differentials by type of occupation is not as strongly significant as was the case in 1996. In 1996, men aged less than 40 in non-agricultural occupations had the highest percentage of men in consensual unions (the percentage is slightly more than two times) when compared to men in agricultural occupations.

Both surveys show strong differentials by zones of residence but the same zones show a very different picture of prevalence in the two surveys. This is where matters of poor data quality emerge. In both surveys differentials are too wide to be trusted as being related to cultural, economic or other characteristics of zones. The only two zones that maintain the same picture of the prevalence of consensual unions in both surveys are Coastal and Zanzibar. Other zones show variations too wide to be trusted. For example, looking first at men younger than 40, in 1992 the absence of men in consensual unions in the Northern zone and less than one percent in the Southern Highlands zone are too low to be trusted. On the other extreme almost 60 percent are in consensual unions in the Lake zone and slightly more than a third in the Central zone. In 1996, Northern zone has almost 8 percent in consensual unions, while the Southern zone, which had only 8 percent in 1992, now has almost a quarter of married men in consensual unions. By 1996, the Lake and Central zones have decreased to only 1.7 percent of married men in consensual unions.

Differentials such as seen above can only be viewed with caution, as it is most likely that the question of what is marriage was very differently interpreted in different zones and in the two surveys. Published work on prevalence of consensual unions among men in sub-Saharan Africa is hard to locate, it is therefore hard to provide evidence on how these percentages compare to other societies. From personal observation, it is hard to believe that such a large number of men in traditional settings would be in such unions as depicted in 1992. The difference in the percentages between 1992 and 1996 is probably due to changes in definitions or how the questions were asked, in understanding of definitions or the difference in the quality of interviewing between the two surveys. These changes are unfortunately not traceable in the questionnaires. In addition, examples from other countries are not helpful because they tend to show a wide diversity between different countries or between different surveys.

Table 4.1: Distribution of Currently Married Men in Consensual Unions: TDHS 1992.

Characteristics

Age	20-29	30-39	40-49	50-60	
Married	70.75	80.75	70.31	81.32	
Consensual	29.25	19.25	21.69	18.68	P=0.009

	Under 40 Years Old			40+ Year Olds		
	Married	Consensual		Married	Consensual	
All Men	75.99	24.01		79.70	20.30	
Residence						
Urban	82.72	17.28		80.65	19.35	
Rural	71.59	26.41	P=0.081	79.40	20.60	P=0.866
Childhood Residence						
Town/ City	76.34	23.66		71.40	28.60	
Countryside	76.07	23.93	P=0.969	80.54	19.46	P=0.221
Current-Past Residence						
Always Urban	80.36	19.64		69.20	30.80	
Ex - Rural	83.42	16.58		84.72	15.28	
Ex - Urban	69.73	30.27		75.24	24.76	
Always Rural	73.99	26.01	P=0.279	79.49	20.51	P=0.279
Religion						
Muslim	87.70	12.30		96.72	3.28	
Catholic	79.43	20.57		77.66	22.34	
Protestant	83.40	16.60		79.01	20.99	
Other	35.52	64.48	P=0.000	54.36	45.64	P=0.000
Literacy						
Easily	79.72	20.28		81.08	18.92	
With Difficulty	81.83	18.17		81.28	18.72	
Not at all	60.28	39.72	P=0.001	76.50	23.5	P=0.553
Education						
0-3 years	61.95	38.05		80.26	19.74	
4-6 years	73.28	26.72		80.10	19.90	
7-8 years	79.57	20.43		81.71	18.29	
9 + years	87.98	12.02	P=0.004	72.22	27.78	P=0.756
Occupation						
Agricultural	72.98	27.02		77.77	22.23	
Non-agricultural	83.62	16.38	P=0.080	85.68	14.32	P=0.306
Zones						
Northern	100.00	0.00		100.00	0.00	
Coastal	84.77	15.23		92.37	7.63	
Southern	91.55	8.45		92.93	7.07	
Southern Highlands	99.31	0.69		99.14	0.86	
Central	63.67	36.33		65.00	35.00	
Lake	40.74	59.26		37.06	62.94	
Zanzibar	95.38	4.62	P=0.000	97.21	2.79	P=0.000

Table 4.2:Distribution of Currently Married Men in Consensual Unions, TDHS 1996.

Characteristics

Age	20-29	30-39	40-49	50-60	
Married	87.33	93.98	94.65	95.58	
Consensual	12.67	6.02	5.35	4.42	P=0.000

	Under 40 Years Old			40+ Year Olds		
	Married	Consensual		Married	Consensual	
All Men	91.41	8.59		95.00	4.99	
Residence						
Urban	84.23	15.77		91.34	8.66	
Rural	93.28	6.72	P=0.003	96.00	4.00	P=0.081
Childhood Residence						
Town/ City	89.19	10.81		92.85	7.15	
Countryside	91.75	8.25	P=0.379	95.44	4.56	P=0.345
Current-Past Residence						
Always Urban	88.22	11.78		97.87	2.13	
Ex - Rural	81.33	18.67		89.57	10.43	
Ex - Urban	90.35	9.65		89.29	10.71	
Always Rural	93.53	6.47	P=0.004	96.73	3.27	P=0.014
Religion						
Muslim	84.92	15.08		94.33	5.67	
Catholic	90.37	9.64		95.05	4.95	
Protestant	96.85	3.15		96.36	3.64	
Other	97.48	2.52	P=0.000	94.56	5.44	P=0.890
Literacy						
Easily	90.37	9.63		95.67	4.33	
With Difficulty	93.97	6.03		92.77	7.23	
Not at all	94.93	5.07	P=0.131	95.04	4.95	P=0.648
Education						
0-3 years	95.67	4.32		93.13	6.87	
4-6 years	89.87	10.13		94.16	5.84	
7-8 years	90.39	9.62		98.77	1.23	
9 + years	92.02	7.98	P=0.210	96.32	3.68	P=0.191
Occupation						
Agricultural	93.86	6.14		96.57	3.43	
Non-agricultural	84.8	15.2	P=0.000	91.18	8.82	P=0.018
Zones						
Northern	92.35	7.65		99.14	0.86	
Coastal	85.81	14.19		94.96	5.04	
Southern	76.58	23.42		83.24	16.76	
Southern Highlands	92.07	7.93		91.15	8.84	
Central	98.22	1.78		98.30	1.70	
Lake	98.32	1.68		98.57	1.43	
Zanzibar	95.42	4.58	P=0.000	100.00	0.00	P=0.000

4.3.2 Monogamous and Polygamous Unions

First, results on the prevalence of polygamy among men are presented, followed by a section on the intensity of polygamy as well as the determinants of polygamy for men. Second to be presented are the results on polygamy studied from female respondents, i.e. prevalence of polygamy among women, characteristics of women who are polygamous compared with those who are monogamous, and finally differentials between senior or junior wives in a polygamous unions.

The Prevalence and Intensity of Polygamy among Men

The reporting on type of unions according to the number of wives is very similar in the 1992 and 1996 TDHSs. There is, however, still a difference in the magnitude of the differentials, although not as large as those in the section above.

The 1992 TDHS results show that 16 percent of all ever-married men were in polygamous unions, and this together with demographic and socio-economic differentials are presented in Table 4.3. The 1996 survey shows that 14 percent of all men in a union were in polygamous unions. In Zimbabwe, the prevalence of polygamy is lower, only 8.5 percent of currently married men are in polygamous unions. The pattern by age and duration of marriage was as expected, i.e. that the percent of men in polygamy increases with age and with duration since first union.

Differentials by socio-economic variables are analysed separately by looking at differentials among men aged under 40 and differentials among men aged 40 and above. Differentials in the prevalence of polygamy show that men in all social groups practise polygamy, but more in some than in others. Among younger men in TDHS 1992, prevalence is higher among rural than among urban residents, though in Zimbabwe the differential is not significant. For this characteristic, differentials among men aged 40 and over are significant only in Zimbabwe, where the prevalence is as expected higher among rural residents. Differentials by childhood residence show that prevalence is always higher among men who grew up in the countryside irrespective of being in the younger or older age group. In Tanzania, those men who have always been rural residents had the highest prevalence among men aged less than 40 years. In Zimbabwe, ex-rural residents had the highest prevalence, as was the case among older men in the 1996 TDHS, (although where there was significance, this was very marginal).

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In the 1992 TDHS, there is not much difference in the percentage in polygamous unions between those who follow the two Christian religions and those who are Muslims. For both younger and older men in 1992, there is no significant differential, although in 1996 there is a considerably higher proportion of men following Other religions who are polygamous. In Zimbabwe, there is considerable difference among men aged less than 40, where almost a quarter of Spiritualists and Traditionalists are polygamous compared to 8 percent among Christians.

Levels of literacy made no significant difference in the prevalence of polygamy and for the 1992 TDHS, there are also no significant differentials by years of education. For 1996 there are considerably more men with 4-6 years of education and aged less than 40 who are polygamous, about twice the prevalence for men with 9 or more years of education. Among men aged 40+, those with 0-3 years of education showed higher prevalence with almost 28 percent of these men being polygamous. In Zimbabwe for both age groups, men with 4-6 years of education had the highest prevalence of polygamous unions. In Tanzania, there were no significant differentials by the type of occupation. In Zimbabwe, men aged 40+ and in agriculture show higher prevalence of polygamy, but the difference is about 5 percentage points only.

The magnitude of the differentials in prevalence of polygamy between the zones is different between the two surveys, especially among men aged less than 40. Only in TDHS 1992 is the differential significant among men aged less than 40 and shows that four zones (Northern, Southern Highlands, Central and Lake) had the highest prevalence. Given its predominantly Muslim population it is unexpected that Zanzibar has the lowest level of prevalence with only 2 percent of men in this group being in polygamous unions. In 1996 the percentage of men in polygamous unions in Zanzibar is more reasonable, as almost 14 percent of younger and almost 28 percent of older men are polygamous. However, the differentials for TDHS 1996 are not significant. In Zimbabwe, differentials are significant among older men, here polygamy is most prevalent in Manicaland where 25 percent of men are polygamous compared to 0 percent in Harare, and 6.7 percent in Bulawayo. Among older men prevalence is also relatively high in the Midlands.

Table 4.3: Prevalence and Intensity of Polygamy for Men: Differentials by Age and Socio-economic Characteristics.

Characteristics Tanzania 1992					Characteristics Tanzania 1996					Characteristics Zimbabwe 1994				
All men	Prevalence = 16.08%		Intensity = 2.20		All men	Prevalence = 14.20 %		Intensity = 2.24		All Men	Prevalence = 8.48 %		Intensity = 2.45	
Age	20-29	30-39	40-49	50-60	Age	20-29	30-39	40-49	50-59	Age	20-29	30-39	40-49	50-54
Prevalence	9.80	14.34	18.89	23.08	Prevalence	7.84	11.30	19.19	22.17	Prevalence	1.79	9.23	11.97	15.30
Intensity	2.00	2.36	2.10	2.25	Intensity	2.06	2.17	2.32	2.29	Intensity	2.60	2.63	2.38	2.12

	Younger Men <40 years	Older Men 40+ years	w		Younger Men <40 years	Older Men 40+ years	w		Younger Men <40 years	Older Men 40+ years	w
All men	12.3	20.83	2.20	All men	9.91	20.31	2.24	All men	6.01	12.87	
Union Duration				**Union Duration**				**Union Duration**			
0-9 years	9.25	-	2.37	0-9 years	5.32	7.45	2.14	0-9 years	3.41	6.37	2.47
10-19 years	18.86	20.45	2.13	10-19 years	19.21	15.78	2.13	10-19 years	12.42	9.51	2.56
20+ years	12.47	17.51	2.10	20-29 years	31.14	23.70	2.38	20+ years	12.38 P=0.000	16.44 P=0.093	2.31
30+ years	- P=0.021	29.28 P=0.116	2.27	30+ years	- P=0.000	25.84 P=0.029	2.30	-			
Residence				**Residence**				**Residence**			
Urban	6.81	16.27	2.50	Urban	5.83	19.47	2.32	Urban	6.35	7.59	2.59
Rural	14.25 P=0.079	22.31 P=0.226	2.14	Rural	10.95 P=0.201	20.54 P=0.833	2.22	Rural	5.72 P=0.785	16.25 P=0.034	2.38
Childhood Residence				**Childhood Residence**				**Childhood Residence**			
Town/ City	6.54	20.42	2.09	Town/ City	4.91	16.28	2.42	Town/ City	4.48	4.88	3.63
Countryside	12.81 P=0.162	20.98 P=0.953	2.22	Countryside	10.26 P=0.093	21.08 P=0.423	2.22	Countryside	6.43 P=0.476	14.38 P=0.052	2.31
Current - Past Residence				**Current – Past Residence**				**Current – Past Residence**			
Always Urban	4.04	22.22	2.00	Always Urban	4.55	16.49	2.36	Always Urban	4.89	4.33	4.40
Ex - Rural	7.78	14.16	2.69	Ex - Rural	4.35	20.95	2.34	Ex – Rural	6.98	9.20	2.12
Ex - Urban	10.66	17.32	2.07	Ex - Urban	5.33	16.14	2.46	Ex – Urban	3.78	6.40	2.00
Always Rural	14.24 P=0.198	22.69 P=0.544	2.15	Always Rural	11.27 P=0.099	21.11 P=0.888	2.20	Always Rural	6.05 P=0.868	16.99 P=0.079	2.40

Continues............

	Younger Men <40 years	Older Men 40+ years	w
Religion			
Muslim	7.67	18.87	2.17
Catholic	11.45	14.43	2.17
Protestant	13.99	23.98	2.35
Traditional	19.94 P=0.120	28.71 P=0.164	2.10
Literacy			
Easily	11.94	21.81	2.26
With difficulty	6.64	15.88	2.00
Not at all	16.28 P=0.265	21.89 P=0.540	2.16
Education			
0-3 years	14.79	26.39	2.20
4-6 years	13.07	15.35	2.08
7-8 years	11.08	16.63	2.40
9 + years	8.14 P=0.701	33.63 P=0.101	2.10
Occupation			
Agricultural	13.23	21.29	2.14
Non-agricultural	9.92 P=0.475	19.43 P=0.754	2.42
Zones			
Northern	10.30	24.70	2.12
Coastal	4.30	12.33	2.23
Southern	8.35	20.10	2.14
S/ Highlands	12.20	29.22	2.15
Central	19.11	22.85	2.32
Lake	14.95	15.42	2.12
Zanzibar	2.01 P=0.016	20.11 P=0.156	2.20

	Younger Men <40 years	Older Men 40+ years	w
Religion			
Muslim	8.77	24.15	2.20
Catholic	7.64	20.47	2.34
Protestant	8.62	12.51	2.11
Traditional	19.79 P=0.015	21.85 P=0.213	2.24
Literacy			
Easily	11.08	17.77	2.19
With difficulty	7.55	26.89	2.25
Not at all	5.67 P=0.200	21.96 P=0.168	2.40
Education			
0-3 years	5.69	27.85	2.33
4-6 years	18.26	15.20	2.23
7-8 years	10.18	17.87	2.16
9 + years	9.14 P=0.092	15.81 P=0.035	2.34
Occupation			
Agricultural	10.87	21.73	2.24
Non-agricultural	7.19 P=0.196	16.17 P=0.224	2.21
Zones			
Northern	3.04	20.50	2.55
Coastal	9.24	11.96	2.30
Southern	5.34	28.41	2.07
S/ Highlands	10.57	25.03	2.26
Central	14.24	18.45	2.26
Lake	11.81	18.96	2.13
Zanzibar	13.92 P=0.286	27.89 P=0.339	2.07

	Younger Men <40 years	Older Men 40+ years	w
Religion			
Traditional	22.16	10.40	2.17
Spiritual	22.58	6.53	2.60
Christian	8.11	4.43	2.60
Other	0.00 P=0.001	3.65 P=0.162	2.50
Literacy			
Easily	6.51	12.58	2.49
With difficulty	1.98	15.94	2.34
Not at all	9.63 P=0.163	9.38 P=0.591	2.31
Education			
0-3 years	7.14	15.57	2.14
4-6 years	11.21	20.78	2.47
7-8 years	5.45	8.34	2.09
9 + years	4.57 P=0.123	6.64 P=0.031	2.99
Occupation			
Agricultural	4.83	16.79	2.42
Non-agricultural	6.93 P=0.572	10.78 P=0.089	2.46
Zones			
Manicaland	7.69	25.31	2.25
Mashonaland	2.71	13.85	2.58
Matabeleland	11.75	12.27	2.12
Midlands	9.39	19.22	2.31
Masvingo	7.66	12.83	2.14
Harare	4.76	6.67	3.14
Bulawayo	8.05 P=0.323	0.00 P=0.041	2.29

Intensity of polygamy

The average number of wives per polygamous man in Tanzania and Zimbabwe was consistent with findings that about 80 percent of polygamous men in sub-Saharan Africa have only two wives (Antoine and Pilon 1998). Differentials by the various characteristics were small and are shown in Table 4.3. The average number of wives per polygamous man did not much exceed two for most groups and the observed pattern of differentials was not systematic by socio-economic characteristics. Zimbabwe in general has a slightly higher intensity, with men currently residing in urban areas, those who have always lived in urban areas, those with 9 or more years of education and those residing in Harare having a higher average number of wives per polygamous man.

The Odds of a Man being in a Polygamous Union

The section above showed that there are some important demographic and socio-economic differentials in the prevalence of polygamy. This section presents results from logistic models that looked at the odds of a man being a polygamist when several of the above characteristics are analysed simultaneously. The dependent variable is dichotomous, 0 if one is monogamous and 1 if polygamous. Independent variables included in the analysis are current residence, religion, occupation, education, zone of residence and age. Results are shown in Table 4.4; and as will be seen in Table 4.8, those characteristics that are important when data on men are used are also important when data on women are used.

For the 1992 and 1996 Tanzania surveys, the results show similar effects of the probability of being polygamous. They both show that there are no strong relationship between polygamy and many of the socio-economic variables. In the 1992 TDHS, place of residence shows a weak and statistically marginal differential, i.e. as expected, men in urban areas were about 40 percent less likely to be polygamous. The odds are also lower in 1996 but statistically insignificant, as was the case in Zimbabwe where the odds were higher for Other -urban residents, though not for Harare and Bulawayo.

For Tanzania, only in 1996, are there significant differentials in the odds of a man being polygamous given his religion. Using Muslims as the reference category Catholic men had lower odds [OR=0.66*] as did Protestant men who had odds of

approximately 45 percent lower. In Zimbabwe, there was also a significant differential, as compared to men following Spiritual religions, Christian men were about 60 percent less likely to be polygamous. Also in Zimbabwe, men following 'Other' religions had even lower odds [OR=0.14**], compared to the reference category.

Unexpectedly, education did not have a significant effect on the probability of being polygamous among Tanzanian men. The expectation was that as more education is acquired such types of unions become less desirable. In Zimbabwe, the effect of education is clear, but only for one category. Compared to the reference group (men with 7-8 years of education), men with 4-6 years of education had more than two and half times higher odds of being polygamous.

In the 1996 TDHS, there are no many significant zonal differentials in the odds of being polygamous. In the 1992 TDHS only the Coastal zone has marginally significant lower odds compared to the Central zone, which formed the reference group. A consistent result for Zimbabwe is that, as in the univariate distribution, men in Manicaland have significantly higher probability of being polygamous with odds that are two times and a half higher compared to men in Mashonaland. Masvingo also had almost two and half times higher odds compared to the reference category.

Not unexpectedly, age was one of the most important determinants of the odds of being polygamous and the probabilities for the younger cohorts were consistently reduced compared to oldest cohorts who formed the reference group. In TDHS 1996, men aged 15-25 were about 86 percent less likely to be polygamous, reflecting the fact that a large proportion of such young men have not been married long enough and moreover, they are unlikely to have enough wealth, to acquire additional wives. The magnitude of the probability of not being polygamous increased with age such that men aged 35-44 had odds that are about 60 percent less compared to the oldest cohort. As in Tanzania, age is the most important determinant in Zimbabwe. The odds of being polygamous are again approximately 90 percent less for the youngest cohort, and increased with an increase in age.

Table 4.4: Probability of A Married Man Being in a Polygamous Union: Odds Ratios and 95 Percent Confidence Intervals.

Categories	%	Odds Ratios	[95% CI]	Categories	%	Odds Ratios	[95% CI]	Categories	%	Odds Ratios	[95% CI]
Tanzania 1992				**Tanzania 1996**				**Zimbabwe 1994**			
Polygamous	16.16			Polygamous	13.85			Polygamous	8.41		
Monogamous	83.84			Monogamous	86.15			Monogamous	91.59		
Residence				**Residence**				**Residence**			
Urban	18.61	0.56 **	[0.33 0.94]	Urban	24.57	0.91	[0.40 2.04]	Harare & Bulawayo	21.91	0.91	[0.32 2.66]
Rural (ref.)	81.39	1.00		Rural (ref.)	75.43	1.00		Other Urban	9.90	1.32	[0.42 4.19]
								Rural	68.19	1.00	
Religion				**Religion**				**Religion**			
Muslim (ref.)	33.67	1.00		Muslim (ref.)	37.07	1.00		Traditional	20.08	1.12	[0.53 2.41]
Catholic	29.53	0.67	[0.35 1.29]	Catholic	31.25	0.66*	[0.41 1.08]	Spiritual (ref.)	23.15	1.00	
Protestant	20.22	1.04	[0.41 2.64]	Protestant	20.69	0.55**	[0.30 0.99]	Christian	48.07	0.42 **	[0.23 0.75]
Other	16.58	1.42	[0.60 3.40]	Other	10.99	1.15	[0.59 2.27]	Other	8.70	0.14 **	[0.04 0.53]
Education				**Education**				**Education**			
0-3 years	20.10	0.94	[0.53 1.67]	0-3 years	24.07	0.96	[0.63 1.47]	0-3 years	16.25	1.54	[0.68 3.51]
4-6 years	30.13	0.99	[0.60 1.63]	4-6 years	18.10	0.78	[0.45 1.38]	4-6 years	20.64	2.51 **	[1.21 5.21]
7-8 years (ref.)	41.58	1.00		7-8 years (ref.)	47.77	1.00		7-8 years (ref.)	25.22	1.00	
9 + years	8.18	1.63	[0.82 3.25]	9 + years	10.06	0.91	[0.44 1.90]	9 + years	37.89	1.41	[0.61 3.24]
Occupation				**Occupation**				**Occupation**			
Non-agricultural	22.84	1.01	[0.45 2.27]	Non-agricultural	28.53	0.82	[0.48 1.42]	Non-agricultural	71.22	1.38	[0.63 3.05]
Agricultural (ref.)	77.16	1.00		Agricultural (ref.)	71.47	1.00		Agricultural (ref.)	28.78	1.00	
Zones				**Zones**				**Zones**			
Northern	7.28	0.67	[0.31 1.49]	Northern	11.85	0.76	[0.31 1.98]	Manicaland	10.71	2.47 *	[0.97 6.30]
Coastal	17.72	0.38 **	[0.17 0.84]	Coastal	24.93	0.69	[0.35 1.36]	Mashonaland (ref.)	41.69	1.00	
Southern	14.21	0.73	[0.34 1.55]	Southern	14.30	1.00	[0.53 1.90]	Matabeleland	22.25	1.22	[0.37 4.08]
S. Highlands	19.88	1.08	[0.63 1.81]	S. Highlands	16.74	1.42	[0.70 2.90]	Midlands	14.00	1.94	[0.71 5.34]
Central (ref.)	19.46	1.00		Central (ref.)	18.82	1.00		Masvingo	11.36	2.53 *	[1.02 6.30]
Lake	16.33	0.71	[0.38 1.30]	Lake	8.98	1.06	[0.50 2.22]				
Zanzibar	5.08	0.50	[0.20 1.24]	Zanzibar	4.38	1.30	[0.56 3.04]				
Age				**Age**							
15-25	13.27	0.18 ***	[0.08 0.40]	15-25	11.35	0.04***	[0.01 0.21]	15-25	12.82	0.08**	[0.02 0.35]
26-34	28.60	0.54 **	[0.34 0.87]	26-34	30.24	0.40***	[0.24 0.67]	26-34	33.21	0.23***	[0.11 0.48]
35-44	26.92	0.67 *	[0.42 1.06]	35-44	32.47	0.61**	[0.40 0.93]	35-44	33.57	0.66	[0.37 1.20]
45-60 (ref.)	31.21	1.00		45-59 (ref.)	25.93	1.00 *		45-54 (ref.)	20.39	1.00	
N=1182 F(17,293)=3.01 Prob>F=0.000				N=1253 F(17, 287)=3.37 Prob>F=0.000				N=1003 F(17, 192)=3.72 Prob>F=0.000			

*p<0.1 ** p<0.05 ***p<0.001

The Prevalence of Polygamy among Women

In this section results on the prevalence of polygamy among women and the odds of a woman being a polygamist are presented. They are followed by results of how senior wives differ from junior wives and whether these differentials are important when analysed in a multivariate model.

The results for the distribution of women by type of union are presented in Tables 4.5, 4.6 and 4.7. The 1992 and 1996 results are very similar showing that about 27 percent of women are in polygamous unions. A lower percentage of women are polygamous in Zimbabwe: only 18 percent. As among men, the percentage of women in polygamy increased with age and also with duration since first union. This is a pattern that is consistent with the fact that the longer one is married, the chance of the husband acquiring extra wives or the woman of divorcing and remarrying into a polygamous union, also increases. Women who had been married more than once also had a higher prevalence of polygamy. In all surveys, only about a quarter of those who had been married once were polygamous compared to 38 percent for those who had been married more than once. These differences persisted across age groups.

Whether or not a man lives with his wife was also important as 50 percent of those whose husbands were only 'staying' with them were polygamous, as compared to about a quarter of those whose husbands were living (i.e. co-residing) with them on a permanent basis. In Tanzania, among women aged 15-25, more than a third of women whose husbands were only 'staying' were polygamous and this increased in the older age groups. In Zimbabwe this was not as strongly the case. One could speculate that high mobility of labour in this country might mean that more men might have other residences without necessarily being polygamous. Alternatively, they might have what are called 'outside wives', who are not married to these men.

There is a higher percentage of women in polygamous unions in rural than in urban areas as well as among those who grew up in the countryside compared to those who grew up in urban areas. It is important to remember that the low percentage of women in polygamous unions in urban areas might hide those women who are involved in 'deuxieme bureaux' or 'outside wives' type of unions. These

women are unlikely to report that they are polygamists as these relationships are usually illicit involving older married men, (Bledsoe 1990). In all the surveys, the relationship between polygamy and literacy or education levels is negative. The more literate and educated, the less the percentage of women who are polygamous. The low percentage in the educated group might be because they have not been in unions long enough for their husbands to acquire additional wives, or because these educated women are married to educated men not so much attracted to polygamous unions.

Women in all religious groups are involved in polygamy. In the two Tanzanian surveys, women in the two Christian groups and Muslim women have very similar percentages of women in polygamous unions. In the age groups 15-25 and 26-35 the differences by religious groups are not large, although somewhat larger differences are seen among women aged 36-49. However, in the two younger age groups, there are large differences between women following 'Other' religions and the other three groups. Given the strictness of Christianity concerning the number of spouses the percentages were not expected. In Zimbabwe, there is similarly a statistically significant differential in the prevalence by religious groups. Women following traditional religions had the highest percentage of married women in polygamous unions. The percentage among Christians is much lower than that seen in Tanzania, and this is especially true among young women.

There are substantial differentials in the percentages in polygamous unions between the zones especially among women aged 15-25. Given the prevalence among men, the percentage of women in polygamous unions is lowest in Coastal zone. This was true in both surveys. The Northern zone shows that almost a quarter of married women were polygamous and this proportion maintains itself across the age groups. Similarly, Zanzibar shows that about 20 percent of women in the youngest age group are already in polygamous unions. The Central zone has levels very close to the Northern zone with 25 percent already in polygamous unions. In Zimbabwe, among the youngest women, the highest proportion in polygamy is seen in Bulawayo and Matabeleland. Both maintain a high percentage in polygamous unions as age increases. As expected, Harare shows a much lower prevalence that is maintained across age groups. Manicaland also has a considerably higher prevalence. The differentials by zones in Zimbabwe are statistically significant for all the three age groups of women.

Table 4.5: Percentages of Women in Polygamous Unions: Age and Background Characteristics, TDHS 1992.

Prevalence = 27.57%

Characteristics							
Age	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
All women	16.74	18.05	27.27	30.41	34.21	36.28	36.96
Age at Marriage	**<14**	**15-18**	**19-21**	**22+**			
	37.81	25.58	22.06	26.79			
Duration of Union	**0-4**	**5-9**	**10-14**	**15+**			
	17.18	20.59	31.30	33.13			

Differentials by Age and Background Characteristics

		15-25		26-35		36-49	
Number of Unions	One	17.76		26.23		32.42	
	Two +	31.83	P=0.002	38.23	P=0.000	41.56	P=0.004
Co-residence	Yes	17.67		28.13		33.41	
	No	34.00	P=0.000	47.41	P=0.000	64.27	P=0.000
Infertility	Yes	32.18		38.79		41.89	
	No	18.52	P=0.021	29.31	P=0.325	35.76	P=0.623
Religion	Muslim	14.35		26.17		43.80	
	Catholic	17.07		24.74		26.89	
	Protestant	16.08		27.86		29.23	
	Other	32.83	P=0.000	46.64	P=0.000	42.30	P=0.000
Place of Residence	Urban	11.04		22.15		35.59	
	Rural	21.10	P=0.000	31.64	P=0.087	35.92	P=0.941
Childhood Residence	Town/City	11.51		19.14		36.96	
	Countryside	20.08	P=0.001	30.88	P=0.003	35.80	P=0.803
Current - past Residence	Always Urban	10.82		17.23		33.81	
	Ex-Rural	11.10		24.33		36.01	
	Ex-Urban	12.58		21.61		39.71	
	Always Rural	21.77	P=0.000	32.38	P=0.065	35.76	P=0.929
Literacy	Reads Easily	14.63		20.70		28.44	
	With Difficulty	20.60		29.98		32.18	
	Not at all	25.82	P=0.000	37.56	P=0.000	38.92	P=0.015
Education	None	26.88		36.83		38.41	
	Primary	16.69		34.74		31.60	
	Secondary	9.89	P=0.000	15.41	P=0.000	24.83	P=0.068
Works	Yes	20.74		29.22		35.64	
	No	17.07	P=0.101	29.59	P=0.875	36.12	P=0.856
Zones	Northern	21.08		22.67		25.53	
	Coastal	9.75		21.63		33.21	
	Southern	16.43		27.01		42.57	
	S. Highlands	16.03		34.71		40.66	
	Central	24.68		30.01		33.20	
	Lake	22.32		36.60		40.59	
	Zanzibar	20.45	P=0.040	25.39	P=0.061	32.82	P=0.129

Table 4.6: Percentages of Women in Polygamous Unions: Age and Background Characteristics, TDHS 1996.

Prevalence = 27.31%

Characteristics							
Age	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
All women	19.01	18.36	25.44	29.45	34.27	34.16	37.32
Age at Marriage	**<14**	**15-18**	**19-21**	**22+**			
	35.25	26.59	24.89	25.85			
Duration of Union	**0-4**	**5-9**	**10-14**	**15+**			
	18.51	22.83	29.56	34.75			

Differentials by Age and Background Characteristics

		15-25		26-35		36-49	
Number of Unions	One	17.04		24.39		30.95	
	Two +	33.33	P=0.000	35.81	P=0.000	42.32	P=0.000
Co-residence	Yes	16.72		23.75		60.88	
	No	39.51	P=0.000	59.07	P=0.000	64.80	P=0.000
Infertility	Yes	48.28		46.67		45.45	
	No	18.39	P=0.000	26.67	P=0.005	34.78	P=0.297
Religion	Muslim	17.07		26.53		39.30	
	Catholic	13.29		23.21		30.09	
	Protestant	15.63		23.04		29.28	
	Other	46.24	P=0.000	50.75	P=0.000	43.37	P=0.001
Place of Residence	Urban	12.00		19.33		27.03	
	Rural	21.06	P=0.000	29.67	P=0.000	36.89	P=0.005
Childhood Residence	Town/City	11.99		23.55		24.02	
	Countryside	20.28	P=0.002	28.09	P=0.094	36.95	P=0.000
Current - past Residence	Always Urban	9.69		21.40		18.32	
	Ex-Rural	14.04		17.74		33.54	
	Ex-Urban	15.70		26.71		31.63	
	Always Rural	21.45	P=0.001	30.06	P=0.000	37.45	P=0.001
Literacy	Reads Easily	14.67		22.95		27.51	
	With Difficulty	20.93		27.47		33.16	
	Not at all	26.26	P=0.000	34.19	P=0.000	38.97	P=0.001
Education	None	27.76		36.53		39.65	
	Primary	16.72		24.24		30.11	
	Secondary	8.99	P=0.000	19.08	P=0.000	20.45	P=0.000
Works	Yes	21.88		26.63		34.91	
	No	16.16	P=0.005	27.94	P=0.589	34.96	P=0.985
Zones	Northern	22.09		25.78		22.76	
	Coastal	9.76		21.36		30.45	
	Southern	17.19		28.43		37.93	
	S. Highlands	23.34		27.62		41.76	
	Central	25.78		30.99		36.80	
	Lake	17.48		32.52		33.97	
	Zanzibar	20.41	P=0.023	25.70	P=0.367	35.58	P=0.041

Table 4.7: Percentages of Women in Polygamous Unions: Age and Background Characteristics, ZDHS 1994.

Prevalence = 18.39%

Characteristics							
Age	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
All women	12.82	12.37	17.73	19.21	20.86	22.75	28.29
Age at Marriage	**<14**	**15-18**	**19-21**	**22+**			
	24.09	19.53	14.86	17.68			
Duration of Union	**0-4**	**5-9**	**10-14**	**15+**			
	12.54	16.55	17.93	23.49			

Differentials by Age and Background Characteristics

		15-25		26-35		36-49*	
Number of Unions	One	14.27		20.57		22.27	
	Two +	21.24	P=0.002	24.91	P=0.000	27.35	P=0.095
Co-residence	Yes	11.79		17.23		20.46	
	No	14.9	P=0.182	23.29	P=0.025	30.09	P=0.000
Infertility	Yes	26.66		24.68		23.14	
	No	12.70	P=0.275	18.91	P=0.549	41.67	P=0.131
Religion	Traditional	25.38		29.33		39.13	
	Spiritual	15.15		25.22		30.03	
	Christian	8.25		14.03		17.21	
	Other	15.51	P=0.000	18.28	P=0.000	25.00	P=0.000
Place of Residence	Urban	9.02		13.05		15.29	
	Rural	14.34	P=0.043	22.08	P=0.002	25.43	P=0.001
Childhood Residence	Town/City	9.00		11.67		15.07	
	Countryside	14.00	P=0.037	20.83	P=0.001	24.46	P=0.012
Current - past Residence	Always Urban	7.83		13.88		10.47	
	Ex-Rural	10.09		12.73		18.06	
	Ex-Urban	10.44		7.86		21.67	
	Always Rural	15.05	P=0.080	23.81	P=0.000	25.61	P=0.005
Literacy	Reads Easily	9.84		14.84		17.90	
	With Difficulty	21.22		21.21		21.74	
	Not at all	29.16	P=0.000	3034	P=0.000	32.34	P=0.000
Education	None	25.75		33.20		32.90	
	Primary	17.93		18.55		21.27	
	Secondary	7.45	P=0.000	13.27	P=0.000	11.48	P=0.000
Works	Yes	11.67		17.36		20.79	
	No	13.70	P=0.424	21.34	P=0.142	26.61	P=0.019
Zones	Manicaland	15.39		29.75		36.21	
	Mashonaland	12.00		15.52		22.71	
	Matabeleland	18.60		19.65		21.64	
	Midlands	13.18		20.23		27.13	
	Masvingo	13.47		27.72		22.95	
	Harare	5.51		12.34		13.33	
	Bulawayo	23.53	P=0.052	15.97	0.009	18.18	P=0.006

*Normal Pearson statistics

Probability of a Married Woman Being a Senior Wife in a Polygamous Union

Multivariate logistic models were used to find out more about characteristics that differentiate polygamous from monogamous women. The variables included were residence, religion, education, work, number of unions a woman has been in, duration of union, co-residence, and zones of residence. The results in the two Tanzania surveys are very similar and so only those from the 1996 survey are discussed. Results are shown in Table 4.8.

As seen before, age and duration of union were important determinants. Compared to those who had been married for 0-4 years, increasing duration considerably increased the odds that the union would be polygamous. Women who had been married for fifteen years and more were almost eight times more likely to be first wives in a polygamous union compared to women in the reference category. The importance of age was also apparent when duration of union was replaced by age. Compared to those women aged 40-49, women in the younger age groups had significantly lower odds of being a first wife in a polygamous union. For those aged 15-19, the odds are almost half [OR=0.49**], and were 37 percent lower for women aged 20-29, and 9 percent lower for women in the 30-39 age group. The number of unions that a woman had been in consistently lowered the odds of being the first wife in a polygamous union. In TDHS 1996, women who had been married only once had 78 percent higher odds of being monogamous than the first wife in a polygamous union. Being infertile increased the odds of being the first wife in a polygamous union; this effect was statistically stronger in TDHS 1996 than in 1992. The odds in TDHS 1996 were about two and a third times higher. In Tanzania non co-residence with the husband increased the odds of being the first wife in a polygamous union by almost five times in 1996.

The odds of a woman being a senior wife in a polygamous union are significantly lower for women who live in urban areas compared to rural residents. Urban residents in both TDHS 1992 and 1996 had about 36 percent lower odds compared to rural residents who were the reference category. In looking at the effect of education on the odds of being a polygamist, women with no education were used as the reference group. The effect of education is clear in lowering the odds of being a first wife in a polygamous union. Those who had primary education had odds of

being first wives in a polygamous union almost a third lower than the reference group [OR=0.73***]. The magnitude of this probability is very similar to that observed in TDHS 1996.

Religion in Tanzania had an effect of lowering the odds for the two Christian groups. Catholic and Protestant women had approximately 30 percent and 40 percent less odds respectively of being first wives in a polygamous unions than Muslim women who formed the reference group. In both surveys the odds are higher [OR=1.25** in TDHS 1992] for women following Other religions. The odds for this group in 1996 are 39 percent higher, however, this was not a significant differential.

Using the Central zone as the reference group, the results from TDHS 1992 show that a number of zones stand out as significantly different. One is the Coastal zone, which has almost 20 percent less odds that women in this zone will be first wives in a polygamous union; a result that was anticipated given its urban setting. Women in the Northern zone also had lower odds of being first wives in a polygamous union than wives of monogamous men. In Zanzibar odds were also 50 percent less than the reference group. Odds are significantly higher in the Southern zone [OR=1.60 **].

For Zimbabwe, since polygamous women did not respond to the question regarding their rank, all polygamous women were differentiated from monogamous women. Looking at the effect of age the magnitude of the differential in the odds ratios is very similar to that seen in Tanzania. For this characteristic the odds ratio equalled 0.48**, 0.60** and 0.75*** for age groups 15-19, 20-29 and 30-39 respectively. The number of unions that a woman had been in significantly affected the odds of being polygamous. The odds of being in a polygamous union were 21 percent lower for those who had been married once, compared to women who had been married two or more times. As was the case in Tanzania, non-co-residence increased the odds of being polygamous. However, the odds were only 50 percent higher [OR=1.50***]. In Zimbabwe, the odds of being polygamous for urban women (Harare and Bulawayo or Other-urban) are lowered by about the same magnitude as in Tanzania, but were not significantly lower. Education made a slightly stronger effect in Zimbabwe than it did in Tanzania. The odds that a woman with primary education

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would be polygamous were 46 percent lower compared to a woman with no education. In Zimbabwe, women in Spiritual religions formed the reference category and as expected Christian women had almost half the odds of being polygamous; and Traditionalists had odds about 25 percent higher compared to the reference category.

In Zimbabwe there were also significant differentials by zones of residence compared to Mashonaland, which was the reference group. Residence in Manicaland or Midlands raised the odds of being polygamous [OR=1.86**, OR=1.81** respectively] as did residence in Masvingo, although with slightly less effect [OR=1.37**].

Table 4.8: Probability of a Married Woman being in a Polygamous Union: Odds Ratios and 95 Percent Confidence Intervals.

Characteristics		%	Odds Ratios		[95%	CI]	%	Odds Ratios		[95%	CI]	Characteristics		%	Odds Ratios		[95%	CI]
Tanzania 1992							**Tanzania 1996**					**Zimbabwe 1994**						
Type of Union	Monogamous	87.25					87.59					Type of	Monogamous	81.31				
	First Wives	12.75					12.41						Polygamous (all)	18.69				
Union Duration	0-4 years (ref.)	21.92	1.00				23.16	1.00				Age	15-19	7.28	0.48	**	[0.30	0.75]
	5-9 years	23.91	3.53	***	[2.07	6.02]	21.36	5.34	***	[3.19	8.95]		20-29	39.46	0.60	**	[0.44	0.81]
	10-14 years	15.09	6.64	***	[4.00	11.02	16.96	8.63	***	[5.24	14.23]		30-39	33.22	0.75	**	[0.57	0.97]
	15 + years	39.08	7.90	***	[4.75	13.15	38.51	10.63	***	[6.61	16.55]		40-49 (ref.)	20.05	1.00			
Number of Unions	One	77.80	2.17	***	[1.56	3.03]	78.91	1.78	**	[1.28	2.49]	Number of Unions	One	84.85	0.79	**	[0.63	0.99]
	Two + (ref.)	22.20	1.00				21.09	1.00					Two + (ref.)	15.15	1.00			
Infertile	Yes	2.10	2.13	*	[0.99	4.58]	2.27	2.38	**	[1.34	4.23]	Infertile	Yes	1.12	1.56		[0.77	3.17]
	No (ref.)	97.90	1.00				97.73	1.00					No (ref.)	98.88	1.00			
Current Residence	Urban	19.96	0.64	*	[0.39	1.05]	25.71	0.64	**	[0.44	0.93]	Current Residence	Harare & Bulawayo	19.48	0.84		[0.49	1.43]
	Rural (ref.)	80.04	1.00				74.29	1.00					Other Urban	8.99	0.66		[0.40	1.10]
													Rural	71.52	1.00			
Co-residence	Yes (ref.)	97.17	1.00				89.70	1.00				Co-residence	Yes (ref.)	68.96	1.00			
	No	6.83	2.75	***	[1.86	4.09]	10.30	4.80	***	[3.51	6.57]		No	31.04	1.50	***	[1.23	1.84]
Religion	Muslim (ref.)	34.85	1.00				39.41	1.00				Religion	Traditional	8.48	1.26		[0.93	1.71]
	Catholic	29.32	0.69	**	[0.48	0.99]	29.78	0.60	**	[0.43	0.83]		Spiritual (ref.)	34.56	1.00			
	Protestant	22.30	0.61	**	[0.40	0.92]	22.07	0.68	*	[0.47	1.00]		Christian	51.51	0.51	***	[0.39	0.67]
	Other	13.53	1.25		[0.82	1.91]	8.74	1.39		[0.92	2.10]		Other	5.45	0.75		[0.45	1.23]
Education	Primary +	64.77	0.73	**	[0.55	0.97]	72.40	0.60	***	[0.47	0.77]	Education	Primary	84.63	0.54	***	[0.41	0.71]
	None (ref.)	35.23	1.00				27.60	1.00					None (ref.)	15.37	1.00			
Zones	Northern	8.79	0.57	*	[0.29	1.10]	10.62	0.66		[0.36	1.20]	Zones						
	Coastal	19.07	0.79		[0.48	1.25]	22.36	0.75		[0.50	1.11]		Manicaland	11.15	1.86	**	[1.21	2.86]
	Southern	12.49	1.60	**	[1.00	2.57]	15.09	1.22		[0.83	1.80]		Mashonaland (ref)	36.40	1.00			
	S. Highlands	18.07	1.03	*	[0.68	1.57]	17.52	1.14		[0.80	1.63]		Matabeleland	25.70	1.18		[0.71	1.96]
	Central (ref.)	19.15	1.00	*			15.79	1.00					Midlands	14.51	1.81	**	[1.23	2.68]
	Lake	16.89	1.40		[0.93	2.15]	10.73	1.21		[0.85	1.73]		Masvingo	12.24	1.38		[0.90	2.11]
	Zanzibar	5.55	0.47	**	[0.23	0.98]	7.89	0.75		[0.45	1.23]							

N=4365 F(18, 311)= 11.34 Prob>F=0.000   N=4339 F(18,315)=19.94 Prob >F=0.000   N=3761 F(17, 196) =7.45 Prob>F=0.000

*p<0.1 ** p<0.05 ***p<0.001

Differentials between Senior and Junior Wives in Polygamous Unions

A multivariate logistic model was used to study the probability of being a senior wife in a polygamous union given certain characteristics. The results on the distribution by rank (shown in Table 4.9) and those on determinants of rank (Table 4.10) are very similar for Tanzania in 1992 and 1996. Similar analyses for Zimbabwe are not possible die to reasons given before. Of all polygamous women, 38 percent were first wives, 49 percent were second wives and about 11 percent were third wives. Senior wives are those self reporting to be first wives in a polygamous union, junior wives are second or higher order wives. Combined data show, about 38 percent of polygamous women were senior wives and 62 percent were junior wives.

One difference between senior and junior wives is the ages at which the two groups got married and the data shows that a higher percentage of polygamous women who first married at a later age were junior wives in a polygamous union. The number of unions that a polygamous woman has been in also affects whether she is a senior or a junior wife. In TDHS 1996, about a third of polygamous women aged 15-25 had been married more than once, and among them almost 83 percent were junior wives.

In Tanzania infertility was not a strong differentiating factor between being the senior or the junior wife in a polygamous union. Overall, infertility did not seem to affect a large percentage of women in Tanzania. To capture primary infertility, a woman was categorised as infertile if she has been in a union for five years or more, was not using contraception and had no child. In 1996, of 6220 women who had ever been married, 141 (= 2.27 percent) could be classed as infertile. Of these, 96 women (68 percent) were currently in polygamous unions, and of these, almost equal numbers were senior and junior wives, (47 percent senior and 53 percent junior). The rest were either monogamous, not in union or did not know the type of union they were in.

In Zimbabwe, about 1.3 percent of ever married women were infertile and of those in unions 27.4 percent were in polygamous marriage; a differential that was not statistically significant.

Table 4.9: Distribution of Polygamous Women by Their Ranks.

Tanzania 1992	Senior %	Junior %	Tanzania 1996	Senior %	Junior %
All Women	38.15	61.85	**All Women**	39.16	60.86
Age			Age		
15-25	28.61	71.39	15-25	20.68	79.32
26-35	36.84	63.16	26-35	40.30	59.70
36-49	45.38	54.62	36-49	49.98	50.02
P=0.000			P=0.000		
Age at First Union			**Age at First Union**		
<14 years	46.24	53.76	<14 years	47.97	52.03
15-18 years	40.07	59.93	15-18 years	40.38	59.62
19-21 years	37.86	62.14	19-21 years	37.45	62.55
22+ years	25.94	74.06	22+ years	23.89	76.11
P=0.002			P=0.000		
Union Duration			**Union Duration**		
0-4 years	14.19	85.81	0-4 years	11.01	88.99
5-9 years	38.27	61.73	5-9 years	37.90	62.10
10-14 years	41.54	58.46	10-14 years	42.64	57.36
15+ years	45.73	54.27	15+ years	47.83	52.17
P=0.000			P=0.000		
Number of Unions			**Number of Unions**		
One	46.36	53.64	One	46.98	53.02
Two +	17.41	82.59	Two +	20.48	79.52
P=0.000			P=0.000		
Co-residence			**Co-residence**		
Yes	38.95	61.05	Yes	40.87	59.13
No	32.53	67.47	No	32.53	67.47
P=0.107			P=0.011		
Infertile			**Infertile**		
Yes	40.32	59.68	Yes	46.67	53.33
No	38.10	61.90	No	38.91	61.09
P=0.827			P=0.307		
Place of Residence			**Place of Residence**		
Urban	32.55	67.45	Urban	34.38	65.63
Rural	39.28	60.72	Rural	40.07	59.93
P=0.093			P=0.070		
Education			**Education**		
None	40.83	59.17	None	43.24	56.76
Primary +	35.04	64.96	Primary +	35.53	64.47
P=0.021			P=0.009		
Religion			**Religion**		
Muslim	36.63	63.37	Muslim	37.68	62.32
Catholic	41.04	58.96	Catholic	40.20	59.76
Protestant	35.67	64.33	Protestant	40.96	59.04
Other	38.96	61.04	Other	39.23	60.77
P=0.483			P=0.751		

Determinants of Rank: The Probability of Being the Junior Wife

Results for this section are presented in Table 4.10. As expected the odds of a polygamous woman being a senior or a junior wife in both surveys significantly depended on the woman's age, and age at first union. The younger the woman in a polygamous union is, the higher the odds that she will be a junior wife. Compared to those who got married between ages 15-18 (who formed the reference group), polygamous women who got married before age fifteen were about 30 percent less likely to be junior wives [in 1992 OR=0.67**]. There is no significant difference between the reference category and those who married at age 22+, both of which had 83 percent higher odds of being junior wives, in 1996 [OR=2.35].

As seen in the descriptive section, being the junior or senior wife, depended a great deal on whether the women had been married more than once or not. Compared to women who had been married once only, (in 1992) those married more than once had significantly higher odds (slightly over five times higher odds) of being junior wives. In 1996, the odds were also high [OR=4.32***]. Co-residence, infertility, education and place of residence did not make an important difference in the odds of being junior or senior in a polygamous union.

In section 4.3.2, it was seen that the intensity of polygamy among polygamous men was low and homogenous; not much above two wives except for a very few men who if excluded from calculations, made the intensity for these groups no different from that of other groups. The addition of husbands' characteristics to the logistic models predicting the odds of a woman being junior or senior would give a measure of relative intensity of polygamy. However, when this was done for the 1996 TDHS and the ZDHS, none of the characteristics were statistically significant. (Timaeus and Reynar 1998) also found that polygamous men's characteristics rarely affected intensity and where there was an effect, this was marginal. However, for men in Kenya and Senegal they found that intensity was highest for men in agriculture even though prevalence was highest for men working outside agriculture. Interestingly they found that while religion did not affect prevalence in Kenya, intensity was highest among those who do not believe in a world religion. Also in Kenya, while prevalence was lower among urban men, intensity was higher in urban than rural areas.

Table 4.10: Probability of Being the Junior Wife in a Polygamous Union: Odds Ratios and 95 Percent Confidence Intervals.

Tanzania 1992

Characteristics		%	Odds Ratios		[95%	CI]
Rank	Senior	38.15				
	Junior	61.85				
Age	15-19	6.22	9.37	***	[4.82	18.22]
	20-29	34.31	2.28	***	[1.58	3.29]
	30-39	34.43	1.72	**	[1.22	2.43]
	40-49 (ref.)	25.04	1.00			
Age at First Union	14 or less	11.92	0.67	**	[0.46	0.97]
	15-18 (ref.)	54.65	1.00			
	19-21	21.45	1.19		[0.87	1.62]
	22 +	11.97	1.83	***	[1.20	2.80]
Number of Unions	Two +	29.98	5.17	***	[3.89	6.87]
	One (ref.)	70.02	1.00			
Co-resident	No	12.22	1.20		[0.87	1.66]
	Yes (ref.)	87.78	1.00			
Infertility	No (ref.)	97.55	1.00			
	Yes	2.45	0.73		[0.27	1.99]
Residence	Urban	13.39	1.34		[0.91	1.97]
	Rural (ref.)	86.61	1.00			
Education	Primary +	46.08	1.12		[0.88	1.41]
	None (ref.)	53.92	1.00			

N=1617, F(8,290)=21.14, Prob>F=0.000

Tanzania 1996

Characteristics		%	Odds Ratios		[95%	CI]
Rank	Senior	39.16				
	Junior	60.86				
Age	15-19	4.03	18.60	***	[8.70	39.74]
	20-29	33.57	2.44	***	[1.80	3.33]
	30-39	37.12	1.53	**	[1.13	2.06]
	40-49 (ref.)	25.28	1.00			
Age at First Union	14 or less	18.68	0.75	**	[0.56	0.99]
	15-18 (ref.)	49.44	1.00			
	19-21	19.16	1.17		[0.84	1.62]
	22 +	12.72	2.35	***	[1.55	3.57]
Number of Unions	Two +	29.87	4.32	***	[3.22	5.79]
	One (ref.)	70.13	1.00			
Co-residence	No	20.90	1.28		[0.94	1.75]
	Yes (ref.)	79.10	1.00			
Infertility	No (ref.)	96.78	1.00			
	Yes	3.22	0.66		[0.340	1.28]
Residence	Urban	15.98	1.01		[0.722	1.41]
	Rural (ref.)	84.02	1.00			
Education	Primary +	55.88	1.08		[0.803	1.46]
	None (ref.)	44.12	1.00			

N=1376, F(8,282)=17.65, Prob>F=0.000

*p<0.1 ** p<0.05 ***p<0.001

4.3.3 Reporting of Type of Unions by Couples Living Together

There are several reasons why reporting of type of union by the husband might be different from that of the wife especially if the two do not live in one household. Women might not be aware that the husband has another wife/wives elsewhere. In addition, women might misreport the type of union if they felt that the union they are in is inferior to what they or the society they live in would prefer. For example, 'outside wives' might report themselves as married and men might either exaggerate the number of wives they have (to show higher status) or might alternatively conceal the number of wives (if disclosing such information would show them in a bad light). For example, a Catholic educated man might be reluctant to report an additional wife. It is also possible that, in the presence of other members of the family, both men and women might misreport the type of union they are in.

This section is based on the responses of couples who were living in one house at the time of the survey, using the question asked to women whether the husband 'lived there' or was 'just staying'. For Tanzania only the 1996 TDHS data was used. In looking at the compatibility of responses, information on whether the husband in that union was living with the woman or if he was 'just staying', i.e. having a 'proper' residence elsewhere.

i. Co-residence of Husbands and Wives

Among currently married women in Tanzania, almost 90 percent of them lived with their husbands. There was no strong association between the age of the woman and whether the husband was living in the same household. As seen before there was a strong association between co-residence and whether the woman was polygamous or not. While almost all monogamously married women live with their husbands (94 percent) only 79 percent of polygamous women do, and of those who are senior wives, almost 83 percent lived with their husbands compared to 76.5 percent of junior wives.

In Zimbabwe the percentage of women whose husbands were only 'staying' is higher at 31 percent and similarly there is a close association between being polygamous and the husband living in the house or not. Unlike in Tanzania, among monogamous women only 70 percent live with their husbands and among

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polygamous women it is only about 63 percent. This is very likely an indication of labour migration.

ii. Compatibility of Responses

In Tanzania 1.7 percent of married women did not know whether or not their husbands had other wives and about 6 percent of polygamous women did not know what their rank was in the union. This is credible given that it is possible for a polygamous man to have separate households for his wives, sometimes in different villages or towns. Of the 86 of the 5,368 currently married women who did not know whether their husbands had other wives, almost 80 percent of them co-resided with their husbands. Even those who had been married for a short duration of 0-4 years fell into this group. In Zimbabwe there was no way of knowing how many women did not know whether their husbands had other wives or not. Apparently, all currently married women were able to give a definite answer to this question. Only those women who knew their type of union are classified in the table below.

Table 4.11: Compatibility of Responses of Co-residing Spouses.

		WIFE		
		Tanzania 1996		
		Monogamous	Polygamous	Total
	Monogamous	845	23	868
	Polygamous	11	179	190
	Total	856	202	1058
HUSBAND				
		Zimbabwe 1994		
		Monogamous	Polygamous	Total
	Monogamous	602	61	663
	Polygamous	1	32	33
	Total	603	93	696

In Tanzania the majority of couples agreed on the type of union they are in; only 3.2 percent of couples gave responses that did not match their partner's. In both countries where responses were inconsistent, it was more common that women would respond that the union was polygamous and the husband that it was monogamous than the other way round. For such couples, about 32 percent of women responded that the union was monogamous while the husband responded that the union was polygamous while almost 68 percent said that the union was polygamous while their male partners said that the union was monogamous. In Zimbabwe, an even higher percentage of couples disagreed on the type of union they

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were in, almost 9 percent. Similarly, for those 62 couples that disagreed, 61 disagreements occurred when the wife said the union is polygamous and the man said otherwise and only one couple where the wife said the union was monogamous and the husband said otherwise.

The next stage was to check where incompatibility of responses occurred more, i.e. were incompatible responses more common for couples who lived with their partner or for those partners where the husband was 'just staying', meaning he had a residence elsewhere. In Tanzania, of all the couples, 16 wives had husbands who were 'just staying', out of which there were no incompatible responses. Where the husband was living in the house (1041 couples), there were 33 couples with incompatible responses. In Zimbabwe, of all the couples, 44 wives had husband who were just staying, out of which there were 3 incompatible responses. Where the husband was living in the house (652 couples), there were 59 incompatible couples.

4.4. DISCUSSION AND CONCLUSIONS

The aim of this chapter was to describe the types of unions that men enter into and to investigate which characteristics are associated with the type of unions men are in. Given the available data, men in two types of unions were contrasted, i.e. consensual and formal unions; monogamous and polygamous unions. In addition, characteristics of women in polygamous unions were identified, together with factors that determine their rank in the polygamous union. Given prior knowledge a number of characteristics were expected to show an influence on the type of unions that men were in. Methods of analysis included descriptive measures and indices of polygamy; as well as multivariate logistic models.

For men it was found that many socio-economic characteristics did not have an important effect on the probability of being polygamous, unlike findings for women. That consensual unions were more common among young men is consistent with what has been concluded by van de Walle (1968) who found that age was an important covariate of consensual unions. This was arrived at through the analysis of consensual unions in the Congo during 1956-1957; it was found that for men the

peak in consensual unions is reached between 25 and 30; and few men remained in a consensual unions after their mid thirties.

One of the frustrating findings was how the two Tanzania surveys gave very different results regarding the percentage of men in consensual unions. Such a large differential is unlikely to be a genuine indicator of trends as the two surveys were conducted only four years apart and so this result is hardly a genuine reflection of trends in this type of unions. The way in which the questions were asked in the two surveys was the most likely explanation for this discrepancy. However, as Chapter Three showed, one cannot for sure say that this was the source of the discrepancy since questions were worded almost identically. In addition, perusal of the questionnaires in *Kiswahili*, which was the main language of the interviews, did not reveal a difference in wording. There might have been a difference in interviewer training, which cannot be easily unravelled from the wording of questionnaires. This problem is not unusual as was found by van de Walle (1968), in the case of Ivory Coast in 1956-57 where neighbouring areas with similar tribal origins and characteristics reported very different proportions of respondents that had ever married. For example, the proportions married among men varied between 7 and 87 percent.

Comparisons with other countries that had a similar question in their surveys did not make the matter easier in unravelling which set of results is more accurate. About 12 percent of men currently in unions are in consensual unions in Kenya (Kenya Central Bureau of Statistics 1993). However, only 4.59 percent of men in Uganda are in such unions (Uganda Statistics Department 1996), and only 0.21 percent of men in Zambia (Zambia Central Statistical Office 1997). In West Africa this percentage was 36 in Senegal (Ndiaye et al. 1997) and 13.6 percent in Ghana (Ghana Statistical Office 1994). These figures show no geographical pattern but the majority of countries do have percentages in the low side, which makes the results of TDHS 1992 especially suspect. Therefore, compared to countries in sub-Saharan Africa, the 1996 TDHS results seem more in line although one can not be one hundred percent definite.

Due to the large disparity in the prevalence of consensual unions in the two TDHS surveys, many of the differentials in the prevalence of consensual unions that

emerge from the 1992 survey cannot be trusted. In addition, the accounts from anthropological scholars and the many times too-wide differentials in 1992, make differentials seem more realistic in the 1996 TDHS. For example, the urban-rural differentials of the 1992 TDHS are contrary to the expected rural control. As seen in the 1996 survey, the percentage in consensual unions in urban areas is twice that in the rural areas, which is more in line with expectations that consensual unions would be more acceptable in the near anonymity of an urban area.

The result that slightly more than a half of those following Other religions were in consensual unions was worrying as was the finding of the large percentage of Catholics in consensual unions. This substantiated further the suspicions about the quality of responses on this question. In Tanzania, followers of Other religions are mostly followers of traditional religions. They are characterised by low levels of education and likely to be rural residents. The high prevalence of consensual unions among married men is therefore likely to be due to misunderstanding of the question rather than a real occurrence. The data quality is also brought into question when differentials by zones are studied. The first is the differences between the zones within one survey, and second the differences in reporting between the same zones in the two surveys. That there is no man in a consensual union in the Northern zone in the 1992 survey (or only 0.85 percent in the Southern Highlands zone) is far too extreme to be realistic. The suspicion is confirmed when the 1996 survey shows that there are quite a large number of men in consensual unions in both these zones. At the other extreme, the 1992 results show that almost three-quarters of residents in the Lake zone live in consensual unions. The difference between this zone and the Northern zone (or Southern Highlands zone) is highly unlikely to be real. This worry is again supported by the 1996 results, which show that the Lake zone had only 2.5 percent of married men in consensual unions and 7.14 percent in Southern Highlands. Coastal and Zanzibar are the only zones that for this question gave consistent results across both surveys. While cultural differences exist between the zones, the suggested differentials between zones in 1992, confirm doubts on such data.

The prevalence of polygamy in Tanzania, as found in the two surveys, is moderate when compared to other sub-Saharan African countries and fits the pattern

of medium prevalence for East Africa. In the Kenya 1993 DHS, 12 percent of married men were in polygamous unions (Kenya Central Bureau of Statistics 1993). Uganda 1995, 15 percent (Uganda Statistics Department 1996) and according to Zambia Central Statistical Office (1997) 8.7 percent of married men in Zambia were in polygamous unions. Compared to West Africa: 25.8 percent in Cameroun, 33 percent in Benin 33 and 34 percent of men in Senegal were in polygamous unions (Balepa et al. 1992; Kodjogbe et al. 1997; Ndiaye et al. 1997) respectively.

The prediction that the host of social, political and economic changes taking place in Africa will completely reduce the practice of polygyny was not fully supported in this study or by what the recent DHS data for a number of countries such as Kenya and Ghana show. While the percentage of women polygamists in some parts of sub Saharan Africa has changed, the change is small and in few countries. Unfortunately, the analysis of DHS data for Tanzania and Zimbabwe can not go as far as to analyse trends in the practice of polygamy. The cut-off ages for men are too low and since polygamy increases with age one would need a lot more information than is available. For Tanzania, the difference between the 1992 and the 1996 surveys is not substantial enough to warrant a conclusion that the practice of polygamy is in decline.

Differentials showed that all groups practice polygamy and where there are differentials these are small. For example, urban-rural differentials in Tanzania and Zimbabwe are minimal compared to those usually found between urban and rural areas. In other countries prevalence in rural areas can be about twice those in the rural areas. There are however exceptions, for example Uganda (28 urban vs. 30 percent in rural areas), and Niger where polygamy is higher in urban areas (Antoine and Pilon 1998). Obviously these examples show that there does not always have to be higher prevalence of polygamy in rural areas and so it does not seem unusual that residence should have only a mild effect in Tanzania or in Zimbabwe.

Results showed that being educated did not very much affect the chances of becoming polygamous in Tanzania and Zimbabwe. The overall weak significance of education as a determinant of polygamy could be due to the economic power that education gives men. Education might actually equip men to acquire more wives, as educated men are more able to meet the costs involved. That being educated does

not significantly reduce prevalence of polygamy was also found by Timaeus and Reynar (1998). They discovered that for all the countries they analysed, only in Kenya did husbands' education slightly reduce the likelihood of being polygamous.

Almost equal proportions of Catholic and Muslim men are polygamous, but when other characteristics are controlled for, it was found that indeed Christians have lower odds, (although this is significant only in TDHS 1996 and in the 1994 ZDHS). While this result shows that religion might be a hindrance to formal polygamy, this might not be the case for other types of multiple wives alliances that could not be studied in this thesis. That Zimbabwe Christians or those who follow Other religions were less likely to be polygamous compared to Spiritualists is due to the peculiarity of the Spiritual religion that was the reference group. Spiritualists are a special group in that they have integrated Christianity with traditional ways of beliefs and customs such as polygamy, and this has been found to affect other demographic outcomes (Gregson et al. 1996).

Some of the differences in prevalence seen in zones of residence in Zimbabwe were probably due to a mixture of culture and socio-economic backgrounds. That all the largely urbanised zones (Coast and Northern in Tanzania, Harare and Bulawayo) had a lower prevalence of polygamy is hardly remarkable. The fact that most of the zones in the specific countries were not significantly different was unexpected, however, this is supported by Timaeus and Reynar (1998) who found very little differential by ethnic groups for most of the countries they studied.

Not only do results show a lack of very strong differentials, but the intensity of polygamy was also low and very homogenous among men. At least eighty percent of polygamous men in Tanzania and Zimbabwe have two wives only and so compared to countries in West Africa the intensity is low. However, there were a few cases, such as the Zimbabwe capital Harare, where a few men with a large number of wives (e.g. a man who had ten wives) could alter the mean. Low prevalence does not guarantee lower intensity, it might be the beginning of a lower prevalence of polygamy among women but it could also mean higher intensity for the fewer men who are polygamous. The lower intensity in Kenya has been found to be in line with the declining rates of polygyny among women that have been observed between 1976 and 1996 (Antoine and Pilon 1998).

Contrary to what results showed for men, almost all factors that are known to be associated with polygamy were important for women in Tanzania and Zimbabwe. One of the important results is that religion is a significant factor. However the prevalence of polygamy among Christian women especially in Tanzania was unexpectedly high given religious restrictions on unions involving multiple partners. While not always important for men, place of residence and education were significant determinants for women. This result reflects differences among urban and rural women in opportunities, attributes and choices what man they marry. The few women who are urban residents, or who are educated, are likely to be very different from their counterparts in rural areas.

In looking at the differences between senior and junior wives in Tanzania and Zimbabwe, results fit the observations made elsewhere (Timaeus and Reynar 1998). The probability of being in a polygamous union and of being a junior wife increases with age at marriage. This is explained by the fact that as a woman delays marriage she is more likely to find an already married man. While infertility affects a very small number of women in Tanzania, the results still show that more childless women are polygamous, though results were significant only in TDHS 1996. There was no evidence to support speculation that educated women (likely to marry late) are likely to be junior rather than senior wives in a polygamous union.

In conclusion, the observed lack of differentials among men is probably because in these two countries polygamy is not as prevalent in some countries in West Africa. Therefore differentials are unlikely to be strongly associated with some men with specific socio-economic characteristics. While education slightly lowered the prevalence of polygamy, this was in the end not a very important determinant of the probability of a man being polygamous. While men in some religious groups were less likely to be polygamous it is clear that religious restrictions do not completely deter men or women from this type of union. In Zimbabwe, the combination of Christianity with indigenous beliefs has helped to keep polygamy alive. While it is not possible to trace the trend in polygamy using cross sectional data as used here, one can speculate that the practice of polygamy might fall in the future, as the younger generations brought up in monogamous households come to regard polygamy as an alien way of life. In addition, the threat of AIDS might also be a deterrent to entering polygamous unions.

5 Sexual Behaviour

This chapter gives a description and an analysis of the determinants of sexual behaviour of men in Tanzania and compares their experience with that of men in Zimbabwe. The chapter begins with a literature review, looks into the methods available for analyses of age at first sex data and explains the constraints faced. The chapter looks at characteristics of respondents that affect the age at first sexual intercourse, what differentiates the period between first sexual relations and marriage, and the number of sexual partners they have. Results show that age at first sex for men is early in both countries, but earlier in Tanzania than in Zimbabwe. Socio-economic differentials are also more pronounced in Zimbabwe than in Tanzania. Age at first sexual relations has been falling among younger men, and this is especially true for Zimbabwe. The majority of married men report only one sexual partner, but this is not the case among unmarried men. Given the late entry into marriage and early entry into sexual relations, the gap between first sexual relations and marriage is long. The chapter ends with a discussion, and the conclusions that were reached.

5.1 SEXUAL BEHAVIOUR IN SUB-SAHARAN AFRICA

Due to the highly private nature of sexual relations, the study of sexual behaviour has not had as wide and deep a coverage as other areas of demographic research. Unlike marriage and fertility, there is a void on the link between sexual behaviour and social or cultural backgrounds. However, the emergence of the HIV/AIDS epidemic as a major health threat has increasingly changed the situation. The number of papers now published on this topic, resulting from a range of small scale surveys to larger scale DHSs and the WHO's Global Programme on AIDS surveys is a testimony to this. As far as HIV/AIDS and other sexually transmitted diseases are concerned, the aim of most researchers has been to identify behaviours that propagate the spread of the diseases. The concern about HIV/ AIDS in sub-Saharan Africa is justified by the number of HIV/AIDS positive individuals. About twenty-two million adults and 1 million children are already infected and projections show that the numbers are increasing (UNAIDS 1998). Some studies have looked at anthropologists' monographs on past behaviour as a means of understanding changes over time. However, the main shortfall of such work on sexual behaviour is that it discusses sexual behaviour mainly within marriage, which paints an incomplete picture.

Another motive for studying sexual behaviour has been concerns about the extent of premarital sex and childbearing in many societies. Researchers have been forthcoming in looking at what determines the age at first sexual relations because of the implications to health, loss of education, and risk of STDs for adolescent women. Similarly, there is an increasing interest in looking at the number of sexual partners that adolescents have, as well as their knowledge and level of contraceptive use.

The concern about increased teenage childbearing and loss of opportunity for teenage mothers is based on evidence that the rate of adolescent sexual relations and fertility is more than was previously thought (Jones et al. 1985; Meekers 1994b; United Nations 1994; Alan Guttmacher Institute 1998). There are indications that premarital fertility is rising and several factors have been mentioned as determinants. These are earlier onset of menarche among girls, earlier initiation into sexual activity, a longer period of adolescence, social change and modernisation, low use of contraception, postponed age at first marriage and a decline in traditional controls of sexuality. For

example, Makinwa-Adebusoye (1992) using NFS data for Nigeria, showed that 15-19 year olds contributed 21.6 percent of the Total Fertility Rate. Twelve percent gave birth before their first marriage and 11 percent of the sampled women reported to have had a first birth within 7 months of marriage. However, evidence is not uniform across sub-Saharan Africa. While as many as 42 percent of 15-24 year olds in Botswana have given birth, the percentage is only 1.8 in Burundi and eight percent in Ghana and Zimbabwe. However, it is higher in Liberia, at 34 percent and in Kenya at 20 percent (Gage-Brandon and Meekers 1993).

Still, the coverage of the study of sexual relations is comparatively less developed compared to other areas of demography. In addition, even less developed and studied is the male side of sexual behaviour. The reason for this could be that unlike women, there are no direct health risks of underage pregnancies, or loss of educational or other economic opportunities. There has however, recently been an increase in the number of studies describing male sexual behaviour, mostly in relation to risks associated with the spread of AIDS. These studies, therefore, mostly concentrate on the number of sexual partners. On other aspects of sexual behaviour (eg. socio-economic determinants and consequences of early fatherhood), little has been researched.

Where female premarital sexual relations and childbearing is concerned, the most recent major source of information has been the DHS programme. For more detailed surveys specifically on sexual behaviour linked to HIV/AIDS, one of the main sources of information is the data collected by the World Health Organisation's Global Programme on AIDS (GPA). The literature resulting from this programme has provided a useful comparative base. The GPA aimed to identify sexual behaviour and partner relations that were risky as far as infection of HIV/AIDS is concerned (Carael et al. 1992). The Demographic and Health Surveys Programme has also been useful in this respect, though it is mostly in the second and third round of surveys that questions on sexual behaviour are more detailed and get more useful. In addition to these two major sources, there are a number of smaller national surveys on knowledge, attitudes and practice. These mostly aim to gather data on adolescent and adult sexual behaviour as well as contraceptive use. Such surveys have been conducted in Gambia, Liberia, Nigeria, Kenya and Tanzania. There are also smaller

scale independent anthropological studies, limited to small areas, such as those conducted in Endo-Ekiti regions of Nigeria by Caldwell and his team. As a result, there is now a fair amount of literature that describes different aspects of sexual behaviour.

5.1.1 Difficulties in the study of Sexual Behaviour

Like other areas of demography, there are doubts as to the quality of information on sexual activity that can be collected in surveys using standardised questionnaires. These doubts are based on the experience of those researchers who prefer the anthropological approach to such a private question, or those who dealt with the National Fertility Studies (NFS 1965 and 1970) data that suffered from so many errors. Westoff (1974) writing on data quality of the NFS notes that it was always hard for interviewers to ask questions on the frequency of sexual intercourse. For some respondents the question was 'awkward and anxiety provoking', embarrassing or even threatening, even when embedded in clinical questions regarding contraception, pregnancy and sterility. The author concluded that the data obtained was of low quality considering the rate of non-response (4.8 percent in 1965 and 7.8 percent in 1970) and the high degree of heaping for digit 8 (twice a week times four).

To deal with recall errors, digit preference, and sensitivity of questions on behaviour and premarital sex, the DHS took extra precautions when conducting its surveys. Interviewers were encouraged to conduct interviews in private. In addition interviewers themselves should ask questions on sexual behaviour using tones and facial expressions that they had used throughout the interview. Questions on sexual behaviour were to be kept to the end of the interview so as to capitalise on the trust gained throughout the interview (Institute of Resource Development 1987a).

Blanc and Rutenberg (1991) assessed the quality of sexual behaviour data for 12 countries that had conducted DHS surveys (Brazil, Colombia, Dominican Republic, Ecuador, Guatemala, Mexico, Peru, Trinidad and Tobago, Burundi, Ghana, Kenya and Uganda). They found that on the issue of completeness of reporting (i.e. the percentage of cases for which the data were missing) non-response rates were very low. The highest was in Brazil, and then only 2 percent. However, the data assessed were from the women's questionnaire. There were, as expected, more

inconsistencies when comparing age at first sexual intercourse with age at first union and age at first birth at the individual level. However, these inconsistencies even out when aggregate measures are used. They therefore conclude that, caution is necessary in the analysis of individual-level data on the initiation of exposure to reproduction, but aggregate measures produce valid results. Concerning the problem of heaping and rounding of responses on the frequency of sexual intercourse, a number of countries did show this feature in their data. The authors note that the observed rounding on multiples of four might be consistent with established routine for coitus. Therefore the reported frequency of coitus calculated as regular weekly frequency multiplied by four might be fairly accurate. Similarly, Westoff (1974) found that the responses given to frequency of sexual intercourse questions in a repeat of the 1965 NFS sub-sample were consistent in both interviews. Westoff (1974) concludes that while individuals' data for individuals were fairly crude, they were satisfactory in the aggregate and for comparisons between 1965 and 1970.

Blanc and Rutenberg (1991)'s analysis also showed that the presence of other people at the interview did affect responses on age at first sexual intercourse and the frequency of coitus. Lower frequency was reported when other women or children or other men (i.e. not the husband or partner) were present than when the respondent was alone.

As in other areas of demography, the accuracy and quality of the data from male questionnaires on sexual behaviour has not been widely assessed. There are, however, some studies that have looked at the accuracy of reports of husband and wives responses. As far back as 1964, Clark and Wallin (1964) for example found that couples' response about the frequency of sexual behaviour has a significantly large margin of error. They demonstrated that the error is systematic to the respondent's level of satisfaction with the frequency of sexual intercourse. The data used came from the US : residents of Chicago in the mid to late 1950's. The work of Becker (1996) also looked at the literature on couples' studies and concludes that concordance between partners on matters of reproductive health was between 60 and 70 percent. In a longitudinal study of adolescents in the United States, Lauritsen and Swicegood

(1997) found that on the reporting of sexual activity only 60 percent of respondents were consistent in their responses.

5.1.2 Patterns of Age at First Sexual Relations

Since women in sub-Saharan Africa marry early, sexual relations usually start at a young age. There is, however, a debate regarding attitudes towards initiation of sexual relations prior to marriage and whether observed levels of premarital sex may be due to social approval. While anthropological evidence shows a picture of diversity regarding attitudes towards premarital sexual relations, there are authors who have attempted to formulate a theory about sexual behaviour for sub-Saharan Africa. The major idea discussed by Caldwell et al. (1992a) is that there is a distinct pattern of sexual behaviour and marriage that is characteristic of sub-Saharan Africa, excluding a small area in southern Africa. The sexual pattern described is distinct from the pattern found in Eurasia in that traditionally no morality is attached to sex. That is, for the large part of Africa chastity was never sanctified. In addition they argued that it was with the arrival of colonialism, foreign religions and education systems that the society started to change. Studies from this team have argued that, traditionally (i.e. before colonialism or the introduction of modern religions), age at first sexual relations was low for both men and women in sub-Saharan Africa (Caldwell et al. 1989; Caldwell et al. 1991; Caldwell et al. 1992a, Caldwell et al. 1992b; Caldwell and Caldwell 1993). For women this was a result of not only a young age at first marriage, but also because premarital chastity was not enforced as virginity at marriage was not valued. For men, since marriage was more delayed, premarital sex acted as a reward for waiting their turn to marry. Sexual relations for men were permitted with women across the age range provided taboos regarding certain forbidden women, (for example their own mothers) were observed. Among women with whom they were allowed to have sexual relations were their fathers' or older brothers' younger wives, their female age mates who were most likely to be already married to older men and women involved in commercial sex (Caldwell et al. 1992a).

The main criticisms of Caldwell and his team's ideas have come from, among others, Leblanc et al. (1991) and Ahlberg (1994). They have argued against the way that generalisation from the evidence from a small area of Nigeria has been used to

draw a theory for the whole of sub-Saharan Africa. Given the diversity in sub-Saharan African cultures, the criticism has focused on the large body of anthropological evidence of traditional societies, both supporting as well as disproving Caldwell et al's theory. In support of the views of Caldwell and his team's views, Cory and Hartnoll (1971) report on the customary declarations of the Haya of Northwest Tanzania. They show that there is no strictly specified age limit below which a girl is not allowed to have sex. The development of breasts on a young girl was traditionally taken as a sign that she is ready for marriage and this might also mean that she is ready for sexual relations before marriage. There is no mention of age at first sex for men, but there is mention of erotic folklore and songs, which support the theory that sexuality was not restricted. A second example is from Kenyatta (1979), who wrote about the Kikuyu of Kenya; explaining that while sexual intercourse was strictly prohibited among adolescents, this society allowed limited sexual relations. Unmarried young people, in what is called 'ngweko', could have non-penetrative sex. 'Ngweko' took place under strict adult supervision and the women of the family regularly checked girls for virginity. Some leeway with this form of controlled premarital sexual relations might have been possible since young people were supposed to have their own houses soon after they had been initiated. In contrast, another society in Kenya, the Akamba, allowed premarital sexual relations to young people soon after circumcision and at marriage a girl was expected to be sexually experienced.

Other literature shows that initiation of sexual relations was controlled where for women virginity at marriage was prized. In such societies, the elders controlled reproduction and one could not enter sexual relations without approval, which took the form of initiation. The Masai of East Africa encourage sexual intercourse among young men and women of all ages, but, this can only take place between certain groups and certain age groups (Talle 1988). For example, it is acceptable for pre-pubescent Masai girls to have sex with Masai boys and men aged 16-30. In this society extra marital sexual relations are encouraged for pleasure and fertility, and it is seen as a sign of generosity when a man allows another man to sleep with his wife. Von Mitzlaff (1988) reports on the sexual behaviour of another group of Masai, the Parakuyo, who live in Handeni, Tanzania. Despite the open attitude that the

Parakuyo have on sexual relations, they have prescriptions to regulate sexual relations. The choice of lovers for young girls is socially recognised in the society and is marked by a special ceremony. These lovers are rarely the future husbands, who will come from the group of elders, but may continue to be extra-marital lovers once the girls are married.

However, in other societies, sexual relations are restricted. Among the Kurya of Northwest Tanzania an uncircumcised young man was not allowed to have sexual relations. Neither could an uncircumcised man get married or establish his own household (Rwezaura 1985). The date of circumcision and hence the sign that a man was allowed sexual relations was set by the elders of the community. In pre-colonial times boys were circumcised when they were between twenty and thirty years of age. Unfortunately neither Rwezaura (1985) nor the other authors go into detail as to how it was possible to keep the rules, i.e. there is no account of the punishments endured should the rule be broken. However, he notes that during the last half century, the average age at circumcision for boys has fallen to about seventeen years. The time interval between group ceremonies has also decreased from about four years in the past to an average of every two years. Kurya girls could also not have sexual relations before circumcision but the circumcision of girls was soon after menarche, making age at first sex earlier than it is for boys. In addition, the Luo of Kenya expected a girl to be a virgin at marriage, as did the Maragoli who generously rewarded a girl who was still a virgin at marriage (Kiragu and Zabin 1993).

There is thus a lot of variation, even within countries, regarding attitudes towards premarital sex. This can be seen by looking at the wide variation in the prevalence of premarital sex. For example, the percentage of never married women aged 15-24 who are sexually experienced is very varied (Gage-Brandon and Meekers 1993). It varies from 3.6 percent in Burundi, 45 percent in Ghana, 44 in Kenya, and 23 in Zimbabwe to 78 percent in Botswana and Liberia. Makinwa-Adebusoye (1992) using data collected in 1988 from 5 cities in Nigeria looked at the urban youth and found that 41 percent of 12-24 year olds were sexually experienced. Of those who had had sexual intercourse, 72 percent of males and 82 percent of females had done so by age nineteen. The data indicated that the mean age at first sexual intercourse was slightly higher among males at 18 than for females at 17.4 years.

Kane et al. (1993) writing on the Greater Banjul youth (in The Gambia), found that young men and women started sexual relations quite early. Thirty-three percent of unmarried men who had ever had sex reported that they were 14 years or younger when they first had sex. In the same way, among women, the percentage was 20. Of all ever married women, 24 percent had their first sexual relations before they were married. For Harare, Boohene et al. (1991) looking at young men and women aged 14-24, found that half of unmarried men had had sexual intercourse, compared to 14 percent of unmarried women. Of young sexually experienced men, fewer than 11 percent had discussed marriage with the woman they had sexual relations with. This is understood to be an indication that the relationship was not intended to be permanent. In this paper there were suspicions that young men were either over-reporting or women were under-reporting their sexual experience; given a higher level of experience reported from men. Alternatively, it is possible that young men had sexual relations with a group of women who were having relations with many partners.

5.1.3 Determinants of Age at First Sexual Relations

In comparative analyses using GPA surveys, Carael (1995) found that there are large differences in the proportions who had never had sex among never married men and women aged 15-19. The proportion ranged from 1 to 69 percent among males for different countries; and from 0 to 56 percent among women of the same age. This more recent comparison of proportions who had had sex shows that differentials might be partly explained by a number of factors. These could be cultural characteristics such as importance of virginity at marriage, aspects of modernisation such as urbanisation, access to media, education or knowledge of and sources of contraceptives. It could also be due to the breakdown of social controls regarding sexual behaviour (Bledsoe and Cohen 1993).

Compared with other regions of the world, sub-Saharan Africa shows greater within-region homogeneity in the proportions of 15-29 year old who were sexually experienced (Carael 1995). Approximately 40 percent of men and women were sexually active by age 15. However this figure varied between countries. On the low side are Lesotho and Burundi, where for men, the increase in sexual experience

progresses much more slowly with age than in other countries. While at age 20, only about 20 percent are still virgins in many other countries, this is 40 percent in Burundi and Lesotho. On differentials, Carael (1995) found that the proportions sexually active were very similar in both urban and rural areas. As sexual behaviour in urban areas was highly correlated with sexual behaviour in rural areas, one could not easily generalise on the greater sexual freedom of urban areas. Mturi et al. (1997) on sexual behaviour in Lesotho, for example, found that while only 8 percent of urban women aged 15-19 have had sexual intercourse, the percentage is 22 in rural areas, and for men this was 21 percent in urban and 38 percent in rural areas.

Factors leading to an early age at first sex are therefore not universal. One of the most comprehensive studies on factors associated with an early start of sexual relations is that by Kiragu and Zabin (1993) who used data on school age adolescents in Kenya. Using a multivariate model, they found that initiation of sexual relations was related to puberty status, religiosity, risk taking behaviour (such as substance use and disco attendance), degree of parental supervision, peer influence, parental conflict and attitudes towards premarital sex. Young men and women who had not reached puberty were less likely to have started sexual activities (43 percent less likely for men and 29 percent less likely for women). Males attending schools in urban areas were only 63 percent as likely to have had sex as those who attended schools in rural areas. Young men and women who were religious were less likely to be sexually experienced. In addition, associating with non-sexually active peers lowered the odds of being sexually active. Girls who smoked or drank alcohol were up-to four times more likely to be sexually active, compared to those who did not. Frequenting discos was also associated with higher risks, while living with both parents lowered the odds. Not surprising, parental disapproval of premarital sex lowered the risk to early sex, as did day school attendance. Parental conflict was also associated with higher likelihood to have initiated sexual relations.

However, based on Bledsoe and Cohen (1993), one could speculate that increasing the number of years of education would be associated with an early age at first sex. Carael (1995) found it was more common for men with secondary education to have sexual intercourse in the last 12 months before the survey, than those with no education. A higher proportion of women with secondary or primary education also

tended to be sexually active compared to those with no education. This relationship was, however, not universal to all the countries studied. As Mturi et al. (1997) argue, among young women in Lesotho, an increase in education was associated with lower levels of premarital sexual activities. Mturi et al. (1997) compared women by the level of education they had achieved and found that less education was associated with higher risk of starting sexual relations. The authors conclude by speculating that those who have secondary education are likely to be more ambitious and would not jeopardise their place at school by getting pregnant or expelled. Those with primary education might be exposed to the lighter controls associated with modern education, but without the ambition to stay in education.

Ajayi et al. (1991) using data from a survey conducted in Kenya in 1985, found that there was no significant difference in the mean ages of first sex by levels of education. Among girls aged 12-15 who were still students, the mean age was about 12 years, for non-students (attended elementary school) of the same age group the mean was 12.8 years. For girls aged 16-19 who were still at school, the mean age at first sex was 14 compared to 14.3 for those of the same age who had elementary education. This is further confirmed by Gage-Brandon and Meekers (1993), who found that the effect of education on sexual activity among never married women was inconsistent between countries. For Mali and Zimbabwe, there were no major differences in sexual activity by education groups, while for Burundi more education was linked with higher levels of premarital sexual activity. About 18 percent of those with secondary education had had sexual relations, compared to 5 percent of those who had no education.

5.1.4 Number of Sexual Partners

Anthropological literature, and lately that based on analysis of data on sexual behaviour, suggest that men and women in sub-Saharan Africa are more likely than other parts of the world to have more than one sexual partner at a time. In a number of papers, Caldwell and his group give the main reasons to be the lack of morality attached to sexuality, the practice of post-partum abstinence and the polygamous system of marriage. It is believed that for all groups of men (single or married; monogamous or polygamous) to have more than one sexual partner at a time is the

norm and one would be abnormal were this not the case. As before, evidence regarding societal attitudes towards the number of sexual partners varies. For example, Boroffice (1995) shows that the view held by women in Badagry in Lagos Nigeria contradicts the view that multiple sexual partners are tolerated. It was found that the majority of women (87.4 percent) did not think that men required more than one wife; and the same percentage also preferred to be the only wife. In addition 67 percent did not think that their husbands had relationships with other women outside their marriage.

The Ekiti model developed by Caldwell and his team has put the case that monogamous men in Ekiti are more likely to have extramarital sexual relations than polygamous men. It has also been argued that women in polygamous marriages are more likely to have extra-marital relations than women in monogamous marriages. Unfortunately, the Ekiti study did not produce numerical values for the average number of sexual partners that men or women might have. A study that has quantified the number of sexual partners is that of Carael (1995) who found that, as in other aspects of sexual behaviour, there is a wide variation in the mean number of sexual partners for different countries in Africa. Using information from the GPA, he found that among 15-19 year olds the mean number of sexual partners ranged from 1.6 in Kenya to 2.5 in Tanzania. The range for women was only slightly smaller. In Kenya this was 1.5 and In Tanzania 1.7. Stewart (1995) found that among rural youth of Northwest Tanzania, the number of sexual partners was also higher among young men than women. Young men had a high average of 6 sexual partners in the previous two-year period, while for women it was only 1.8.

As pointed out before it is easy to find evidence of societies where having a variety of sexual partners is not frowned upon. The Parakuyo Masai for example have a special ridiculing name for those women who do not have premarital and extramarital sexual relations. The practice of having many sexual partners has started to be discouraged by mothers of young Masai women who have embraced Christianity (von Mitzlaff 1988). This is also happening in some areas of Tanzania were there is increased knowledge about AIDS and its modes of transmission. As shown by Ng'weshemi et al. (1996) in a longitudinal study involving urban males in Mwanza, Tanzania, men are reducing the number of sexual partners. Men were

showing a preference for monogamy to condom use, as a way of avoiding AIDS; as well as a way of cutting down expenses on condoms.

This review shows that it is hard to produce a theory of sexual behaviour that will apply to all the societies in sub-Saharan Africa. Even when results are based on reliable large-scale surveys, patterns of attitude towards premarital sex, age at first sex, and number of sexual partners are very diverse. Given such diversity, it might be more useful to conduct surveys that are specific to particular societies.

5.1.5 *Trends in Age at First Sexual Relations*

Despite the consequences of a declining age at first sexual relations, there are few studies that have quantified the magnitude of this decline. Evidence of this trend is mostly anecdotal and is based on observed differentials between traditional and modern characteristics of individuals. For example, differentials between urban and rural areas are usually taken to mean that age at first sex is falling. The study by Stewart (1995) is among the few that have quantified the trend. It is argued in this paper that among men living in the Northwest of Tanzania (Mara Region), there is a clear trend in age at first intercourse. Stewart (1995) found that the mean age at first intercourse fell from 16.8 among 40-49 year olds to 13.8 among 15-19 year olds. The proportion becoming sexually active only after age 16 fell from about 40 percent in the oldest age group to about 10 percent in the youngest age group.

However, Carael (1995) concludes that there is no universal evidence that age at first sexual intercourse has been falling.

5.2 *DATA AND METHODOLOGY*

This section first reviews methods in the study of age at first sex, trends in age at first sex and the multivariate analysis of age at first sex. The methods chosen for analyses are presented next, and finally measurement and data quality issues that had to be taken into consideration are discussed. It has not always been the case that data on age at first sex was collected in demographic enquiries and so methodology in this topic is not as advanced as, for example, in the areas of mortality or fertility.

5.2.1 Methods in the Analysis of Age at First Sex

Initiation of sexual relations was studied by looking at the distribution of respondents by age at first sex. This method uses current status information and is therefore not very satisfactory. Given the censored nature of age at first sex data, it is only possible to look at those who have had sex by the interview date. Life table analysis as described in Chapter Three is a useful tool in this case. In the study of age at first sex it has been used to look at the effect of parental divorce on age at first coitus, as well as first partnership for the children (Kiernan and Hobcraft 1997). In this context life tables give the proportion of the sample that had experienced the event at a certain age, as well as the percentile ages at first sexual relations.

In multivariate analyses, age at first sex could be modelled in a variety of regression equations. The choice of what regression to choose depends on what the analyst is trying to measure, the sample size and the statistical sophistication of the researcher. One of the most popular methods is logistic regression, as used for example used by Mott et al. (1996). They modelled the factors affecting the probability of having sex by age fourteen using variables such as maternal age at first sex and menarche, whether the mother used substances and an early behaviour 'score'. They looked at mothers' education, the number of children at home, presence of mother's partner and grandparents; as well as children's psychosocial variables such as good school scores, substance use and church attendance (Mott et al. 1996).

Other useful models are hazard or rate models, which were also described in Chapter Three. Kiernan and Hobcraft (1997) used a hazard model to look at whether children with divorced parents had an extra risk of starting sexual relations earlier and how early partnership of children of divorced parents was perpetuated by an early age at first sex. The modelling involved transforming the data into 'episode' files using the Lexis procedure in STATA. This expanded a set of records concerning subjects in a follow-up study into a larger number of person-time records such that each record in the new data set concerns the follow up of one subject through one band of a time scale. The models were then fitted using the Poisson procedure with the exposure incorporated as an offset.

The Poisson procedure models the number of occurrences (counts) of an event usually with respect to time (or space). If events occur repeatedly but entirely randomly with an average rate of λ per unit time, then in any small interval of time of length t, the probability that an event occurs is proportional to t (i.e. λt). The incidence rate can then be multiplied by exposure to obtain the expected number of events. If t is doubled then the probability that the event will occur in this new interval also doubles. As t gets shorter then the probability that more than one event will occur in that smaller interval also gets smaller. The assumption attached to such a distribution is that non-overlapping exposures are mutually independent i.e. what happens in any small interval is independent of what happens in any other small interval not overlapping the first one. Therefore, to find the probability of k events in an exposure of size T, first divide the exposure T into n subintervals t_1, $t_2...t_n$ and then approximate the probability as the chance of observing k successes in n trials. As $n \to \infty$ the Poisson distribution is obtained.

The incidence rate for the j-th observation is then given as:

$$r_j = e^{\beta_0 + \beta_1 x_{1,j} + ... + \beta_k x_{k,j}}$$

and if E_j is the exposure, then C_j which is the expected number of events will be given by:

$$C_j = E_j e^{\beta_0 + \beta_1 x_{1,j} + ... + \beta_k x_{k,j}} \qquad = e^{\ln(E_j) + \beta_0 + \beta_{1,j} + ... + \beta x_{k,j}}$$

To find the relative incidence rate ratios (if one is interested in comparing rates of events in different groups), one needs to hold all the x′ s in the model constant except one. Then the incidence rate ratio for a one unit change in x_i is given by:

$$e^{\beta_i} = \frac{e^{\ln(E) + \beta_1 x_1 + ... + \beta_i (x_i + 1) + ... + \beta_k x_k}}{e^{\ln(E) + \beta_1 x_1 + ... + \beta_i x_i + \beta_k x_k}}$$

This will give the ratio of incidences in one group in relation to another group (Stata Corp. 1997).

5.2.2 Methods Used in the Analysis

Data were analysed first by looking at the percentage of men who had sex between ages 7-13, 14-15, 16-17, 18-19 and 20 or above. Differentials in these descriptive distributions by the various characteristics were noted.

To deal with censoring, life table analysis was used to look at the proportion of men of different backgrounds who had sex by certain ages. Rates of entry into sexual relations were then summarised into percentiles, which give the ages at which 25 percent, 50 percent (median) and 75 percent of men had had sex. The same method was used to look at the trends in age at first sex, by looking at the proportion of the various age cohorts who had had sex by a certain age. To test whether there are significant differentials in the rates of entry into sexual relations for the different groups, the log-rank test was used to compare the rates of entry for different socio-economic groups (discussed in section 3.2.2 above).

To analyse the differences in the length of the interval between age at first sex and age at first marriage a variable was created to define the difference between age at marriage and age at first sex. Tests were used to determine whether the size of the gap was significantly different for the different groups of men.

The Kruskal-Wallis non-parametric test was used to test the hypothesis that several samples are from the same population. The Kruskal-Wallis test in (Stata Corp. 1997) is a multiple-sample generalisation of the two-sample Wilcoxon (Mann-Whitney) rank sum test. Samples of sizes n_j ; j=1,...,m, are combined and ranked in ascending order of magnitude. Tied values are assigned the average ranks. If N denotes the overall sample size, and R_j denotes the sum of the ranks for the jth sample, then the Kruskal-Wallis one way analysis of variance test, H, is defined as:

$$H = \frac{12}{n(n+1)} \sum_{j=1}^{m} \frac{R_j 2}{n_j} - 3(N+1)$$

The sampling distribution of H is approximately χ^2 with m-1 degrees of freedom.

Multivariate analysis was used to look at the covariates of age at first sex. The method used is similar to that used by Kiernan and Hobcraft (1997) or Rodriguez et al. (1984). The analysis first involved transforming the data into 'incident' files using the Lexis procedure as discussed in Section 5.2.1 above (Stata Corp. 1997). In the analysis the Lexis procedure divided the men into various groups; those who had sex between age 11-13, 13-15, 15-16, 16-17, 17-18, 18-19 and 19-20 for Tanzania and for Zimbabwe an additional group for those who had sex between age 20-25. The models were fitted using the Poisson procedure with the exposure (the period between entry into risk of first sex to that event happening or age at interview if the

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individual is censored i.e. not had sex at interview date) incorporated as an offset. The survey Poisson option in STATA was used. Controlling for the differences in risks at different ages, the models give the hazard of starting sexual relations given certain socio-economic characteristics and results are presented as incident rate ratios.

5.3.3 Methodological Issues and Constraints

i. Data Quality

For all the three surveys there was evidence of heaping of age at first sex. Ages 15, 18 and 20 were the most popular, but as with the reporting of current age or age at first marriage the heaping was more severe in Tanzania than in Zimbabwe.

For Tanzania 1992 ages 15, 18 and 20 accounted for 45 percent (39 percent in 1996) of all responses, which ranged from age 7 to age 41. Twenty-five was another popular age that stood out, especially in Tanzania since so few men had first sexual relations after age 20. In Zimbabwe, the peak at age 15 seen in Tanzania is not as pronounced, although the heaping at ages 18, 20 and 25 is present. These three ages accounted for 38 percent of all responses.

Figure 5.1: Distribution of Men by Age at First Sexual Relations.
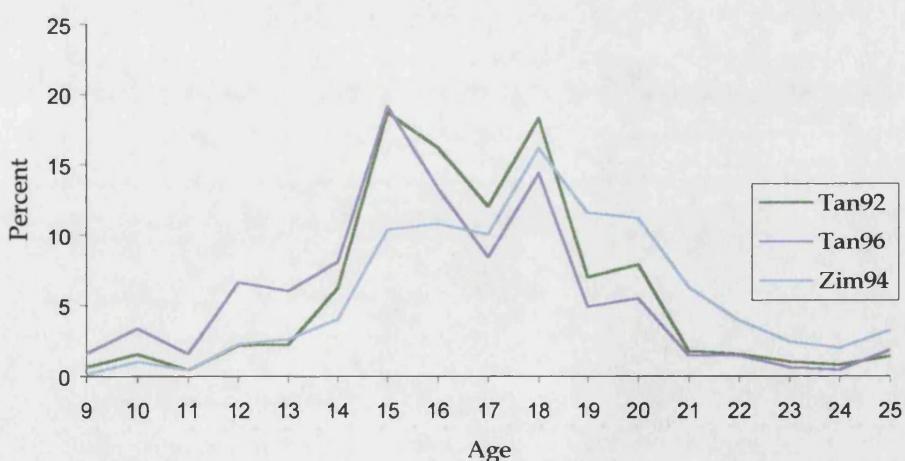
Another data quality issue of concern is that the two Tanzanian surveys used two different reference periods for the question concerning the number of sexual partners. Respondents in 1992 were asked how many partners they had in the previous four weeks while in 1996 the reference period was 12 months. For the 1994

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ZDHS the reference period was the four weeks before the survey. This means that the results of the two Tanzanian surveys might not be completely comparable.

ii. Choice of Variables

The choice of variables is based on the literature about which characteristics might be important determinants of age at first sex. They were deliberately chosen to assess how far the two countries being analysed compare to findings from other studies. The analyses therefore looked at differentials by current residence, childhood place of residence, religion, education, zones, occupations and age cohorts; categories that are described in Chapter Two. The choice of variables was however, limited by the questionnaire design, which was not as extensive as could be desired. In addition to the socio-economic characteristics available, it would have been useful to work with variables that represent risk taking behaviour such as drinking, smoking and leisure/ entertainment behaviour (Mott et al. 1996; Mturi et al. 1997).

5.3 RESULTS

The results presented first are descriptive and show the distribution of men by the ages they first had sex, and differentiated by demographic and socio-economic characteristics. These are followed by results from the life table analyses, which are summarised in percentiles for ease of comparison. Next results of multivariate hazard models are presented, showing incidence rate ratios compared to the reference groups. This section also presents results on the length in years of the interval between age at first sex and marriage, results on how the length (in median number of years) differs by demographic and socio-economic characteristics. Finally results are presented on the number of sexual partners for ever married and never married men.

5.3.1 Distribution of Men by Age at First Sexual Relations

The distribution of men by ages at first sex shows that age at first sex in Tanzania is early. Although there is a slight difference between the two surveys, both show a large proportion of those who had ever had sex did so between the ages of 14 and 17. However, the 1992 Tanzania results show that a larger percentage of men had first

sexual relations by age thirteen than is the case in 1996. For Zimbabwe there is an indication of later age at first sex compared to both Tanzania surveys, especially when compared to the 1992 results. In Zimbabwe, a smaller percentage had sex in their teens and about 34 percent of men had sex for the first time after age twenty. These results are summarised in Table 5.1 below.

Differentials by Demographic and Socio-economic Characteristics

While both of Tanzania's sets of results show that there are some socio-economic differentials, these are small apart from those in a few groups. From the 1992 TDHS results, classification by religion suggests that a high percentage of Muslim men had had sex between 7 and 13 years compared to the other remaining groups. There is also an indication that those with 9 or more years of education show a smaller percentage that had sex between age 7 and 13. There are strong suggestions that a number of zones in Tanzania have a later start compared to others. Zanzibar, for example, shows that most men delayed the onset of sexual relations as there are no men whose age at first sex is between 7 and 13 years. In fact, in 1996 only 1.2 percent did so within this age range. Southern Highlands and Lake also show a smaller percentage falling in this early age. Overall, the 1996 results indicate a smaller percent of men having sexual relations in the youngest age group than in the results for 1992 and fewer differentials by demographic and socio-economic characteristics. However, groups with a delayed start in 1992 also show a delayed start in 1996.

The results for the 1994 ZDHS are similar to those of the 1996 TDHS in that there are few differentials by socio-economic characteristics. However, it is worth highlighting the suggestion of differentials by zone of residence where for example Midlands, Masvingo, Harare and Bulawayo have a slightly smaller percentage of men who had sex in the 7-13 age range and Matabeleland has the highest.

Even at this descriptive stage, differentials by age cohorts within all the three surveys suggest that age at first sex has been falling, but only very slightly. In 1992, the percentage of older men who had sex in the early age groups is marginally lower compared to that of younger men. The decline in age at first sexual relations is more apparent in Zimbabwe, where for example the percentage of 20-29 year olds who had had sex after age 20 is about a third of that seen for the 50-54 age group.

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Table 5.1: Distribution of Men by Age at First Sexual Relations

Characteristics	Age 7-13	14-15	16-17	18-19	20 +	Characteristics	Age 7-13	14-15	16-17	18-19	20 +	Characteristics	Age 7-13	14-15	16-17	18-19	20 +
Tanzania 1992						**Tanzania 1996**						**Zimbabwe 1994**					
All men	18.28	26.99	20.78	19.29	14.67	**All men**	6.66	23.45	26.78	24.83	18.28	**All men**	5.85	13.80	20.07	26.88	33.39
Age						**Age**						**Age**					
20-29	17.07	28.88	20.35	23.20	10.50	20-29	5.98	23.83	29.01	27.45	13.73	20-29	4.33	12.67	22.90	34.06	26.05
30-39	11.38	19.85	25.14	20.85	22.78	30-39	5.91	20.62	22.82	27.32	23.34	30-39	4.60	10.14	15.57	27.33	42.36
40-49	14.25	22.30	18.48	23.25	21.71	40-49	4.20	13.91	30.01	26.23	25.65	40-49	2.87	6.12	14.72	28.04	48.25
50-60	14.42	28.91	15.92	19.66	21.09	50-60	1.27	18.27	19.52	26.81	31.12	50-54	2.83	4.62	3.93	21.69	66.94
Type of Union						**Type of Union**						**Type of Union**					
Monogamous	14.72	22.02	21.12	23.02	19.13	Monogamous	4.74	19.11	25.63	27.27	23.25	Monogamous	3.38	8.48	15.19	28.94	44.01
Polygamous	13.67	20.65	18.47	24.66	22.55	Polygamous	4.92	16.55	23.37	33.18	21.98	Polygamous	2.15	3.92	17.17	28.35	48.42
Residence						**Residence**						**Residence**					
Urban	15.97	30.08	20.76	17.76	15.43	Urban	6.80	24.92	26.48	23.79	18.00	Urban	2.86	10.12	20.75	30.01	36.26
Rural	18.69	27.11	20.51	18.93	14.75	Rural	5.68	21.78	27.14	25.49	19.83	Rural	6.63	14.56	19.84	26.71	32.27
Current-past Residence						**Current-past Residence**						**Current-past Residence**					
Always Urban	15.80	33.40	18.60	15.70	16.50	Always Urban	5.40	28.07	20.25	28.43	17.86	Always Urban	3.87	13.45	31.55	25.74	25.39
Ex – Rural	16.04	28.45	22.17	18.38	14.96	Ex – Rural	7.80	22.24	30.85	20.75	18.37	Ex - Rural	2.31	8.28	14.79	32.36	42.26
Ex – Urban	9.00	37.81	20.14	26.85	6.21	Ex – Urban	4.48	19.87	29.63	26.48	19.54	Ex - Urban	5.86	17.87	25.72	26.97	23.58
Always Rural	19.57	26.05	20.60	18.20	15.59	Always Rural	5.92	22.06	26.90	25.35	19.77	Always Rural	6.73	14.13	19.07	26.67	33.39
Religion						**Religion**						**Religion**					
Muslim	24.18	28.76	18.37	16.90	11.79	Muslim	8.25	25.50	26.19	21.99	18.06	Traditionalist	6.67	15.79	18.40	22.90	36.24
Catholic	16.82	24.34	21.75	21.28	15.81	Catholic	5.62	19.81	27.10	27.92	19.55	Spiritual	4.42	13.83	20.44	27.90	33.40
Protestant	14.01	23.48	21.72	21.31	19.48	Protestant	4.83	21.85	27.99	25.59	19.74	Christian	4.32	11.96	21.03	29.07	33.63
Other	11.68	38.43	21.98	14.02	13.88	Other	3.89	23.05	26.77	24.87	21.42	Other	8.33	8.62	18.40	32.28	32.37
Education						**Education**						**Education**					
0-3 years	17.26	31.21	19.24	15.01	17.27	0-3 years	4.20	20.44	27.37	23.80	24.16	0-3 years	3.44	8.57	12.03	23.27	52.69
4-6 years	19.23	26.84	17.90	21.17	14.85	4-6 years	7.16	22.35	23.90	25.86	20.74	4-6 years	5.57	16.08	13.46	26.37	38.52
7-8 years	20.47	27.33	20.43	19.69	12.08	7-8 years	6.68	24.66	28.55	23.66	16.45	7-8 years	6.21	14.49	22.35	27.03	29.92
9+ years	5.19	20.09	32.53	19.82	22.38	9+ years	4.86	16.71	23.15	33.9	21.39	9+ years	4.81	11.77	23.08	30.22	30.12
Occupations						**Occupations**						**Occupation**					
Agricultural	18.36	27.50	19.95	19.71	14.46	Agricultural	5.98	27.67	28.80	22.74	14.81	Agricultural	4.79	12.43	17.88	26.09	38.81
Non-agricultural	17.48	28.38	22.13	16.06	15.95	Non-agricultural	6.02	20.33	26.10	26.20	21.35	Non-agricultural	5.21	12.87	21.07	28.77	32.08
Zones						**Zones**						**Zones**					
Northern	18.74	30.14	22.43	16.69	12.00	Northern	5.41	21.97	28.97	17.70	25.95	Manicaland	5.82	8.45	16.19	36.08	33.46
Coastal	16.42	26.16	22.56	23.10	11.77	Coastal	7.39	27.34	28.44	20.58	16.25	Mashonaland	6.91	14.62	18.12	27.18	33.17
Southern	50.02	31.65	9.63	7.28	1.42	Southern	7.52	21.71	26.73	30.86	13.17	Matabeleland	10.93	23.62	21.69	21.10	22.66
S. Highlands	5.85	16.70	16.44	24.45	36.56	S. Highlands	5.15	21.98	21.40	27.06	24.42	Midlands	2.44	15.96	28.44	21.28	31.88
Central	14.28	34.93	26.67	16.40	7.72	Central	7.10	25.92	34.88	22.34	9.77	Masvingo	3.31	7.18	15.76	30.08	43.67
Lake	11.81	27.99	24.66	21.40	14.14	Lake	4.10	15.48	22.55	33.19	24.69	Harare	2.55	9.69	21.94	31.63	34.18
Zanzibar		21.53	14.08	20.84	43.56	Zanzibar	1.20	11.26	10.76	27.97	48.80	Bulawayo	3.83	8.13	18.18	27.27	42.58

5.3.2 *Proportion Ever Had Sex by Selected Ages: Life Table Analysis*

As the section above suggested, sexual behaviour is early in both the TDHS 1992 and 1996 surveys. Results from life table analysis are presented in Tables 5.2, 5.3 and 5.4, showing the rate of entry into sexual relations by selected ages. The percentile ages at first sexual relations are presented in Table 5.5. For the 1992 survey, 16 percent of all men had had sex by age fourteen, about 52 percent of all men have had sex by age seventeen, and a little over 80 percent of men had had sex by age 20. The pattern in 1996 shows that age at first sex is later than in 1992, and that the proportion that had had sex in the early age groups is lower compared to that seen in 1992. As seen in Figure 5.2, the results for Zimbabwe 1994 show a comparatively later entry into sexual relations. By age fourteen only about four percent of all men had ever had sex; reaching approximately 24 percent by age seventeen. Even at age twenty, about forty percent had not had sex yet compared to less than 25 percent in Tanzania. Consequently, the median ages at first sex in Tanzania 1992 were 16 years, 18 years in 1996, and 19 years in Zimbabwe in 1994.

Figure 5.2: Proportion Experiencing First Sexual Relations by Age.
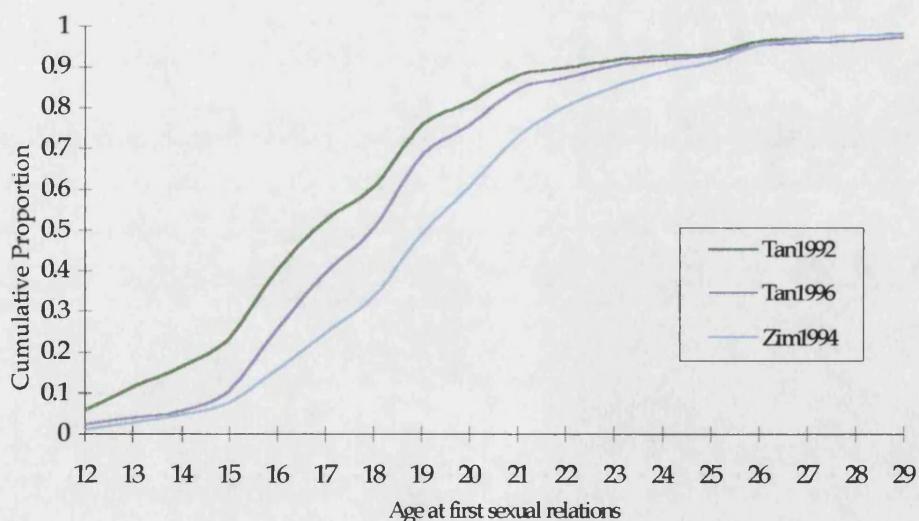
As seen in the previous chapters, issues of data quality and sampling variation in the two Tanzania surveys have to be considered. Since the two surveys are close in time it is unlikely that the difference should be taken as indicative of a trend in age at first sexual relations. This can however not be completely ruled out given the AIDS campaigns that have been conducted in the country.

Differentials by Demographic and Socio-economic Characteristics

Use of life table analysis to look at differentials by demographic and socio-economic groups showed that while there are some differentials in the rate of entry into sexual relations. These did not differ significantly for most of the socio-economic variables, especially in Tanzania. It was unexpected that both in Tanzania and in Zimbabwe there were no significant differentials in the rate of initiation into sexual relations between men who live in urban and men who live in rural areas. Examination of the summaries shows that Tanzania 1992 has almost identical initiation rates in urban and rural areas, with a median of 16 years. In Zimbabwe while there is a hint of earlier age at first sex in rural areas, the differential is not statistically significant and the medians are equal in the two areas. Looking at residence in terms of the current and past residence, the groups still show no significant differentials in Tanzania, even though the medians are different. Zimbabwe, on the other hand, shows significant differentials between those who grew up in rural areas and those who grew up in the countryside. Men who were born in urban areas but moved to rural areas, and those who had always lived in urban areas had the earliest age at first sex with a median of 18 years. Those who were rural residents but moved to urban areas and those who have always been rural residents had a higher median of 19 years. Differentials by the type of work the respondent does showed significant differential; men in agriculture had a higher rate of sexual relations initiation compared to men in non-agricultural occupations in TDHS 1992 but the rates are very similar for the two occupations in TDHS 1996.

Religious groups did not show significant differentials in any of the three surveys. In the early years, Muslim men in Tanzania 1992 show a slightly earlier age at first sex ending with an earlier 25th percentile. This does not affect the median as all religious groups in the end have the same median age at first sexual relations. As in 1992, the 1996 TDHS shows that there was no significant differential between the groups. In Zimbabwe, Traditionalists seem to start sexual relations earlier but as in Tanzania there are no significant differentials and the medians are identical for all. The exception is from those following Other religions who have a median of a year younger at 18 years.

It is important to be cautious of the large differentials by zones of residence in the two Tanzanian surveys. Efforts to untangle exactly why such discrepancies exist in the results of these two surveys were not successful. One could speculate that there were probably differences in interpretation of the questions in the two surveys. In Tanzania 1992, the Southern zone stands out as having an earlier age at first sex with a median age of 14 years, Southern Highlands also has a low median of 15 years. The rest of the zones fall more or less within three main groups. The Northern, Coastal, Central and Lake zones all have a median age of 16 years while Zanzibar had the oldest median at 18 years. In 1996, more subtle differentials are seen and the Southern zone is no longer so far removed from the other zones. The Southern, Southern Highlands and the Lake zone now form one group with a median of 18 years; the Northern, Coastal and Central zones have a median of 17 years. Zanzibar still shows a very delayed entry into sexual relations with the highest median of 21 years. In Zimbabwe, Matabeleland stands out as having an earlier entry into sexual relations. By age 15, about 15 percent had had sex while in all the other zones (apart from Mashonaland – which is 9 percent) this figure was less than 5 percent. At the other extreme are Masvingo and Manicaland where only about twenty percent have had sex by age 18. Summaries of the differentials by percentiles show that Masvingo therefore has the highest median at 20 years, which is two years later than Matabeleland or Midlands. The rest have a median of 19 years.

The magnitude and direction of the effect of education is was different in the two countries. In Tanzania, the results show that those who have 7-8 years and those with 0-3 years of education start sex earlier than the other two groups (4-6 and 9 or more years of education). This differential shows more strongly in 1992. In 1996, all but those with 7-8 years of education have identical medians at 18 years: 17 years for those with 7-8 years of education. For Tanzania, it is those men who have 9 or more years of education that consistently have the slowest rate of initiation in both surveys. Unlike in Tanzania, in Zimbabwe the relationship observed is that the more education a man had, the earlier the age at first sex. Those men who have 7-8 years of education have almost identical initiation rates as those with 9 or more years, though the median is one year later for those with 9 years of education. Rates are lowest among those who have 0-3 years of education, who had a median of 20 years.

Table 5.2 Proportion of Men who have had Sexual Relations by Selected Ages, TDHS 1992.

Characteristics	Proportion who had first sexual relations by ages:						
	14	15	16	17	18	19	20
All men	0.1640	0.2336	0.4014	0.5233	0.6055	0.7563	0.8136
Age							
15-19	0.2070	0.2998	0.4738	0.6005	0.6883	0.7703	0.8578
20-29	0.1839	0.2571	0.4393	0.5732	0.6500	0.7946	0.8518
30-39	0.1293	0.1951	0.3537	0.5000	0.5976	0.7659	0.8146
40-49	0.1582	0.2155	0.3973	0.5051	0.5892	0.7744	0.8384
50-60	0.1478	0.1957	0.3609	0.4652	0.5565	0.7391	0.7913
Log-rank test: chi2 (4)=33.53 P=9.32e-07							
Residence							
Urban	0.1500	0.2238	0.3783	0.5076	0.6002	0.7569	0.8112
Rural	0.1675	0.2360	0.4072	0.5272	0.6067	0.7560	0.8141
Log-rank test: chi2 (1)=0.51 P=0.475							
Current-past Residence							
Always Urban	0.1588	0.2706	0.4213	0.5620	0.6222	0.7608	0.7971
Ex - Rural	0.1417	0.1903	0.3494	0.4733	0.5880	0.7545	0.8165
Ex - Urban	0.0938	0.1875	0.3689	0.5001	0.5957	0.8047	0.8648
Always Rural	0.1739	0.2395	0.4095	0.5285	0.6071	0.7504	0.8088
Log-rank test: chi2 (3)=0.715 P=0.870							
Religion							
Muslim	0.2143	0.2911	0.4440	0.5743	0.6398	0.7731	0.8294
Catholic	0.1475	0.2119	0.3769	0.4812	0.5842	0.7577	0.8175
Protestant	0.1347	0.2119	0.3489	0.4722	0.5458	0.7083	0.7691
Other	0.1182	0.1693	0.4224	0.5557	0.6508	0.7827	0.8324
Log-rank test: chi2 (3)=1.37 P=0.712							
Literacy							
Easily	0.1541	0.2186	0.3780	0.5116	0.5966	0.7607	0.8153
With difficulty	0.1633	0.2449	0.4010	0.4640	0.5393	0.7042	0.7787
Not at all	0.1943	0.2729	0.4727	0.5894	0.6670	0.7690	0.8257
Log-rank test: chi2 (3)=0.127 P=0.939							
Education							
0-3 years	0.1621	0.2287	0.4117	0.5222	0.6039	0.7295	0.7919
4-6 years	0.1670	0.2398	0.3863	0.4864	0.5619	0.7429	0.8120
7-8 years	0.1833	0.2577	0.4286	0.5609	0.6474	0.8037	0.8521
9+ years	0.0640	0.1105	0.2685	0.4284	0.5066	0.6432	0.7015
Log-rank test: chi2 (3)=3.338 P=0.342							
Occupations							
Agricultural	0.1758	0.2472	0.4220	0.5365	0.6172	0.7666	0.8283
Non-agricultural	0.1395	0.2056	0.3584	0.4964	0.5813	0.7330	0.7771
Log-rank test: chi2 (1)=8.979 P=0.003							
Zones							
Northern	0.1809	0.2965	0.4438	0.5943	0.6648	0.8309	0.8755
Coastal	0.1414	0.2247	0.3831	0.5347	0.6259	0.7964	0.8666
Southern	0.4888	0.6082	0.7573	0.8408	0.8656	0.9263	0.9710
S. Highlands	0.0559	0.0931	0.2042	0.2841	0.3779	0.5529	0.6348
Central	0.1568	0.2209	0.4473	0.5998	0.6939	0.8336	0.8811
Lake	0.1018	0.1467	0.3459	0.4669	0.5784	0.7580	0.8045
Zanzibar	0.0000	0.0192	0.1777	0.2525	0.2865	0.4268	0.4646
Log-rank test: chi2 (6)=38.28 P=9.876e-07							

Table 5.3: Proportion of Men who have had Sexual Relations by Selected Ages, TDHS 1996.

Characteristics	Proportion who had first sexual relations by age:						
	14	15	16	17	18	19	20
All men	0.0560	0.1049	0.2562	0.3935	0.5043	0.6814	0.7568
Age							
15-19	0.0692	0.1202	0.2722	0.3975	0.5314	0.6536	0.7196
20-29	0.0601	0.1216	0.2868	0.4294	0.5465	0.7252	0.7928
30-39	0.0642	0.1051	0.2724	0.4008	0.5000	0.6770	0.7588
40-49	0.0472	0.0778	0.1972	0.3639	0.4778	0.6639	0.7389
50-59	0.0639	0.1872	0.3014	0.3927	0.5890	0.6758	0.8082
Log-rank test: chi2 (4)=99.41 P=0.000							
Residence							
Urban	0.0635	0.1156	0.2857	0.4029	0.5256	0.6921	0.7667
Rural	0.0532	0.1009	0.2451	0.3901	0.4962	0.6774	0.7530
Log-rank test: chi2 (2)=0.279 P=0.597							
Current-past Residence							
Always Urban	0.0463	0.1120	0.2802	0.3709	0.4801	0.6580	0.7557
Ex - Rural	0.0769	0.1168	0.2871	0.4243	0.5574	0.7140	0.7732
Ex - Urban	0.0423	0.1056	0.2559	0.4098	0.5233	0.7361	0.7920
Always Rural	0.0545	0.1009	0.2451	0.3889	0.4945	0.6713	0.7492
Log-rank test: chi2 (3)=2.081 P=0.556							
Religion							
Muslim	0.0669	0.1123	0.2988	0.4165	0.5186	0.6727	0.7380
Catholic	0.0535	0.1026	0.2242	0.3715	0.4822	0.6918	0.7714
Protestant	0.0490	0.1041	0.2410	0.4010	0.5114	0.6861	0.7662
Other	0.0390	0.0866	0.2288	0.3590	0.5037	0.6754	0.7665
Log-rank test: chi2 (3)=0.185 P=0.980							
Literacy							
Easily	0.0565	0.1087	0.2604	0.3994	0.5104	0.6955	0.7702
With difficulty	0.0524	0.0887	0.2327	0.3965	0.4997	0.6727	0.7465
Not at all	0.0563	0.0986	0.2531	0.3643	0.4790	0.6226	0.7026
Log-rank test: chi2 (2)=0.268 P=0.875							
Education							
0-3 years	0.0459	0.0939	0.2347	0.3830	0.4978	0.6589	0.7373
4-6 years	0.0475	0.0886	0.2122	0.3336	0.4139	0.6077	0.7058
7-8 years	0.0664	0.1196	0.2945	0.4425	0.5592	0.7345	0.7930
9+ years	0.0462	0.0924	0.2101	0.3030	0.4220	0.6075	0.7151
Log-rank test: chi2 (3)=17.925 P=0.000							
Occupations							
Agricultural	0.0590	0.1040	0.2529	0.4023	0.5032	0.6860	0.7608
Non-agricultural	0.0510	0.1054	0.2613	0.3768	0.5055	0.6732	0.7487
Log-rank test: chi2 (1)=14.786 P=0.000							
Zones							
Northern	0.0519	0.1003	0.2479	0.4057	0.5109	0.6449	0.7027
Coastal	0.0703	0.1458	0.3265	0.4528	0.5725	0.7248	0.7894
Southern	0.0623	0.0916	0.2520	0.4051	0.5046	0.7405	0.8204
S. Highlands	0.0420	0.0784	0.2078	0.3439	0.4324	0.6555	0.7289
Central	0.0685	0.1256	0.2986	0.4727	0.6085	0.7854	0.8439
Lake	0.0347	0.0594	0.1600	0.2569	0.3793	0.5628	0.7235
Zanzibar	0.0093	0.0185	0.0757	0.1062	0.1597	0.2821	0.3755
Log-rank test: chi2 (6)=16.778 P=0.010							

Table 5.4 Proportion of Men who have had Sexual Relations by Selected Ages, ZDHS 1994.

Characteristics	Proportion who had first sexual relations at age:						
	14	15	16	17	18	19	20
All men	0.0459	0.0759	0.1564	0.2453	0.3353	0.4887	0.6061
Age							
15-19	0.0502	0.0922	0.1726	0.2826	0.4124	0.5601	0.6151
20-29	0.0489	0.0815	0.1763	0.2978	0.3896	0.5644	0.6919
30-39	0.0491	0.0678	0.1542	0.2033	0.2991	0.4439	0.5701
40-49	0.0301	0.0502	0.1070	0.1806	0.2475	0.4047	0.5184
50-54	0.0354	0.0854	0.0973	0.1239	0.2124	0.3186	0.4779
Log-rank test: chi2 (4)=173.017 P=0.000							
Residence							
Urban	0.0280	0.0471	0.0029	0.2061	0.2954	0.4509	0.5819
Rural	0.0543	0.0894	0.1769	0.2638	0.3544	0.5071	0.6175
Log-rank test: chi2 (1)=2.592 P=0.107							
Current-past Residence							
Always Urban	0.0351	0.0526	0.1355	0.2744	0.4033	0.5481	0.6617
Ex - Rural	0.0228	0.0431	0.0968	0.1593	0.2234	0.3866	0.5297
Ex - Urban	0.0559	0.1119	0.2260	0.3513	0.4638	0.6360	0.7270
Always Rural	0.0543	0.0872	0.1718	0.2542	0.3419	0.4917	0.6043
Log-rank test: chi2 (3)=6.954 P=0.073							
Religion							
Traditional	0.0665	0.0954	0.2185	0.2919	0.3917	0.4923	0.6136
Spiritual	0.0379	0.0758	0.1506	0.2401	0.3330	0.4764	0.6015
Christian	0.0386	0.0647	0.1392	0.2335	0.3223	0.4884	0.5976
Other	0.0707	0.1010	0.1528	0.2397	0.3102	0.5209	0.6531
Log-rank test: chi2 (3)=3.569 P=0.312							
Literacy							
Easily	0.0445	0.0745	0.1503	0.2462	0.3411	0.5051	0.6297
With difficulty	0.0518	0.0799	0.1759	0.2405	0.3141	0.4299	0.5252
Log-rank test: chi2 (1)=0.024 P=0.876							
Education							
0-3 years	0.0402	0.0536	0.1218	0.1733	0.2496	0.3419	0.4705
4-6 years	0.0503	0.0847	0.1798	0.2399	0.3069	0.4643	0.5676
7-8 years	0.0518	0.0902	0.1757	0.2829	0.3768	0.5400	0.6405
9+ years	0.0423	0.0695	0.1438	0.2405	0.3401	0.5020	0.6337
Log-rank test: chi2 (3)=1.694 P=0.638							
Occupations							
Agricultural	0.0461	0.0738	0.1546	0.2407	0.3361	0.4924	0.6167
Non-agricultural	0.0454	0.0828	0.1623	0.2595	0.3343	0.4797	0.5798
Log-rank test: chi2 (1)=5.033 P=0.025							
Zones							
Manicaland	0.0391	0.0447	0.0971	0.1482	0.2256	0.3805	0.5738
Mashonaland	0.0532	0.0878	0.1691	0.2543	0.3331	0.5044	0.6071
Matabeleland	0.0870	0.1495	0.2777	0.3900	0.4813	0.5986	0.7194
Midlands	0.0214	0.0556	0.1470	0.2522	0.3978	0.5419	0.6133
Masvingo	0.0212	0.0265	0.0701	0.1182	0.1984	0.3757	0.4818
Harare	0.0221	0.0442	0.1071	0.2326	0.3103	0.4597	0.6221
Bulawayo	0.0331	0.0413	0.1038	0.1767	0.2699	0.4205	0.5340
Log-rank test: chi2 (6)=12.84 P=0.046							

Table 5.5: Percentile Ages at First Sexual Relations.

Tanzania 1992	25th	50th	75th	Tanzania 1996	25th	50th	75th	Zimbabwe 1994	25th	50th	75th
All Men	15	16	18	All Men	15	18	20	All Men	17	19	21
Cohort				Cohort				Cohort			
15-19	14	15	16	15-19	15	18	.	15-19	16	19	.
20-29	14	16	18	20-29	15	17	19	20-29	16	18	20
30-39	15	17	18	30-39	15	18	19	30-39	17	19	21
40-49	15	16	18	40-49	16	18	20	40-49	18	19	21
50-60	15	17	19	50-60	16	18	20	50-60	19	21	24
Age at First Union				Age at First Union				Age at First Union			
<20 years	13	15	17	<20 years	15	17	18	<20 years	16	18	19
20-24 years	15	16	18	20-24 years	15	17	19	20-24 years	17	19	21
25-29 years	15	18	19	25-29 years	16	18	20	25-29 years	18	20	22
30+ years	15	18	21.5	30+ years	16	18	20	30+years	18	20	23
Type of Union				Type of Union				Type of Union			
Monogamous	15	17	18	Monogamous	16	17	19	Monogamous	17	19	21
Polygamous	15	17	19	Polygamous	16	18	19	Polygamous	18	19	22
Residence				Residence				Residence			
Urban	15	16	18	Urban	15	17	19	Urban	17	19	21
Rural	15	16	18	Rural	16	18	20	Rural	16	19	21
Current-Past Residence				Current-Past Residence				Current-Past Residence			
Always Urban	14	16	18	Always Urban	15	18	20	Always Urban	16	18	20
Ex - Rural	15	17	18	Ex - Rural	15	17	19	Ex - Rural	18	19	21
Ex - Urban	15	17	18	Ex - Urban	15	17	19	Ex - Urban	16	18	20
Always Rural	15	16	19	Always Rural	16	18	20	Always Rural	17	19	21
Religion				Religion				Religion			
Muslim	14	16	18	Muslim	15	17	20	Traditional	16	19	21
Catholic	15	16	18	Catholic	16	18	19	Spiritual	17	19	21
Protestant	15	16	18	Protestant	16	17	19	Christian	17	19	21
Other	15	16	18	Other	16	18	19	Other	17	18	20
Literacy				Literacy				Literacy			
Literate	15	16	18	Literate	15	17	19	Literate	17	19	21
Semi-literate	15	17	19	Semi-literate	16	18	20	Semi-literate	17	19	22
Illiterate	14	16	18	Illiterate	15	18	20				
Education				Education				Education			
0-3 years	15	16	18	0-3 years	16	18	20	0-3 years	18	20	22
4-6 years	15	16	18	4-6 years	16	18	20	4-6 years	17	19	21
7-8 years	14	16	18	7-8 years	15	17	19	7-8 years	16	18	21
9+ years	15	17	19	9+ years	16	18	20	9+ years	17	19	21
Occupation				Occupation				Occupation			
Agricultural	14	16	18	Agricultural	15	18	19	Agricultural	16	19	21
Non-agricultural	15	16	18	Non-agricultural	15	18	20	Non-agricultural	17	19	21
Zones				Zones				Zones			
Northern	14	16	18	Northern	16	17	20	Manicaland	18	19	21
Coastal	15	16	18	Coastal	15	17	19	Mashonaland	17	19	21
Southern	12	14	15	Southern	16	18	19	Matabeleland	15	18	20
S. Highlands	14	15	17	S. Highlands	16	18	20	Midlands	17	18	21
Central	15	16	17	Central	15	17	18	Masvingo	18	20	22
Lake	15	16	18	Lake	16	18	20	Harare	17	19	21
Zanzibar	15	18	20	Zanzibar	18	21	25	Bulawayo	17	19	21

5.3.3 Determinants of Age at First Sexual Relations: Poisson Models

To learn more about the important determinants of initiation into sexual relations, Poisson models were used to look at the relative risks of having first sexual relations given different socio-economic characteristics. For all analyses, age seventeen was used as the reference group, those who have always lived in rural areas are the reference group for place of residence and those with 0-3 years of education are the reference group for levels of education. For Tanzania, the Central zone is used as the reference and Muslims are the reference group for religious groups. In Zimbabwe the reference group for zone of residence is Mashonaland and for religion, those following Spiritual religions. In all the analyses, the youngest age groups (15-19) are used as the reference group. Table 5.6 shows the results obtained.

For Tanzania, results from both surveys show that the risk of initiation into sexual relations reaches a peak between age seventeen and eighteen, and the differences compared to other ages are statistically significant. Between age nineteen and twenty the risk is almost 30 percent lower compared to that of the reference group. In 1996, the pattern is the same as in 1992. Although the risk of initiation at age eleven is now very low compared to that seen in the previous survey, the risk at age fifteen and onwards is very similar to that of 1992. In Zimbabwe the risk of entering sexual relations peaks later than in Tanzania. The highest risk is between age nineteen and twenty which was 39 percent higher than at age seventeen. Compared to Tanzania, results also show more evidence of statistically important differentials by various socio-economic characteristics.

As in the results obtained by life table analyses, current and past place of residence again show only marginal differentials for Tanzania. In 1992, those who always lived in urban areas had about 14 percent higher risk compared to those who always lived rural areas, however, the rest of the groups did not appear to be different from the reference category. In 1996, no category of this variable showed a significant differential from those who have always lived in rural areas. In Zimbabwe too, the variable representing current residence did not show statistical importance. However, compared to those who had always lived in rural areas, ex-urban residents had almost a twenty-five percent higher risk of initiating sexual relations.

It was unexpected that differentials by religious groups were minimal. Only in TDHS 1992 is there a significant differential in the relative risk. Protestant men

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had about 15 percent less risk of initiating sexual relations compared to the reference group. In addition, the effect of education in both of Tanzania's surveys is similar and weak. While in 1992 none of the groups are significantly different from those with 0-3 years of education, in 1996 there is a significant differential for those with 7-8 years of education. This group had almost 20 percent extra risk of starting sexual relations. Unlike the results from Tanzania, in Zimbabwe education has a significant effect on the risk of initiating sexual relations, as all education groups had a higher risk than those who had 0-3 years of education. Those with 4-6 years of education had 26 percent extra risk while for those with 7-8 years of education the risk was 36 percent higher. However, those with 9 or more years of education were not significantly different from the reference group.

In comparing zones of residence it is seen from the 1992 TDHS that the risk was highest in the Southern zone and that this zone stands out as an outlier. On the extreme were Zanzibar and the Southern Highlands, [IRR=0.23*** and 0.30*** respectively]. The remaining zones were also different but slightly less so than these two, with the Northern zone and the Central zone were not statistically different from the Central zone. Men in the Coastal and Lake zones had about 12 percent less risk compared to men in the Central zone. In 1996 all zones show a significant differential from the zone of reference. The relationship between the Central zone and Zanzibar is only slightly different in magnitude compared to what was seen in 1992; and Zanzibar remains with the lowest hazard of about 70 percent lower than in the Central zone, [IRR=0.30***]. The Lake zone now has about 34 percent lower risk than the Central zone but oddly the Southern zone now has a lower risk of 20 percent. In Zimbabwe, Mashonaland was used as the reference group to compare it to other zones, and only two zones were statistically different. The relative risk is 40 percent higher in Matabeleland and 27 percent lower in Masvingo.

This section has shown that the risk of starting sexual relations is different at different ages and the peak of the risk is different in the two countries, being later in Zimbabwe than in Tanzania. The section has also shown that for Tanzania, there are very few significant differentials by socio-economic characteristics. Unlike in previous chapters, more significant differentials are found in Zimbabwe than in Tanzania on this aspect of male demography.

Table 5.6: Determinants of Age at First Sexual Relations: Relative Risks and 95 % Confidence Intervals.

Tanzania 1992

Characteristics	%	Relative Risks		[95 %	C I]
Age					
11-13	27.18	0.12	***	[0.10	0.15]
13-15	24.11	0.35	***	[0.30	0.41]
15-16	16.58	0.49	***	[0.41	0.60]
16-17	12.41	0.42	***	[0.34	0.53]
17-18 (ref.)	9.72	1.00			
18-19	5.76	0.61	***	[0.47	0.79]
19-20	4.25	0.71	***	[0.60	0.85]
Current-past Residence					
Always Urban	8.15	1.14	*	[0.90	1.44]
Ex-Rural	11.84	1.05		[0.88	1.26]
Ex-Urban	6.14	1.15		[0.97	1.36]
Always Rural (ref.)	73.87	1.00			
Religion					
Muslim (ref.)	35.37	1.00			
Catholic	28.12	0.88		[0.76	1.04]
Protestant	21.59	0.85	*	[0.74	0.99]
Other	14.92	1.01		[0.83	1.22]
Education					
0-3 years (ref.)	27.93	1.00			
4-6 years	22.26	1.00		[0.85	1.19]
7-8 years	41.61	1.14		[0.97	1.33]
9 + years	8.20	0.97		[0.78	1.15]
Zones					
Northern	9.49	1.03		[0.81	1.30]
Coastal	18.88	0.88		[0.73	1.05]
Southern	12.77	1.64	***	[1.32	2.04]
S/Highlands	17.92	0.50	***	[0.42	0.60]
Central (ref.)	20.07	1.00			
Lake	15.92	0.83	**	[0.70	0.98]
Zanzibar	4.96	0.38	***	[0.28	0.50]
Cohort					
15-19 (ref.)	24.69	1.00			
20-29	27.26	0.84	**	[0.71	1.01]
30-39	20.50	0.74	**	[0.61	0.89]
40-49	15.49	0.72	***	[0.59	0.87]
50-60	12.06	0.76	**	[0.62	0.92]

N=7268 F(26,298)=24.12 Prob>F=0.000

Tanzania 1996

Characteristics	%	Relative Risks		[95 %	C I]
Age					
11-13	21.11	0.05	***	[0.04	0.06]
13-15	23.28	0.29	***	[0.26	0.34]
15-16	17.57	0.50	***	[0.43	0.59]
16-17	13.47	0.52	***	[0.44	0.62]
17-18 (ref.)	10.53	1.00			
18-19	6.35	0.71	***	[0.58	0.86]
19-20	4.68	0.79	***	[0.67	0.94]
Current-past Residence					
Always Urban	11.57	0.98		[0.81	1.18]
Ex-Rural	15.68	1.12		[0.95	1.33]
Ex-Urban	6.34	1.08		[0.92	1.27]
Always Rural (ref.)	66.41	1.00			
Religion					
Muslim (ref.)	37.20	1.00			
Catholic	30.76	0.92		[0.81	1.06]
Protestant	21.78	0.89		[0.75	1.06]
Other	10.27	0.93		[0.75	1.16]
Education					
0-3 years (ref.)	21.29	1.00			
4-6 years	20.58	0.90		[0.76	1.08]
7-8 years	47.56	1.19	**	[1.05	1.34]
9 + years	10.58	1.03		[0.87	1.22]
Zones					
Northern	12.84	0.63	***	[0.51	0.76]
Coastal	25.91	0.82	**	[0.68	0.98]
Southern	12.13	0.80	*	[0.67	0.98]
S/Highlands	15.87	0.71	**	[0.59	0.86]
Central (ref.)	19.47	1.00			
Lake	8.98	0.66	***	[0.56	0.79]
Zanzibar	4.80	0.30	***	[0.23	0.40]
Cohort					
15-19 (ref.)	21.82	1.00			
20-29	29.60	1.33	***	[1.12	1.59]
30-39	22.84	1.09		[0.90	1.33]
40-49	16.00	1.28	**	[1.06	1.55]
50-59	9.73	0.99		[0.79	1.25]

N=9045 F(26,297)=31.76 Prob>F=0.000

Zimbabwe 1994

Characteristics	%	Relative Risks		[95 %	C I]
Age					
11-13	20.56	0.07	***	[0.05	0.09]
13-15	29.82	0.23	***	[0.19	0.27]
15-16	16.54	0.44	***	[0.35	0.54]
16-17	13.75	0.50	***	[0.41	0.60]
17-18 (ref.)	11.28	1.00			
18-19	8.22	1.05		[0.89	1.23]
19-20	5.97	1.39	***	[1.16	1.67]
20-25	3.87	1.30	***	[1.12	1.51]
Current-past Residence					
Always Urban	13.38	1.12		[0.89	1.41]
Ex-Rural	18.50	0.87		[0.72	1.06]
Ex-Urban	6.71	1.24	**	[1.01	1.53]
Always Rural (ref.)	61.41	1.00			
Religion					
Spiritualist (ref.)	16.22	1.00			
Traditionalist	25.97	1.07		[0.89	1.28]
Christian	48.52	1.10		[0.95	1.26]
Other	9.28	1.24	**	[0.99	1.55]
Education					
0-3 years (ref.)	10.56	1.00			
4-6 years	17.81	1.27	**	[1.03	1.53]
7-8 years	28.23	1.36	***	[1.12	1.66]
9 + years	43.40	1.14		[0.96	1.41]
Zones					
Manicaland	8.39	0.93		[0.76	1.14]
Mashonaland (ref.)	32.58	1.00			
Matabeleland	17.25	1.45	***	[1.17	1.76]
Midlands	10.97	1.03		[0.88	1.20]
Masvingo	8.86	0.73	**	[0.58	0.91]
Harare & Bulawayo	21.94	1.08		[0.92	1.34]
Cohort					
15-19 (ref.)	28.97	1.00			
20-29	31.65	1.16		[0.96	1.39]
30-39	20.07	1.02		[0.83	1.26]
40-49	14.02	0.87		[0.71	1.06]
50-54	5.30	0.61	***	[0.48	0.77]

N=10203 F(26, 187)=38.10 Prob>F=0.000

*p<0.1 ** p<0.05 ***p<0.001

5.3.4 Trends in Age at First Sex: Life Table Analysis

Using life table analysis cumulative proportions that have ever had sex by various ages were obtained for the cohorts of men aged 15-19, 20-29, 30-39, 40-49 and 50+. As shown in Figure 5.3, for both TDHS 1992 and 1996, results show that the rate of entry into sexual relations is progressively earlier for younger cohorts. In 1992 generally the older the cohort the lower the proportion ever had sex across all ages. For all purposes, those aged 30-39 and 40-49 have almost equivalent initiation rates, which are also very similar to those of the oldest men aged 50-60. Nevertheless, it is clear that the rate of entry into sexual relations for the two youngest cohorts differs from the oldest cohort. In the summary Table 5.5 presented above, all the percentiles show an earlier age for the younger cohorts, apart from the median for the men aged 40-49. Those aged 15-19 and 20-29 got to the first quartile a year earlier (14 years) than the older cohorts (15 years), and apart from the median for the 40-49, all the medians increase up the cohorts. The 75th percentile also shows that the 15-19 cohort reaches this stage 3 years before the oldest group and two years before the remaining three groups.

In 1996 there is not only a later start, as seen in the comparatively more gentle curves until age fifteen, there is also less divergence after this age compared to that seen in 1992. The two youngest cohorts do not show any evidence of moving to a younger age, and in fact the 20-29 displays a faster rate of entry into sexual relations than the 15-19 cohort. The three remaining older groups show a clearer picture. Those aged 30-39 were hardly distinguishable from the 40-49 but these two do have an earlier entry than the oldest men aged 50-59. Looking at percentiles in Table 5.5 above, it is clear that the three youngest cohorts reach the first quartile at age 15, one year earlier than the two oldest. However, in the end the medians are equal for all the groups apart from the 20-29 who have a median of 17 years. The 75th percentile is also consistently lower for the two younger cohorts.

With its gentler slopes, Zimbabwe shows not only a much later pattern of entry into first sexual relations but also a larger decline than in Tanzania. Up until age fifteen the rates for all the cohorts are more or less the same; all with below 10 percent who have ever had sexual relations by this age. However after age 15, the curve for the oldest cohort remains flatter up until age eighteen where the pace

quickens i.e. these men had sexual relations comparatively later. This pattern is quite different from that of the other cohorts, for example by age eighteen, 41 percent have had first sex in the 15-19 age group compared to only 21 percent among the 50-54 cohort. As in Tanzania, the 15-19 year olds are not that different from the 20-29, and also similar are the 30-39 and the 40-49 cohorts. These two are however very different from the 50-54 which shows an extremely late age at first sex. These results are shown in Figure 5.5. Table 5.5 above presented the percentiles for the different cohorts and it is clear that the age at which the first quartile is reached consistently falls with younger cohorts and that apart from age 15-19, the medians also fall with younger cohorts. The same is true for the 3rd quartile, which was reached at age 24 by the oldest cohort, only at 21 years for those aged 30-49 and even one year younger for those aged 20-29.

For this section, life table analysis refined the first set of results by addressing the censored nature of age at first sex data. From this account it has been seen that age at first sex seems to have changed more in Zimbabwe than in Tanzania and more in Tanzania 1992 than in 1996. There is evidence that different cohorts had different timing of initiating sexual relations. However, in 1992, compared to men aged 15-19, all older men had less risk ranging from 16 percent to 28 percent less risk for the oldest cohort. In 1996 there are also indications of earlier initiation for younger men. This was statistically significant for men aged 20-29 and 40-49. In Zimbabwe, two of the oldest cohorts aged 40-49 show risks lower than the reference category, with that for the 40-49 group approaching marginal significance while that for the 50-54 age group being strongly significant.

Figures 5.3-5.5: Proportion Ever Had Sex by Selected Ages for Different Age Cohorts

Fig 5.3: TDHS 1992
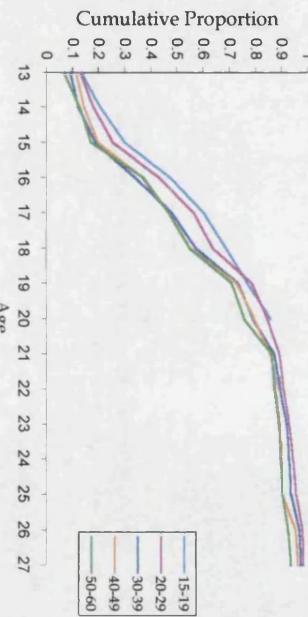
Log-rank test: chi2(4)=21.43, Pr>chi2=0.000

Fig 5.4: TDHS 1996
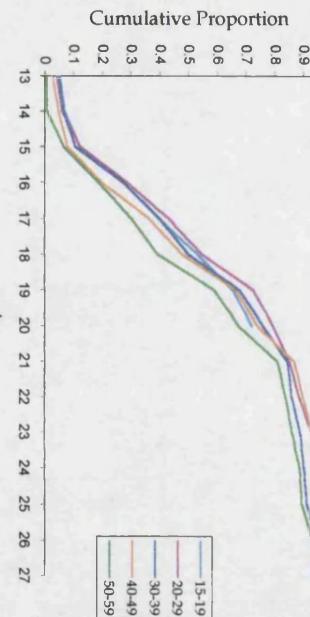
Log-rank test: chi2(4)=17.66, Pr>chi2=0.001

Fig 5.5: ZDHS 1994
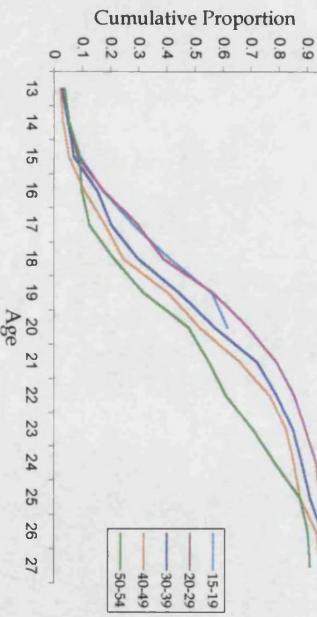
Log-rank test: chi2(4)=71.31, Pr>chi2=0.000

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5.3.5 Time between First Sex and Marriage

Given the late ages at first marriage seen in Chapter Three, it is safe to say that most men will have premarital sexual relations given their early ages at first sex. This means that there is a period in men's lives where they are at higher risk of sexually transmitted diseases; as well as at risk of having children before marriage. For this section of the chapter the aim was to quantify this length of time between first sex and marriage. To understand more about initiation of sexual relations and marriage, a variable defined as the difference between age at first sex and age at first marriage for those who are married was created. In Table 5.7 the distributions of men according to how many years passed between first sex and first marriage for the different surveys are shown.

Table 5.7: Percentage Distribution of Men by Years between First Sex and First Marriage.

	Number of Years between First Sex and Marriage					
	Negative	0-2	3-6	7-11	12 +	Total
Tanzania 1992	0.47	29.79	31.98	25.80	11.96	100.00
	(6)	(381)	(409)	(330)	(153)	1179
Tanzania 1996	5.37	22.59	27.74	27.09	17.21	100.00
	(74)	(311)	(382)	(373)	(237)	1377
Zimbabwe 1994	10.82	27.28	28.62	20.75	12.52	100.00
	(121)	(305)	(320)	(232)	(140)	1118

The first point of note in Table 5.7 is that there is a small number of men who had first sexual relations sometime after marriage. These could be cases of child betrothal, where a man was married to a girl who was still very young or even cases of proxy marriage where someone stood in for a bride who is unable to be there in person. This unusual result for men could also be a product of data errors.

Not shown here but investigated was what percentage of men had first sex in the same year as marriage (i.e. possibly virgins at marriage, though it was not possible to look for which of the two events came first, marriage or first sex). While these would be rare occurrences, the percentage of men who had sex for the first time in the same year they married is not negligible. For Tanzania this percentage was 15 percent in 1992, and 13 percent in 1996; it was almost 12 percent in the 1994 ZDHS. As Table 5.7 shows, only a small percentage of men married within 0-2 years

of first sexual relations. The largest percentage married at least three years or more after first sex and more than ten percent married 12 years after first sexual relations.

Given the socio-economic differences in ages at first marriage and ages at first sexual relations already seen in Chapter Three and in sections above, it is clear that the gap will be different for various groups. It is however important to keep in mind that a similar gap could exist for two groups even when the timing of the two events is very different. For example men who have first sexual relations early and marry early and those who have first sexual relations late and marry immediately after could both have short gaps.

In Table 5.8 the percentiles in years of the length of time between first sexual relations and marriage are presented. The table shows that the median gap varies reflecting the differences in age at first sex and age at first marriage. In 1992, fifty percent of men married within five years of their first sexual relations. This was six years in 1996. The gap in Zimbabwe is shorter given that sexual relations start later than in Tanzania while ages at first marriage are not very different as seen in Chapter Three. In Zimbabwe 50 percent of men married within four years of first sexual relations.

As expected, the later one married the longer the gap and the median could be as long as fourteen years for men who delay marriage until their thirties. Since polygamous men are more likely to marry earlier, the gap was shorter than if a man was monogamous. For all three surveys there is no evidence that the gap is longer for younger men than older men.

For most variables in the 1992 Tanzania survey, there was a strong statistical differential with the exception of childhood place of residence. In 1996, most variables also show that the distribution of the gap is statistically different for almost all variables apart from childhood place of residence and religion. The picture in Zimbabwe shows that the distribution of the gap is not significantly different for most of the variables. It was, however, statistically different for current residence, childhood place of residence, where one grew up, zones and types of occupation.

Table 5.8: Percentiles of Years between First Sexual Relations and Marriage.

Tanzania 1992	Percentile 25th	50th	75th	Tanzania 1996	Percentile 25th	50th	75th	Zimbabwe 1994	Percentile 25th	50th	75th
All Men	2	5	9	**All Men**	2	6	10	**All Men**	1	4	8
Age				*Age*				*Age*			
20-29	2	4	7	20-29	2	5	8	20-29	1	3	6
30-39	3	6	10	30-39	3	6	10	30-39	2	5	8
40-49	2	5	8	40-49	2	6	11	40-49	1	5	9
50-60	2	5	10	50-60	1	5.5	11	50-60	0	3	11
Age at Marriage				**Age at Marriage**				**Age at Marriage**			
<20 years	0	2	4	<20 years	0	1	3	<20 years	-3	0	2
20-24 years	2	5	7	20-24 years	3	5	7	20-24 years	1	3	5
25-29 years	5	8	11	25-29 years	6.5	9	11	25-29 years	4	7	9
30+ years	10	14	18	30+ years	13	16	20	30+ years	10	14	17
Type of Union				**Type of Union**				**Type of Union**			
Monogamous	2	5	9	Monogamous	3	6	10	Monogamous	1	4	8
Polygamous	1	4	7	Polygamous	0	4	7	Polygamous	0	3	7
Residence				**Residence**				**Residence**			
Urban	3	6	11	Urban	3	7	11	Urban	2	5	8
Rural	2	5	8	Rural	2	5	9	Rural	0	4	8
Current-past Residence				**Current-past Residence**				**Current-past Residence**			
Always Urban	2	7	11	Always Urban	2	6	10	Always Urban	2	6	10
Ex -Rural	2	6	11	Ex -Rural	3	7	12	Ex -Rural	1	4	7
Ex -Urban	3	5	8	Ex -Urban	4	7	10	Ex -Urban	0.5	4	7.5
Always Rural	2	5	8	Always Rural	2	5	9	Always Rural	0	4	8
Religion				**Religion**				**Religion**			
Muslim	2	5	9	Muslim	1	6	10	Traditional	1	4	8
Catholic	2	5	9	Catholic	2	6	10	Spiritual	0	4	8
Protestant	2	5	10	Protestant	3	6	9	Christian	1	4	8
Other	2	4	7	Other	2	5	9	Other	0	4	7
Education				**Education**				**Education**			
0-3 years	1	4	7	0-3 years	1	5	9	0-3 years	0	3	8
4-6 years	1	5	8	4-6 years	1	5	10	4-6 years	1	4.5	8
7-8 years	2	6	9	7-8 years	3	6	9	7-8 years	1	4.5	8
8+ years	3	7	11	8+ years	4	8	12	8+ years	1	4	7
Occupation				**Occupation**				**Occupation**			
Agricultural	2	5	8	Agricultural	2	5	9	Agricultural	0	3	7
Non-agricultural	3	7	11	Non-agricultural	3	7	10.5	Non-agricultural	1	4	8
Zones				**Zones**				**Zones**			
Northern	5	8	11	Northern	3	7	10	Manicaland	1	3.5	7
Coastal	2	5	10	Coastal	3	8	12	Mashonaland	0	3	7
Southern	4	7	10	Southern	3	5	9	Matabeleland	2	6	9
S. Highlands	0	2	7	S. Highlands	0	5	8	Midlands	1	5	8
Central	3	6	9	Central	3	6	9	Masvingo	0	3	7
Lake	2	3	7	Lake	2	5	9	Harare	2	4	7.5
Zanzibar	1	3	5	Zanzibar	0	0	4	Bulawayo	1	5	9

5.3.6 Number of Sexual Partners

To keep pace with the need for more information on sexual behaviour, the range and depth of questions in DHS surveys have changed over time. Not only are there more questions in the 1996 Tanzania survey but these have also evolved into more probing questions compared to the previous survey. In Tanzania 1992, men were asked only one question regarding the number of sexual partners. Married men, those who had a regular partner, and those who had ever had sex were asked 'With how many different women did you have sex with in the last four weeks?' In the 1996 survey a different reference period was used, men who had ever had sexual relations were asked for the additional number of sexual partners in the last twelve months, i.e. number of women they had sex with over and above their regular sexual partners e.g. the wife/wives. On the other hand Zimbabwe 1994 asked a different range of questions which are an improvement on the Tanzania 1992 survey but do not reach the depth of the TDHS 1996. Men were asked about sexual relations in the last four weeks. If they were married they were asked if they had sexual relations with anyone other than their wife/wives and, if so, how many persons. The same was asked of those with regular partners or those who had ever had sexual relations.

Concerning the different time references in 1992 (sexual relations in the last four weeks) and 1996 (sexual relations in the last twelve months), the results shown in Table 5.9 can be compared if it is assumed that the men's behaviour in the last four weeks is typical of behaviour in the last year.

Results from all the three surveys show that the majority of married men have only one sexual partner. In 1992, 74 percent of all men who had ever had sex had only one sexual partner, about 18 percent had two partners and 7 percent had three or more. The results of the 1996 TDHS are not that different; almost 79 percent of men had only one sexual partner in the last twelve months. However, as in 1992, there are some differentials by marital status, the type of union and also by socio-economic characteristics.

Married Men

A larger percentage of married men reported that they had just one sexual partner and this was true across all three surveys. In the 1992 Tanzania survey among

monogamous men, almost eighty-six percent had only one partner, and so about fourteen percent of monogamous men were having extra-marital relationships. In addition, it is odd that about thirty-three percent of polygamous men had only one sexual partner. The results show that monogamy does not guarantee one sexual partner and being a polygamist does not necessarily mean more than one partner. In 1996, eighty six percent of monogamous men had one sexual partner and almost all polygamous men had sex with only their wives/regular partners. It must be remembered that in TDHS 1996 the question was worded 'With how many different women have you had sexual intercourse in the last 12 months (apart from your regular wife or regular partners)?

In 1992, a slightly higher percentage of married urban men had only one sexual partner compared to rural men, but the differential between the two is insignificant in magnitude. Similarly, a slightly higher percentage of those who grew up in towns/cities had only one partner compared to those who grew up in the countryside. At the same time, a higher percentage of those who work in non-agricultural occupations (and who are therefore likely to be urban residents) had one sexual partner compared to those who work in agriculture. The results of the 1996 TDHS again coincide with those of 1992. Among married men, there is hardly any differential in the number of sexual partners by residence, childhood residence or occupation. All the percentage points differentials are small, rarely above five percentage points.

In Tanzania, differentials by zones of residence show that apart from Southern, Central and Lake zones, all the zones of residence had at least 83 percent of married men with only one sexual partner. Looking at education, in 1992, those who have secondary education had a slightly higher percentage with one sexual partner than the remaining groups, but the differential is only five percentage points. Similarly in TDHS 1996 there is very little differential by level of education.

In 1992, differentials by religion show that those who follow Traditional religions had a higher percentage of men with two or more sexual partners than the rest of the religious groups. Also in 1992, Muslims and Catholics had an equal percentage of men with one sexual partner and with two or more, but a larger percentage of Protestants had only one sexual partner, hence a smaller percentage

had two or more. The general pattern seen in the differentials by religious group also follows that of the prevalence of polygamy. Unlike the 1996 survey, the question did not distinguish between sexual partners inside and outside regular partnerships. An identical percentage of married Catholics and Muslims had only one sexual partner. Given the higher prevalence of men in polygamous unions among those following Other religions, it was expected that they will show a smaller percentage of men with only one sexual partner.

Zimbabwe shows a very similar picture to Tanzania with a large percentage of married men having only one sexual partner. For all married men, almost 93 percent had sex with only their wife in the four weeks before the survey. This does not greatly differ across the different characteristics, for example there is hardly any difference between urban and rural men. There are some slight differentials by religions but these are only of about 4 percentage points even for the largest differential. Differentials by education are also very small amounting to no more than 3 percentage points between those with 0-3 years of education and all the other groups. Matabeleland had the lowest percentage of men who had only had sex with their wives in the four weeks before the survey at 86 percent. The largest differential is with married men in Masvingo, at 97 percent. The rest of the zones all stand at about 93 percent. There was very little difference by type of union or by age cohort.

Never-married Men

In 1992, as expected a smaller percentage of unmarried men had only one sexual partner in the four weeks before the survey; slightly over half of them i.e. about fifty-four percent. The same is also true in 1996 where about sixty-four percent of unmarried men who had ever had sexual relations had only one sexual partner, which shows a considerable increase in the number of never-married men having only one sexual partner.

It is important to caution that the distribution by socio-economic characteristics is in some cases based on a small number of men so not much significance can be attached on these results. All the differentials that were seen among married men above are mirrored among never married men. Differentials by current residence show that in 1992 a larger percentage of unmarried urban men had

only one partner than rural men. The difference is of ten percentage points. However in 1996 we find that a large percentage of urban men had sexual partners over and above their regular partners. The differentials by childhood place of residence do not differ from those of current residence. Differentials by zones of residence for 1992 show that all zones (apart from Southern Highlands and Lake zones) had about the same proportion of men who have one sexual partner. Lake zone stands out with almost sixty percent of men with two or more partners while Zanzibar did not record the number of sexual partners for unmarried men. In 1996, of the eight unmarried men in Zanzibar, only one had two sexual partners while the rest had one partner only. The Southern zone has the smallest percentage with one sexual partner at about forty one percent. The Southern Highlands stands out as having eighty three percent with one sexual partner.

The picture for education is similar. As among married men, a larger percentage of the unmarried who have nine or more years of education had only one sexual partner compared to the other education groups. More or less the same percentage had two partners but there are hardly any men with nine or more years of education who had three or more sexual partners. In 1996, all the education groups are more or less identical in their distribution.

Religion provided an unusual set of results. Muslims had the largest percentage with one partner, only 57 percent of Catholics had had just one partner, the Other groups had only 32.7 percent with just one partner and 32.8 percent with 3+ partners. In 1996, Muslims and Catholics again had the same percentage with one sexual partner. Protestants again stand out with 72 percent reporting having one sexual partner. Curiously out of the 38 men who follow Other religions 33 of them had only one sexual partner.

The last issue of interest is whether young men had more sexual partners than the older men. Among married men, if we look at only those over twenty (only thirteen 15-19 year old men are married), there are no apparent differentials in the percentage of the age group who have one only sexual partner. There is a higher percentage of men above 40 who have two partners but then there is also a higher percentage of men 20-39 who have three or more sexual partners. Among unmarried

men, (here its only safe to look at 15-29 year olds since very few men 30 and over are still single) no difference in the distribution was found.

In Zimbabwe, a large percentage of never married men who had had sex in the four weeks before the survey had done so with only one partner. For all men this came to almost 80 percent. There was some slight differential between urban and rural areas with urban areas having a slightly higher percentage who had had sex with only one sexual partner. Those following Spiritual or Traditional religions had the lowest percentage with only one sexual partner. There is no evidence that education increased or lowered the number of sexual partners. Unmarried men with 4-6 years of education had the lowest percentage with only one sexual partner, followed by those with 7-8 years of education. Those with 0-3 and those with 9 or more years had the largest percentages with only one sexual partner at 81 percent and 88 percent respectively.

Table 5.9: Distribution of Men by the Number of Sexual Partners: Married and Unmarried Men.

| | Tanzania 1992 (4 weeks before the survey) | | | | | | Tanzania 1996 (12 months before the survey) | | | | | | | Zimbabwe 1994 (4 weeks before the survey) | | | |
| | Married | | | Never Married | | | Married | | | Never Married | | | | Married | | Never Married | |
	One	Two	Three +	One	Two	Three +	One	Two	Three +	One	Two	Three +		With Wife	Other	One	Two +
All men	75.02 (775)	17.81 (184)	7.16 (74)	54.55 (228)	26.79 (112)	18.66 (78)	84.53 (1175)	7.41 (103)	8.06 (112)	63.76 (329)	15.31 (79)	20.93 (108)	**All men**	92.77 (937)	7.23 (73)	79.77 (209)	20.23 (53)
Age													**Age**				
15-19	61.54 (8)	15.38 (2)	23.08 (3)	52.56 (123)	27.78 (65)	19.66 (46)	70.59 (12)	0.00 (0)	29.41 (5)	66.33 (132)	15.08 (30)	18.59 (37)	15-19	100.0 (9)	0.00 (0)	82.09 (55)	17.91 (12)
20-29	73.85 (192)	16.92 (44)	9.23 (24)	56.96 (90)	24.05 (38)	18.99 (30)	75.56 (235)	10.93 (34)	12.50 (42)	60.82 (177)	16.84 (49)	22.34 (65)	20-29	91.67 (242)	8.33 (22)	79.86 (115)	20.14 (29)
30-39	76.22 (234)	15.31 (47)	8.47 (26)	47.37 (9)	42.11 (8)	10.53 (2)	84.32 (414)	7.13 (35)	8.55 (42)	77.78 (14)	0.00 (0)	22.22 (4)	30-39	93.53 (347)	6.47 (24)	75.86 (22)	24.14 (7)
40-49	75.00 (201)	20.52 (55)	4.48 (12)	75.00 (3)	25.00 (1)	0.00 (0)	88.35 (311)	6.82 (24)	4.83 (17)	75.00 (6)	0.00 (0)	25.00 (2)	40-49	91.76 (245)	8.24 (22)	82.35 (14)	17.65 (3)
50-60	75.68 (140)	19.46 (36)	4.86 (90)	100.0 (3)	0.00 (0)	0.00 (0)	92.69 (203)	4.57 (10)	2.74 (6)	-	-	-	50-54	94.95 (94)	5.05 (5)	60.00 (3)	40.00 (2)
Type of union													**Type of union**				
Monogamous	85.93 (678)	8.62 (68)	5.45 (43)	-	-	-	86.12 (931)	6.75 (73)	7.12 (77)	-	-	-	Monogamous	92.84 (856)	7.16 (66)	-	-
Polygamous	33.33 (58)	55.75 (97)	10.92 (19)	-	-	-	91.33 (158)	4.62 (8)	4.05 (7)	-	-	-	Polygamous	91.76 (78)	8.24 (7)	-	-
Residence													**Residence**				
Urban	79.17 (152)	15.10 (29)	5.73 (11)	62.50 (55)	25.00 (22)	12.50 (11)	82.70 (282)	9.09 (31)	8.21 (28)	55.85 (105)	20.74 (39)	23.40 (44)	Urban	93.42 (355)	6.58 (25)	86.11 (62)	13.89 (10)
Rural	74.08 (623)	18.43 (155)	7.49 (63)	52.42 (173)	27.27 (90)	20.30 (67)	85.13 (893)	6.86 (72)	8.01 (84)	68.29 (224)	12.20 (40)	19.51 (64)	Rural	92.38 (582)	7.62 (48)	77.37 (147)	22.63 (43)
Current-Past Residence													**Current-Past Residence**				
Always Urban	84.09 (37)	9.09 (4)	6.82 (3)	61.54 (32)	26.92 (14)	11.54 (6)	78.33 (94)	13.33 (16)	8.33 (10)	50.53 (48)	20.00 (19)	29.47 (28)	Always Urban	90.98 (111)	9.02 (11)	87.18 (34)	12.82 (5)
Ex - Rural	78.23 (115)	16.33 (24)	5.44 (8)	65.71 (23)	22.86 (8)	11.43 (4)	85.32 (186)	6.42 (14)	8.26 (18)	61.29 (57)	21.51 (20)	17.20 (16)	Ex - Rural	94.57 (244)	5.43 (14)	84.85 (28)	15.15 (5)
Ex - Urban	80.85 (38)	12.77 (6)	6.38 (3)	64.52 (20)	22.58 (7)	12.90 (4)	78.57 (77)	11.22 (11)	10.20 (10)	66.67 (22)	12.12 (4)	21.21 (7)	Ex - Urban	91.89 (68)	8.11 (6)	90.91 (20)	9.09 (2)
Always Rural	73.74 (584)	18.69 (148)	7.58 (60)	51.01 (151)	27.70 (82)	21.28 (63)	85.77 (814)	6.43 (61)	7.80 (74)	68.26 (200)	12.29 (36)	19.45 (57)	Always Rural	92.45 (514)	7.55 (42)	75.60 (127)	24.40 (41)
Religion													**Religion**				
Muslim	73.30 (258)	18.18 (64)	8.52 (30)	62.50 (100)	23.75 (38)	13.75 (22)	78.99 (409)	9.92 (51)	11.09 (57)	57.43 (116)	16.34 (33)	26.24 (53)	Traditional	89.16 (181)	10.84 (22)	76.09 (35)	23.91 (11)
Catholic	75.08 (223)	17.17 (51)	7.74 (23)	57.76 (67)	28.45 (33)	13.79 (16)	87.59 (381)	5.75 (25)	6.67 (29)	59.18 (87)	19.05 (28)	21.77 (32)	Spiritual	93.64 (221)	6.36 (15)	75.00 (45)	25.00 (15)
Protestant	85.57 (172)	11.44 (23)	2.99 (6)	50.00 (42)	25.00 (21)	25.00 (21)	87.85 (253)	7.99 (23)	4.17 (12)	72.09 (93)	14.73 (19)	10.57 (4)	Christian	94.01 (455)	5.99 (29)	81.60 (102)	18.40 (23)
Other	66.67 (122)	25.14 (46)	8.20 (15)	32.76 (19)	34.48 (20)	32.76 (19)	88.24 (135)	2.61 (4)	9.15 (14)	86.84 (33)	2.63 (1)	10.53 (4)	Other	91.95 (80)	8.05 (7)	87.10 (27)	12.90 (4)
Education													**Education**				
0-3 years	74.86 (262)	19.43 (68)	5.71 (20)	51.43 (36)	21.43 (15)	27.14 (19)	86.57 (290)	6.57 (22)	6.87 (23)	73.97 (54)	10.96 (8)	15.07 (11)	0-3 years	90.80 (148)	9.20 (15)	81.25 (13)	18.75 (3)
4-6 years	73.50 (172)	20.09 (47)	6.41 (15)	51.22 (42)	30.49 (25)	18.29 (15)	90.84 (228)	4.38 (11)	4.78 (12)	71.23 (52)	12.33 (9)	16.44 (12)	4-6 years	93.27 (194)	6.73 (14)	58.06 (18)	41.94 (13)
7-8 years	75.26 (286)	15.26 (58)	9.47 (36)	55.28 (136)	27.24 (67)	17.48 (43)	82.08 (545)	8.43 (56)	9.49 (63)	59.93 (178)	17.17 (51)	22.90 (68)	7-8 years	93.28 (236)	6.72 (17)	74.70 (62)	25.30 (21)
9+ years	79.71 (55)	15.94 (11)	4.35 (3)	70.00 (14)	25.00 (5)	5.00 (1)	80.00 (112)	10.00 (14)	10.00 (14)	61.64 (45)	15.07 (11)	23.29 (17)	9+ years	92.86 (351)	7.14 (27)	87.79 (115)	12.21 (16)
Zones													**Zones**				
Northern	82.26 (51)	8.06 (5)	9.68 (6)	51.79 (29)	26.79 (15)	21.43 (12)	89.70 (148)	4.85 (8)	5.45 (9)	69.05 (58)	9.52 (8)	21.43 (18)	Manicaland	92.68 (76)	7.32 (6)	77.78 (7)	22.22 (2)
Coastal	83.61 (153)	12.02 (22)	4.37 (8)	59.18 (58)	27.55 (27)	13.27 (13)	78.03 (270)	10.98 (38)	10.98 (38)	50.89 (86)	24.26 (41)	24.85 (42)	Mashonaland	93.71 (313)	6.29 (21)	83.03 (69)	16.87 (14)
Southern	60.39 (93)	29.87 (46)	9.74 (15)	58.82 (40)	29.41 (20)	11.76 (8)	74.75 (148)	10.61 (21)	14.65 (29)	41.03 (16)	25.64 (10)	33.33 (13)	Matabeleland	86.30 (126)	13.70 (20)	70.31 (45)	29.69 (19)
S. Highlands	83.59 (163)	13.85 (27)	2.56 (5)	65.62 (21)	25.00 (8)	9.38 (3)	91.85 (214)	4.72 (11)	3.43 (8)	83.82 (57)	10.29 (7)	5.88 (4)	Midlands	93.40 (99)	6.60 (7)	81.40 (35)	18.60 (8)
Central	69.77 (150)	19.53 (42)	10.70 (23)	53.47 (54)	22.77 (23)	23.76 (24)	89.69 (235)	3.82 (10)	6.49 (17)	70.09 (75)	8.41 (9)	21.50 (23)	Masvingo	97.47 (77)	2.53 (2)	90.91 (10)	9.09 (1)
Lake	71.02 (125)	20.45 (36)	8.52 (15)	41.27 (26)	30.16 (19)	28.57 (18)	84.00 (105)	8.00 (10)	8.00 (10)	73.17 (30)	7.32 (3)	19.51 (8)	Harare	93.75 (120)	6.25 (8)	77.78 (14)	22.22 (4)
Zanzibar	83.33 (40)	12.50 (6)	4.17 (2)	-	-	-	90.16 (55)	8.20 (5)	1.64 (1)	87.50 (7)	12.50 (1)	0.00 (0)	Bulawayo	93.33 (126)	6.67 (9)	85.29 (29)	14.71 (5)

5.4 DISCUSSION AND CONCLUSIONS

The aim of this chapter was to explore several aspects of male sexual behaviour. Entry into sexual relations and socio-economic factors associated with it were analysed using life table analysis; and trends in age at first sexual relations were studied by looking at cumulative percentages that have ever had sexual relations in different age cohorts. In addition, the interval between first sexual relations and marriage and the number of sexual partners outside and inside marriage were studied.

As in past chapters, issues of data quality and reliability have to be addressed. Looking at data quality in terms of heaping, the 1992 TDHS is not superior in quality to the 1996 survey. Therefore, results obtained were contrasted with those of Carael (1995), which is one of the main sources of information on sexual behaviour from nationally representative surveys. The discussion concentrates on the results of TDHS 1996, because it is the more recent. One could speculate that the differences in initiation into sexual relations between the two surveys (overall median of 16 years in TDHS 1992 and 18 years in 1996) could be a genuine reflection of the changes in sexual behaviour given recent HIV/AIDS prevention campaigns. These results lie on the two sides of the median age at first sex from the GPA. There it was found that the median age at first sex for men aged 15-29 was 17 years (Carael 1995).

Given the extremely diverse nature of the literature that describe differences in restrictions on entry into sexual relations, it is hard to compare the results obtained in this chapter with established knowledge. The pattern of entry in Tanzania showed that age at first sex is very early such that by age 17 almost 40 percent of all men have had a sexual partner. The largest proportion of sexual initiation occurs between age 14 and 19. This finding contradicts those anthropological studies that suggest that age at first sex was traditionally as late as mid to late 20s (Rwezaura 1985; von Mitzlaff 1988). The evidence from this analysis does not support such works because even for the oldest cohorts, age at first sexual relations was not as high as this. However, an early pattern is consistent with anthropological literature such as that by Talle (1988) on the Masai, or by Swantz (1998) on people of Southeast Tanzania.

Nevertheless, there is evidence that age at first sexual relations has been falling, as has been found to be the case in the collection of studies in Bledsoe and Cohen (1993). The trend towards younger ages at first sexual relations is stronger in Zimbabwe than in Tanzania. As was seen, the difference between the oldest and the youngest cohorts is not very large in Tanzania as it is in Zimbabwe. Since in Tanzania the overall starting of age is lower, there cannot be much change to an even lower age. For Zimbabwe, since age at first sex is higher, there is potential for further decline. The cause of the decline in both countries is hard to explain from data such as that of the DHS. This supports the disappointment expressed that surveys such as the GPA and DHS might not be the right tools for this type of analysis (Cleland et al. 1995). While one could speculate that it is factors such as education do significantly alter people's behaviours, urbanisation and decline of social control: results of differentials by such socio-economic characteristics do not necessarily support this.

However, the decline in age at first sex does not seem to increase the gap between initiation of sexual relations and marriage, i.e. older men did not necessarily have a significantly shorter period between first sex and marriage. This finding is similar to what Carael (1995) found to be the case for Tanzania, i.e. the gap is not necessarily longer for younger men. There is no clear cut evidence to show this, as the shortest gap is for those aged 40-49, followed by 25-29 and the longest for those aged 30-34 and 35-39 (Carael 1995). That older men do not necessarily have a shorter gap between first sex and marriage compared to younger might be due to the mis-reporting of age at first marriage. As has been found to be the case, older men might be reporting on their formal unions while younger men will be reporting on the informal unions that have yet to be formalised or dissolved.

Results on the differentials by socio-economic characteristics coincide with some of Carael's (1995) findings that in general there are no clear patterns as to which socio-economic characteristics are more influential in initiation of sexual relations. Generalisations that urbanisation and education lead to greater sexual freedom did not find support, and as was seen above, education did not have a clear relationship with age at first sex. In addition, if education and urbanisation are among the factors said to lead to early initiation, the results from Zimbabwe were contrary to such evidence. Zimbabwe is more urbanised, westernised and has a higher proportion of

educated men than Tanzania; and still men have a later age at first sex. These findings are not that far removed those of Carael (1995), where it is shown from univariate analysis in all the countries (apart from Kenya, Lesotho, Singapore and Thailand) that those with secondary education had more sexual experience. However, for women, those with secondary education were not very different from those with primary education.

This chapter also found that place of residence did not have a strong effect on age at first sex, once other variables were controlled for. This was unexpected, as it is usually speculated that urban residence involves fewer parental restrictions, a mix of cultures as well as opportunities to meet potential sexual partners that would encourage early as well as a larger number of sexual partners. Carael (1995) found that actually young people's sexual behaviour in urban areas was closely correlated to sexual behaviour in rural areas. This was to be expected given that a considerable proportion of urban residents are former rural residents, with the majority of people who move to urban areas doing so in their teens or later.

That zones of residence were found to be important determinants of age at first sexual relations emphasises the role of culture and practices that cannot be easily studied from data such as collected in the DHS. This means that there are characteristics specific to certain zones that would play an important role in the start of sexual relations. For example the considerably higher age at first sex in Zanzibar is highly likely to be related to the Arab-Islamic culture of the islands. Girls in this culture are under more restrictions and family control than in other parts of the country. It cannot be a simple result of the Muslim religion since (as was seen in analyses) Muslims do differ hugely from the other groups. That zones revealed the widest differentials suggests that it is more the differences and variations of the cultural practices such as 'jando' (a ceremony to mark entry into adulthood) widely practised in the Southern zone and in some areas in the Coastal zone that might explain initiation of sexual relations. This ceremony takes different forms in different areas, after which young men and women acquire the status of adults. It is important in defining the initiation of sexual relations since it defines when an individual gains responsibility. The practice of 'jando' in the Southern zone, (while it has been modified by Christian Churches) is still linked to the very low ages at first sexual

relations. The Southern zone has among the highest levels of teenage pregnancies in the Tanzania (Swantz 1998). While among the Masai, the circumcision ceremony also allows a man access to sexual relations, the ceremony usually takes place when men are older than in the Southern zone. In addition circumcision among the Masai is not a signal that a man is ready for marriage and in fact a man will spend a number of years learning how to be independent and responsible as a married man (Talle 1988). The low ages in the Southern zone in 1992 require more in-depth anthropological research of the cultures of the area. In Zimbabwe, the higher risk in Matabeleland is consistent with findings of Meekers and Wekwete (1997), who found that initiation into sexual relations is earlier in Matabeleland than in other regions of Zimbabwe. The explanation is that in Ndebele culture (inhabitants of Matabeleland), a man is expected to make a woman pregnant and have a child before marriage as insurance against childlessness. This is contrary to Shona culture where a woman should be a virgin at marriage.

Apart from the result that Protestants in TDHS 1992 had a significantly lower risk of initiating early sexual relations, it was unexpected that differentials according to religion would be so small. While unexpected results in the previous chapters have prepared one for the lack of relationship between religion and many of the demographic phenomena that have been studied in this thesis; it is likely religion in sub-Saharan Africa has been assimilated, and is practised in conjunction with other beliefs. On matters of initiating sexual relations, religion might not be such a big factor since during those high risk ages men are unlikely to have established what morality is prescribed by the church or other religious authority. This does not of course, completely explain the lack of differentials as one would also have expected that parents of young men would teach them about the immorality of sex before marriage; that is if the parents themselves were convinced of such teachings. It is, however, interesting to note that although the dominant religion in Zanzibar is Islam, not all Muslims had a delayed entry into sexual relations. There seems to be little association between religion and many demographic outcomes for men. This is probably a reflection of the minor role that modern religions play in most people's lives. Even for Muslims who might be assumed to have stricter rules, this does not seem to be case. It is nevertheless interesting to note that Zanzibar, which is

predominantly Muslim, is also the zone with the highest median. It is hard to say exactly how followers of Traditional religions would behave, as the literature shows there are a variety of restrictions and taboos surrounding sexual relations. While one can be sure Christianity and Islam would discourage sex before marriage one cannot say the same for Traditional religions followers because these are scattered religions rooted in very different tribal beliefs.

Another important finding was that, especially among married men, the number of sexual partners is not as one high as can be led to understand (Caldwell et al. 1992a; Caldwell et al. 1991; Stewart 1995). The majority of men report only one sexual partner and this was consistent in both the Tanzania and the Zimbabwe surveys. They are also very similar to the results from the GPA, as presented by Carael (1995). One might doubt the accuracy of such a sensitive issue but the consistency of responses in all the surveys is reassuring.

This chapter has found that in most aspects results coincide with those from the GPA as analysed by Carael (1995); that is there are no clear determinants of age at first sexual relations. There is the need to look more into culture-specific determinants of sexual behaviour. Where the results from surveys analysed here do not match those of the GPA surveys, it could be that the GPA surveys were conducted around 1989-90, while the TDHS were conducted in 1991/92 and in 1996. In addition, sampling for TDHS surveys is different from the GPA where as many as 58.4 percent of respondents were urban residents, while 79.94 percent in TDHS 1992 are rural residents. Only 45.5 percent of respondent in the GPA are aged 25-39, a quarter of the men in DHS are aged 15-19, compared to 19 percent in the GPA. These differences in the sampling biases in the two surveys are likely to bias the conclusions that are drawn. However, due to the closer similarity of results of the 1996 TDHS with GPA, we have concentrated the discussion on this survey. This chapter has revealed the need to be more careful about making generalisations regarding sexual behaviour in sub-Saharan Africa.

6 Male Fertility

A number of countries in sub-Saharan Africa have now embarked on the transition to lower fertility. Nevertheless, there is still the need to understand the different pathways that transition can take; and especially what the role of men can be in such transitions. This chapter first looks at the literature on the transition to lower fertility in sub-Saharan Africa and then what factors are likely to play a role in future transitions. Difficulties in studying fertility issues and especially male fertility issues are addressed, followed by patterns and determinants of fertility in sub-Saharan Africa. The data and methodology sections look at available methods for the study of fertility, as well as methods that were used in this thesis. Results show that the mean number of children per man is slightly higher in Tanzania than in Zimbabwe, and that once demographic characteristics such as duration of union and type of union are controlled for, very few socio-economic characteristics make a large difference in the rate of childbearing. The results also show that when couples' data are used, there is a large differential in cumulative fertility depending on which spouse is responding. The chapter ends with a discussion and a conclusion as to how the results obtained fit the literature.

6.1 FERTILITY IN SUB-SAHARAN AFRICA

A number of studies have shown that some countries in sub-Saharan Africa have started the transition to lower fertility. This evidence is contrary to the pessimistic view of many demographic studies carried out in the 1960s and 1970s when it was believed that economic conditions in sub-Saharan Africa would not be conducive to fertility decline. A strong pro-natalist culture and lack of strong family planning programmes were also given as reasons why fertility decline would be delayed. Recent evidence suggests that there are different pathways to fertility transition, as fertility decline has started in countries that are economically poor; as well as in countries which have seen economic advancement.

It is because of the setting in which fertility has started to decline in sub-Saharan Africa that many demographers were at first reluctant to accept the authenticity of the transition. Caldwell et al. (1992b) for example, gave several reasons why there will be obstacles to the decline of fertility in countries in sub-Saharan Africa. They observed that the three countries first to show a convincing decline i.e. Kenya, Zimbabwe and Botswana, all had infant mortality rates of below 70 per 1000 and that those parts of Kenya with infant mortality above this level had yet to experience a fertility decline. This means that a threshold in infant mortality might be necessary before people are persuaded to lower fertility. Caldwell et al. (1992b) also note that those countries that have started the transition have higher levels of education, with a large percentage of girls in primary school and between 20-40 percent in secondary school. They find this a positive factor for the high levels of contraceptive use which are necessary for the transition to take off. However, they acknowledge that some countries with high education levels (Cameroun, Lesotho and Ghana) had yet to embark on a convincing decline and their contraceptive use was still very low.

Cultural reasons that were seen as an impediment to a fertility decline include the importance of lineage, ancestry and descent in sub-Saharan African societies. This characteristic is represented by the economic assistance that younger generations are expected to give to the old, which makes it advantageous for a couple to have a large number of children. This is compounded by the fact that it is the woman in the family who is largely responsible for the rearing of children and

men can therefore afford a large number of children through polygamy; each wife being responsible for her own children. In old age men reap the benefits from a large pool of children in the form of economic support or elaborate funerals and other rites without any other economic investment. For women in sub-Saharan Africa it is also advantageous for them to have a large number of children. For a start, women cannot inherit their husbands' property and their only economic support in old age had to come from their own children. The second advantage is that a large number of children provide the labour needed in the labour-intensive economies, and in addition large families are useful for making allies in a social setting where family influence and connections count for much.

Another reason for a pessimistic view of fertility transition was that family planning programmes came late to sub-Saharan Africa. In many of the sub-Saharan African countries where such programmes existed they tended to be weak. This was probably partly due to the lack of commitment from leadership that did not want to sacrifice popularity by standing for population ideas in societies where a large number of children is regarded as a major asset.

Given this recent pessimistic consensus, and the different settings where fertility has now started to decline in sub-Saharan Africa, it is clear that demographers are still to understand the different pathways that fertility transition can take. It therefore remains desirable to understand the socio-economic, biological, cultural and environmental determinants of fertility decline, especially since sub-Saharan Africa is in an era where a large proportion of its population is in the reproductive age range. While efforts continue to unravel the reasons why fertility has started to decline and what can be done to encourage those societies that have yet to embark on the transition male fertility is an angle that is rarely explored.

The recent efforts to include men in demographic research are partly a result of the feminist movement that among other issues has called for changes in the responsibilities of contraceptive use and child-rearing. The post 1994 Cairo ICPD (International Conference on Population and Development) era has seen changes in how population issues are addressed. For example, many countries' family planning programmes now try to include men wherever possible; and recent surveys such as those conducted by the Demographic and Health Survey have started to include

fertility questions for men. While this effort is useful, the subject of male fertility still remains largely unexplored, and when mentioned, men's role is generally that of violators of women's reproductive rights, for example as a major hindrance to women's use of contraception (Bledsoe and Hanks 1998). This chapter aims to explore what can be learnt from the Demographic and Health Surveys about men's fertility.

6.1.1 Difficulties in the Study of Fertility

The sources and patterns of errors in fertility data are probably some of the most scrutinised and documented in demography. Given the knowledge and experience that demographers have acquired in this area, it is well recognised that a lot of caution needs to be exercised when using data on fertility. As put by Blacker (1994), 'It is a golden rule that all such data should be assumed guilty until they prove themselves innocent'. This is true even for countries where literacy and education levels are high (for example Kenya, Zimbabwe and Botswana) as researchers still find evidence of, for example, under-reporting of births.

The most common problem is that of age mis-reporting, the effects of which were discussed in past chapters. When ages are wrongly reported then there might be important implications for fertility analysis as individuals are displaced from one age group to another. Errors can also arise because of displacement and omission of births and due to the lack of exact knowledge of birth histories. In cases where dates of births of children are not known, the reporting of the first birth might completely skew how the rest of the births in the birth history are recorded because the remainder of births might be placed forwards or backwards.

Another source of error in birth history data is that introduced by interviewers. Arnold and Blanc (1990) have found evidence that there is a tendency for interviewers as well as respondents to under-record births in the five years before the survey. The pattern if errors involves backward displacement from 3-5 years before the survey and relative over-reporting in a year or so before the survey. Knowing that these births will be subjected to a number of questions sometimes tempts interviewers to record five year olds as six year olds so as to lighten the work load. The situation worsens when births are completely omitted instead of just

displaced. Not only are omission errors more problematic to identify and to rectify, they are in most cases unlikely to be randomly distributed. Less educated and older women respondents are more likely than others to omit births; and in general omissions are higher from older women. In addition, it is common for respondents to omit children who died, daughters or illegitimate children.

Inadequately trained interviewers introduce another source of errors. For example, it has been argued that censuses tend to produce worse quality data than do small surveys. Given that for a survey only a small number of interviewers need to be trained, it is therefore possible to train them better than for a census. However, small surveys have their shortfalls. For a start they are based on a sample and this requires that the sampling procedure be done to the highest quality. Blacker (1994) gives a good example of the 1989 Kenya DHS where the sample of the households was drawn five years before the survey was conducted. Many changes are sure to have taken place during this five-year period, which would not show up in the data, as they would not have been included in the original draw of households.

The quality of data on fertility depends on the gender of interviewers. It has been found that better birth history data is collected when interviewers are female than when male. It is also better to interview the women themselves than to use proxies like the husband or other male members of the household. It is also the case that different types of questions elicit different responses. When fertility questions are asked in a birth history (where details of date of birth, immunisation histories and other information is collected) then the number of children tends to be under-reported. This under-reporting is more marked than when the number of children a woman has ever had is asked. For example, the 1973 Kenya Demographic Baseline Survey (which used different interviewing techniques) showed that in the clusters where birth histories were used there was a lot of underreporting of births compared to those clusters that asked for the number of births. The number of dead children that were reported in one, but not in the other, caused the difference. Blacker (1994) reports on the underreporting of births in the 1973 Tanzanian demographic survey and how that compared to the censuses of 1967 and 1978 which used 'number of births' questions instead of birth histories. Blacker (1994) also reports that the results

from the 1992 Tanzania DHS are very different from those of the 1988 census due to different types of questions.

Other problems in fertility analysis are due to survey design and therefore are common to those encountered when studying other areas in demography. The analyst can not influence such issues though they are very important in their effect on the methods that can be used for analysing the data. The first issue is that of censoring which results in incomplete information. This brings up the issue of truncation since by design interviews will only be conducted for people up to a certain age limit. This might complicate the effort to look at changes of events over time.

6.1.2 Difficulties in the Study of Male Fertility

The main problem in studying male fertility is that it is only recently that information has started to be collected from men themselves, therefore there is very little that has been studied regarding the patterns of errors and, how, they differ from those found from women's reporting. It is perhaps to be expected that questions on fertility were traditionally asked from women only, as it is women who experience the births and are very unlikely to forget such an important event. For a woman there is little ambiguity as to whom a child belongs. This is not the case for a man unless one conducted genetic tests - as was found in a study of men in Michigan where men 'were found to be genetically unrelated to between 2 and 10 percent of the children' supposed to be their own (Anderson 1997). In addition, since women are usually to be found either at home or working nearby, it is easier to interview them than to interview men.

One could speculate that data on fertility from men would be of even worse quality than that from women, and may be even more so in sub-Saharan Africa where men have very little to do with the bringing up of children. Worse data quality from men can arise since men can have children without knowing about it. This can arise in cases where they are separated from the mother. In a study on the matrilineal Ashanti of Ghana, for example, only approximately 50 percent of children and adolescents resided with their fathers (Anderson 1997). Mis-reporting can also arise when men deny paternity to avoid the costs of bringing up the child or when

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they genuinely are not aware that they had fathered a child, especially in cases where they migrate to other regions for work.

Analysis of male fertility is also made difficult by men's longer and not very well defined reproductive span. The male fertility schedule is similar to that of women but is stretched to represent the long span when a man is still able to have children. The shape and location of the schedule are very similar between men and women and would be identical but slightly displaced to the right (as men marry women slightly younger than them) if there was strict monogamy. Methodologically it is complicated to include men in fertility models as the types of unions that they enter (such as polygamy and extramarital relationships) are more complicated and less well understood.

6.1.3 Fertility Patterns and Determinants in sub-Saharan Africa

Sub-Saharan Africa is an area of varying levels of fertility, not only between countries but also within countries. This diversity is due to many factors, some natural, and others due to different cultures and modernisation influences such as education, religion and urbanisation. Bongaarts et al. (1984) presented this diversity in terms of the proximate determinants of fertility before sub-Saharan Africa had started to experience a decline in fertility. It is accepted that in the 1960s sub-Saharan Africa like other areas of the developing world had what is called natural fertility as during the 1970s and early 1980s fertility stood at about 6.6 children per woman (1975-80). The level of fertility was highest in the East and West of the continent (Gabon, Cameroun, Central African Republic) and lowest in the Central and Southern parts and parts of Sudan, Zaire and Congo. The TFR ranged from a high of 8.1 in Kenya to a low of 4.1 in Gabon. Good examples of within country diversity are presented by Santow and Bioumla (1984) who analysed the Cameroun Fertility Survey of 1978 and found that fertility in the North West, West and South West of Cameroun was 50 percent higher than in the South East. In general at this time fertility had not started to decline and there was no link between development and low fertility, the difference in Cameroun being due to differences in the levels of sterility.

An important determinant of fertility now and in the past is marriage. Marriage in sub-Saharan Africa is near universal with only about 5 percent or less of women still unmarried in the 25-29 age group. There were wide variations in the ages at which women enter unions varying from below 17 to around 22 years, being low in the west of the continent, high in parts of East Africa and intermediate in central Africa and in the Coastal areas around the Bight of Benin. These reflected mostly regional ethnic differences rather than a trend in marriage ages, apart from Kenya where data showed changes in marriage patterns.

High marital instability due to divorce or widowhood does not affect fertility much as remarriage is frequent (5-10 percent of women aged 20-39 will be unmarried at any time). In addition, there is a high level of exposure to pregnancy before marriage, but again this varies a lot as was discussed in Chapter Four. Also important is spousal separation (mostly in the form of male labour migration), which is especially pronounced as an important determinant of fertility for countries in the Southern part of Africa. It is important to note that spousal separation timing might in many cases coincide with the period of postpartum abstinence, for example the man might leave soon after his wife gets pregnant.

A characteristic of marriages in sub-Saharan Africa that does affect fertility is polygamy. As was discussed in Chapter Four it is not clear-cut what effect polygamy has on fertility of women, but for men the effect is to increase the number of children per polygamous man.

Postpartum abstinence and breastfeeding are the other important determinants of fertility in sub-Saharan Africa. It is believed that the practice was in the past widely spread all over the region and the duration used to be longer than the period of breastfeeding. Current shorter periods suggest an erosion of the practice (Lesthaeghe 1989a). Bongaarts et al. (1984) divided most of sub-Saharan Africa into three regions according to duration of abstinence. Durations of less than forty days are found in some areas around the Lake regions of Eastern Central Africa and in parts of the Sahel and in South Eastern Africa. East of the Lake regions of East Africa are areas with duration above 40 days but less than a year. Such durations are also found in parts of West Africa, for example in Ghana. In the most of sub-Sahelian West Africa and Central Africa, the period is above a year and usually two years or

more. Linked to abstinence is breastfeeding which is universal in sub-Saharan Africa but again there is variation in duration of breastfeeding reflecting differences in practice and the influence of modernisation. For example, duration of breastfeeding lasts from 19 months in Lesotho, 18 months in Ghana, about 16.5 months in Sudan and Kenya and 21-22 months in Tanzania.

During the 1970s and early 1980s, there was limited use of contraception in the larger part of sub-Saharan Africa. Knowledge of contraception was limited in many parts, and again very varied. For example, the proportion of ever married women who have never heard of any method varied from 12 percent in Kenya to 66 percent in Cameroun. The percent of women using any method was as expected very low ranging from below 5 percent in Senegal, to 5-6 percent in Kenya, Nigeria, Sudan and Lesotho, and 9.5 percent in Ghana.

Parts of sub-Saharan Africa were affected by sterility and this led to lower fertility in such areas. Defined as the proportion of women aged 45-49 who are childless, Central Africa (with 20 percent of women in this age group) was regarded as an area which had the highest levels of infertility. Other areas included some parts of East Africa with lower levels of between 12 and 20 percent. West Africa had much lower levels of between 3-12 percent, but these are still above the expected 3 percent that is considered the natural level in a population. All in all, infertility accounts for 60 percent of the variation in fertility in the 18 countries that were analysed by Bongaarts et al. (1984).

6.1.4 Socio-economic factors Affecting Men's Fertility

There are several reasons why socio-economic factors might have different effects on male fertility from women. As Mason and Taj (1987) pointed out, some of these reasons could be due to physiology in reproduction or due to different ideals regarding family size. Physiologically men can father children for longer and as it is women who bear the morbidity and mortality risks that come with child bearing, men might have more incentive to have many children.

In sub-Saharan Africa the ideal number of children is expected to be higher for men (in patriarchal systems) in order to keep control of lineage land. Women could also have high a ideal number of children given their control of future family

resources through children or children being seen as a hedge against divorce. In West Africa for example, ideal family size could be higher among men because of the minimal costs of rearing children; where child rearing is the responsibility of the woman. Men in sub-Saharan Africa can and do have more children because culturally the marriage system allows them access to many wives at one time or rapidly one after the other. Even if a man is in his sixties he can still remarry and continue fathering children as he is likely to marry a woman much younger than himself.

Men might also feel the need to prove their manhood and social status by having many children and especially sons. This would be especially true for men whose status is less defined by education or wealth, or men who are more susceptible to social pressures to reproduce. Among the Ashanti of Ghana, men without children are called 'wax penis' and those who die without children were in the old days buried with thorns in their feet and cursed so they do not come back after death (Anderson 1997). As with women, men can have children because of the economic or social value perceived to be obtained from children once they are grown up. Even more important in some societies in sub-Saharan Africa is the need to bear sons who will undertake certain religious tasks that only sons can perform.

While education reduces female fertility by shortening the reproductive span, for men, education as a pathway to wealth might make acquisition of partners easier and so compensate for the time they spent in education. Work that has also looked at the effect of men's characteristics on women's fertility is that by Cleland and Rodriguez (1988) who specifically looked at the effect of husband's education on fertility. For the 46 WFS countries they studied, husbands' education had a statistically significant effect on fertility in all the countries apart from eight. In Africa these were Benin, Lesotho, Mauritania, S-E Nigeria, and Senegal. Where this effect was significant it was a result of greater control among those educated to secondary or higher levels, but in Africa they found that education of the husband did not automatically lead to lower fertility. For this region the index of control reflecting practices such as breastfeeding and abstinence was highest among women married to uneducated men. This is because with increasing education these practices get eroded before contraceptive practice is adopted leading to even higher

fertility among the more educated. For Africa in general, there is little difference in the degree of fertility control between wives of men who have no schooling and those who have incomplete primary education.

Other studies that have looked at the effect of socio-economic characteristics on fertility have also done so by looking at how a husband's characteristics are associated with a woman's fertility. One such study is by Mbizvo and Adamchak (1994) who used data from the Shona population of Zimbabwe. Results showed that husband's education did not greatly affect their wives' fertility. The mean number of children was the same; 2.4 (Primary education) and 2.3 (more than Primary education) regardless of what level of education the women had. However, if the husband had only primary education or less there were marked differences in the average number of children that women had depending on their own level of education. If the wife had education up to Primary level then the average was 4.1, but 1.8 if she had more than primary education. The results from this study were unfortunately based only on men who were monogamous.

Another study that looked at male fertility (Donadje and Tabutin 1994) used data from a survey conducted in Southern Benin in 1989. They found that the mean number of children born to men increases from age 20 to 70 (upper age limit of the survey), with acceleration at ages where men enter polygamous unions (30-50). They found that though the level of fertility in Southern Benin was unchanged (from 1971 to 1989) the timing of births was earlier. They find that there were differentials in fertility by socio-economic characteristics, being higher in rural than urban areas.

Research that used data directly from men in sub-Saharan Africa is that of Magnani et al. (1995) who used data from a survey conducted in Kinshasa, Zaire. They found that on average, ever married men had fathered 5.4 children and that men aged 50-60 had 9.1 children. There were large differentials by the types of union, polygamous men had an average of 7.2 children, monogamous men had 5.3 children and men in informal unions had the lowest average at 2.6. Using a multivariate model they found that as expected the type of union mattered very much in affecting the number of children that men had, but that marital dissolution did not seem to permanently affect fertility. Those who were in second unions actually had a higher average compared to those men who were in first marriages. Childbearing with

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more than one woman was relatively common even among men who were in their first union. Twenty percent of men in their first marriage had fathered a child with another woman, an average of 1.7 children with women other than their current wife. There was no evidence that those men were in their second or higher order unions because of childlessness in other unions. They found little differential in fertility by occupation or even by levels of education, childhood residence or religion.

The report by Ezeh et al. (1996) shows that in sub-Saharan Africa there are distinct regional patterns in men's achieved fertility, the number of children preferred and the use of contraceptives. In West Africa, male contraceptive use remains low and the desired family size preference and fertility are high at about 5 children per married man. Smaller family size preferences are more common in East Africa and fertility is also slightly lower at about 4.5 children among married men. Levels of contraceptive use are also higher than in the West. A few countries within these broad groups are an exception to this pattern; for example Tanzania is more Western in character while Ghana is more Eastern. Looking at data on male fertility from consecutive DHS surveys, Ezeh et al. (1996) calculated the mean number of children born to men aged 15-59 in Ghana in the 1988/89 and 1993 DHS and found a slight drop in the mean from 4.6 to 3.8. For Kenya, for the same years, but for men aged 20-54 the average had also dropped from 5.4 to 4.7 children.

Studies outside sub-Saharan Africa that have looked at differentials in male fertility using data from men themselves are also hard to locate. However, according to Loaiza (1998) writing on Latin America, the average number of children ever born per married man ranges from 4.4 for Haitian men to 3.1 in Brazil. This measure was 3.5 in Peru and 3.6 in the Dominican Republic. As expected this average increases with age of the men such that by age group 50-59 Brazilian men record an average of 4.9, Peru 5.6, Dominican Republic 6.4 and Haiti 6.8 children, per married man. In all these countries, the average is higher for rural men than urban residents and education consistently lowers the average number of children. For example men with no education in Peru have an average of 5.2 children compared to 2.7 for men with secondary education.

6.1.5 Recent Declines in Fertility in sub-Saharan Africa

The fact that fertility has been declining in some areas of sub-Saharan Africa has been hidden by the continuing high rates of population increase in the region. This is largely due to the legacy of past high fertility levels, which produced a young age structure. It is also due to improvements in mortality and the increase in fertility of the 1970s as was shown by evidence from the WFS surveys of the 1970s and early 1980s. This increase was a result of the erosion of fertility inhibiting practices such as postpartum breastfeeding and abstinence. These were in turn a result of increased education that was not matched by increased use of contraception (Cleland and Rodriguez 1988).

The recent changes in fertility can again be seen through changes in the proximate determinants of fertility. The most important change has been the increased use of contraceptives and this is the most documented of all the changes that have taken place. A large part of the take up of contraception is mainly for postponement of childbearing rather than stopping having children altogether. The adoption has been mostly among young women for the purpose of delaying childbearing until after marriage and for married women with children who wish to restart sexual activity without shortening the birth interval. Education of girls, increased urbanisation, rising ages at marriage, exposure to western lifestyles, increase in the costs of child rearing and improvements in family planning services together with increased use of contraceptives, have all acted to reduce fertility.

i. Examples of convincing fertility declines in sub-Saharan Africa

The strongest declines in fertility have been observed mostly in countries in the Southern part of Africa. The decline has been observed among the black population of the Republic of South Africa, in Botswana and in Zimbabwe. South Africa is said to have seen the fastest decline, now with a TFR of 3.9 children per woman (Caldwell and Caldwell 1993). For Zimbabwe in 1982, the TFR stood at 5.6, in 1984 it increased to 6.5 but fell back to 5.7 in 1988. Since then, there has been clear evidence that fertility is declining as the survey estimate from the 1994 DHS shows that the TFR stands at 4.3 children per woman. While there was initially a debate as to whether the Zimbabwe decline was genuine or not, the work of Muhwava et al. (1996) has

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shown that the decline in fertility was genuine. The major explanation for the decline included postponement of initiation of childbearing as well as decreases in parity progressions for both high and low parities.

In Botswana, clear evidence of a decline has been documented by a number of studies. For example, Rutenberg and Diamond (1993) using different sources of data on fertility, concluded that fertility has declined by about one birth per woman during the 1980s. They conclude that the decline started in the urban areas and spread to rural areas largely because of the economic crises and droughts that Botswana experienced in the early 1980s. The main effects could have come through separation of partners, difficulty in meeting requirements for marriage, increasing hardships for female headed households, housing shortages in urban areas; as well as a well integrated family planning programme.

For the Eastern part of sub-Saharan Africa, Kenya is one of the countries that have seen a convincing fertility decline that started in the late 1970s. Trends in fertility have been tracked by for example Kizito et al. (1991) who found that the TFR of 8.2 children in 1977-78 had dropped to 7.7 in the 1984 Kenya Contraceptive Prevalence Survey; and to 6.7 in the 1989 Kenya DHS. Muganzi and Takona (1994), using the 1989 DHS, found that postpartum infecundability was the index with the strongest effect in reducing fertility followed by contraceptive use and then marriage. In tracking which proximate determinant contributed most to the decline in fertility, Kizito et al. (1991) and Muganzi and Takona (1994) agreed on the importance of increased contraceptive use. According to Muganzi and Takona (1994), contraceptive use increased from 7 percent in 1978 to 27 percent in 1989. Also important are changes in the proportion ever married; accounting for 26 percent of the decline. Other factors included recognition by the government of the importance of family planning and hence increased efficiency in distribution of contraceptives. Finally, declines in child mortality and a period of economic difficulties might have contributed to the decline.

In Tanzania, Mturi and Hinde (1995) have concluded that fertility in Tanzania has declined from seven children per woman in the early 1980s to about six in the early 1990s. Looking at data from the 1967 census onwards they found evidence of fertility rising from 6.9 children then to 7.2 in the 1978 census and falling again to 6.5

children in the 1988 census. The main reasons for this decline were a rise in age at first marriage for women, a decline in infant and child mortality, and a rise in percentage of population with education as well as progress in rural development. Data from the 1992 TDHS show further declines and according to Komba and Aboud (1994) the TFR in 1992 stood at 6.2 children per woman for the period 0-3 years before the survey. Analysis of the proximate determinants (Bongaarts model) shows that the effect of contraception on fertility in Tanzania is still small, with C_c = 0.89. The index of marriage was more important 0.63 (i.e. marriage was suppressing fertility by 37 percent) but the index with the highest effect was still postpartum infecundability with C_i = 0.59.

For Uganda, there is evidence that fertility has changed but only slightly. According to Kisanje and Kalule (1994) the TFR fell from 8.1 in the 8-11 years before the 1988/89 survey to 7.2 in the period 0-3 years before the survey. Further analysis showed that this decline is taking place mostly among urban women, and not so much among rural women. Using Bongaarts indices, the most important suppressant of fertility is again postpartum infecundability; the average duration of amenorrhoea being 13 months with C_i=0.63. The effect of non-marriage is lower at C_m=0.80 which is due to the low median age at first marriage among women which stands at 17.5 years. Contraceptive prevalence was only 2.5 percent resulting in a C_c value of 0.96 only. Overall all proximate determinants show a very limited effect and this explains the still high fertility in the country. The beginning of the decline is also reported by Uganda Statistics Department (1996) who find that the TFR stands at 6.9 children per woman in the 1992-94 period, which is a drop from 7.1 in the two decades before the survey.

In Zambia, the 1992 DHS shows that there is evidence that fertility started to decline in the fifteen years before the survey. According to Dzekedzeke and Nyangu (1994), the decline in Zambia has occurred among all age groups but especially among teenagers and women aged forty and over. Age specific fertility rates cumulated up to age thirty-four have dropped from 5.6 children in the period 12-15 years before the survey to 4.7 children in the four years prior to the survey.

In West Africa, there is also evidence of a transition to lower fertility. The TFR calculated from the 1990 Nigeria DHS, declined from 7.4 in the 4-7 years before the

survey to 6.2 in the 0-3 years before the survey, a decline of between 15 and 17 percent during these two periods (Makinwa-Adebusoye and Feyisetan 1994). They found that the decline was evident among women who have used contraception, as well as among those who have never used contraception. In Nigeria the most important proximate determinant is the index of postpartum infecundability (C_i=0.49) while contraception had the least effect (C_c=0.95). The index of marriage is C_m=0.75. There was however, a lot of variation in how these determinants worked. The fertility inhibiting effect of marriage was highest among women with secondary education restraining fertility by almost 22 percent while it was only 2 percent among women with no education. The index of marriage also worked in the same direction suppressing fertility by 54 percent among women with secondary education and by only 9 percent among women with no education. The effect of postpartum infecundability was however similar across the board, suppressing fertility by 46 percent among those with secondary education and by 52 percent among those with none (Makinwa-Adebusoye and Feyisetan 1994).

ii. Prospects for Future Declines in Fertility

Will fertility continue to decline in the countries that have already seen declines? Will the decline start in those countries where until now there is no evidence of a decline? There are constraints that still need to be overcome before declines are seen all over sub-Saharan Africa. If Botswana, Zimbabwe and Kenya are the forerunners of the transition, then maybe there will be need for higher education levels in other areas of sub-Saharan Africa. Child mortality needs to decline in those areas where they are still high and better economic conditions will also help. Well-managed family planning programmes, such as those seen in Zimbabwe, are necessary since women in sub-Saharan Africa continue to show a high unmet demand for contraception. It is also critical to gain further understanding of male fertility, and how men can be encouraged to limit their fertility.

6.2. DATA AND METHODOLOGY

Methodology for the analysis of fertility is one of the most developed areas in demography and so a number of methods are available for analysis of data on fertility. This section first lists some of the methods and comments on their suitability; and then presents measures that were used to analyse the data together with issues of data quality.

6.2.1 Methods in the Analysis of Fertility

i. Simple Fertility Analysis

Most of the methods for analysing fertility were designed to be used for analysing information from women and require dates of birth of the children, which might not always be available. The easiest, but not always the most useful, way to look at fertility is in terms of the mean number of children ever born to an individual. Though useful as a straightforward tool, these results do not say much regarding the timing of fertility since the dates of births are not known. The mean also tells us little about the distribution of the data and might be misleading when the data has a wide variance. The most widely used measure is the age specific fertility rate calculated as the average number of births in each age group of women. Such information is usually calculated from the number of births within a certain period (such as the five years prior to the survey) in order to obtain more recent fertility and minimise response errors. For convenience this schedule is summarised into the Total Fertility Rate (TFR), which can be regarded hypothetically as the average number of children, a woman would have if she were progressively to have the age specific fertility rates identical to those of women in the schedule.

The TFR is a period measure that is usually interpreted as a cohort measure and so care needs to be taken when using changes in the TFR to infer changes in fertility. Ideally, one would calculate cohort fertility measures since cohorts share the same social experiences and these experiences are bound to show up as cohorts move through life. When fertility changes within a cohort, these are more likely to be changes in quantum. Period changes could be misleading, as they could be changes in tempo only. In general, using the TFR to monitor changes might not always be

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sensible because it is a measure that represents 35 years of reproduction at a single point in a survey.

Other measures of fertility include Parity Progression Ratios, which formulate a list of probabilities that an individual with n births goes on to have n+1 births. The estimation of the measures still depends on accurate reporting of total births and like other measures for cohorts, one needs childbearing to have been completed. However, once childbearing is completed, there is then no relevance for policy in terms of affecting the fertility of these women. One could however use life tables to get the probabilities of moving from n to n+1 birth within a certain period. One could then get a useful measure, B_{60}, that is the proportion of women who go on to have their next birth within 60 months.

Another useful and simple framework in studying fertility differentials and trends is the proximate determinants framework (Bongaarts 1978; Bongaarts and Potter 1983). In the model the aim is to quantify the effects of the four proximate determinants that cause the largest fertility differentials. That is to quantify the effects of marriage through age at marriage, the proportion of ever married among women and the effects of post-partum infecundability (amennorhoea, breastfeeding and abstinence); as well as the effects of contraception and abortion.

ii. Fertility Models

Where data are not available, or are not accurate, several models have been developed to resolve such problems as in cases where only five year age group fertility rates are available or when information is only available in the form of reported average number of children. One of the oldest of such models is a set of model fertility schedules developed by Coale and Trussell (1974), based on an idea first presented by Henry (1961). In the absence of conscious fertility control, marital fertility follows a typical age pattern of increasing departure from natural fertility and a schedule can be found by multiplying two model sub-schedules. First, a schedule of proportions ever married at each age a given by G(a), and second a schedule of proportions of married women aged a experiencing a birth given by r(a); age specific fertility is then given by f(a)= G(a). r(a). Page's (1977) model is a follow up to the Coale and Trussell model; created using data on levels and trends in

fertility from Sweden. Where the Coale and Trussell model only controls for age, the Page model controls for both age and duration since first marriage.

The only model of male fertility is that developed by Paget and Timaeus (1994). This is a relational Gompertz model of male fertility, along the lines of Brass's relational Gompertz model. Paget and Timaeus' model was developed for the purpose of estimating the time location of adult mortality from paternal orphanhood data. The model capitalised on the observation that fertility schedules of both men and women are very similar in shape (unimodal and skewed to the right) but the two have different age ranges over which men and women have children. "Women's reproductive age spans range from about 10-50 years. On the other hand, as long as biological changes are not misinterpreted and do not result in anxiety, men may be sexually competent into their seventies and eighties with regular sexual activity and reasonable good health." (Paget and Timaeus 1994 p. 335). Several male fertility standards were obtained by 'stretching' the female standard and the best was obtained by testing against a number of observed fertility schedules (4 polygamous, 8 from high fertility populations and 5 from medium fertility populations). It was found that the model produced a good fit for a number of different populations. The framework could be used effectively to assess the quality of data on male fertility rates and for smoothing irregular data; as well as in its original use of utilising paternal orphanhood data to estimate adult mortality.

iii. Multivariate Analysis of Fertility

Methods for multivariate analysis of fertility range in appropriateness. It is for example, possible to model children ever born in an ordinary linear regression but this is not appropriate or useful. When using a linear regression model, one makes the assumption of a constant variance and that the data are normally distributed. However, it is the case that, data on cumulative fertility are not normally distributed. Since it is distributed as counts of births, modelling the experience in a linear regression model is likely to introduce complex interactions between age patterns of fecundity and marriage duration. It is of course possible to do analysis through stratifying by age or duration of marriage and hence limiting the sample to women

of certain cohorts, but then sample size considerations might outweigh the benefits of this option.

Given the inappropriateness of linear regression models, several analysts have looked for better ways to analyse counts of births data in a multivariate framework. Boulier and Rozensweig (1978) searched for a way of analysing cumulated marital fertility using regression, but without resorting to stratification to control for biological mechanisms. They show that relations between age, duration of marriage and children ever born are highly non-linear meaning that large biases are introduced in the modelling of children ever born and socio-economic characteristics unless one stratifies by age. They also demonstrated how linear regressions even with polynomials still mis-specified the models, and so developed two alternatives, both relying on the use of a natural fertility schedule. The first was to standardise duration of marriage by an age-specific natural fertility schedule that adjusts the cumulative fertility for the age-fecundity relationship. They suggest creating a ratio of the number of children ever born by the number of children a woman would have had if she had reproduced according to the natural fertility schedule (from marriage to the date of the interview). They used the cumulated single-year natural fertility schedule (Coale and Trussell 1974). Duration ratio can be summarised as follows:

$$DRAT(a) = \frac{C(a)}{\int_{m}^{a} n(\chi)dx}$$

The duration Ratio (DRAT) then becomes the dependent variable in a linear regression with covariates of interest. The second method involves creating DIFF, defined as the difference between the number of children a woman would have if she reproduced according to the natural fertility schedule and the actual number of children she has. DIFF is then used the dependent variable with covariates of interest. Boulier and Rozensweig (1978) did not find DIFF as useful as DRAT, when DRAT was used in place of the count of children ever born.

Rodriguez and Cleland (1988) also dealt with the problem of introducing proper demographic controls when modelling marital fertility. With the aim of obtaining maximum likelihood estimates of the parameters and the likelihood ratio goodness of fit statistics, they developed and extended Page (1977)'s model. They also examined how parameters of the model could be interpreted in terms of level of

natural fertility and degree of control of marital fertility. There are several studies where this model has been used. Rodriguez and Aravena (1991) use WFS data from 38 countries to look at the effect of parental education on marital fertility in developing countries. The model treated the number of births in the five years before the interview, or in the period between first marriage and the interview (whichever was shorter) as a Poisson procedure i.e. with the expected value equal to the product of exposure and a theoretical fertility rate which is determined by age, duration since union and a set of socio-economic characteristics. They used two demographic controls, age and duration since first marriage, and modelled the joint effect on marital fertility by adopting the model by Page mentioned above.

6.2.2 Methods Used in the Analyses

Given the constraints on the type of data from male questionnaires, most of the methods presented above are not suitable for analysis of male fertility and so the following were used. It was not possible, for example to calculate measures such as the TFR since no dates of birth of children were available.

i. Mean Number of Children Ever Born

The first tool of analysis that was used is the average number of children ever born, and within age groups this measure was used to look at demographic and socio-economic differentials.

ii. Multivariate Analysis

Next, several multivariate regression models were used to see which characteristics remained statistically important when several characteristics are controlled for. The first method used was similar to the methods recommended by Boulier and Rozensweig (1978) as presented above. Since dates of births of the children born to men are not available, a national average of children ever born schedule was created such that for every age, what was the national average number of children at that age was obtained. Then variables similar to Boulier and Rozensweig 's (1978) Duration Ratio and Duration Difference were created. The variable *ratio* was defined for each man as the ratio of the number of children he has ever had to the national average at that age. This became the dependent variable in a regression model with various

socio-economic characteristics as independent variables. Where *ratio* = children ever born/ national average, the regression equation took this form:

ratio = α +β_1 (res) +β_2 (rel) +β_3 (educ) +β_4 (zone) +β_5 (occup) +β_6 (age)

The variable *deviation* was defined for each man as the difference between the number of children he ever had and the national average obtained as above. These were then used as dependent variables in multivariate regression models with a number of socio-economic variables, as independent variables. Where *deviation* = children ever born - national average, the regression equation took this form:

deviation = α +β_1 (res) +β_2 (rel) +β_3 (educ) +β_4 (zone) +β_5 (occup) +β_6 (age)

Given that the data at hand was in the form of counts, another set of models, similar to those used by Rodriguez and Cleland (1988) or Mencarini (1999) were used. The count of births are assumed to follow a Poisson process with duration of marriage as the offset i.e. counts of birth were the dependent variables, socio-economic characteristics as independent variables and the duration of marriage as an exposure or offset. The survey Poisson option in STATA as described in Chapter Five was used.

Lastly, to know more about fertility of men, the data on partners linked to some of the men was used. As described in Chapter Two and as seen in Chapter Four, it is possible to link some of the men to their wives and so have information from couples for analysis. For the 1996 TDHS, 1088 couples were successfully matched and 703 couples were matched in the 1994 ZDHS.

6.2.3 Methodological Issues and Constraints

i. Data Quality

Data quality was partly evaluated by looking at the reported number of children ever born and then making comparisons with reports in other countries. Keeping in mind that these surveys had different upper age limits, Table 6.1 at the end of this section shows that the reporting by men in Tanzania and in Zimbabwe is not very different from that of men in a number of countries in different parts of Africa. The proportion of married men with no children is very similar, apart from Burundi, which has almost a quarter of married men who are still childless.

There were some men who seemed to have an unusually large number of children but this is just as likely to be correct since a man with eight wives can easily father 50 children. There are, however, very few men in Tanzania 1992 who report having more than fifteen children, the maximum number reported was 50 and this was very unusual. The maximum in 1996 was 26 children and such large number of children in Zimbabwe is even more rare.

In the reporting of children ever born, it would be expected that the number of children is higher among older than younger men, that is unless fertility is rising. Given that some respondents are more likely to be classified as belonging to popular ages than others, it was expected that at such ages the mean number of children will be higher than at subsequent ages. Figure 6.1 shows that especially in the older age groups, there are some age groups that have a higher mean number of children ever born than the following ages. Figure 6.2 shows that these irregularities disappear when the number of children ever born is grouped into five-year age groups.

ii. Choice of Variables

The choice of variables is based on the literature about important factors that affect fertility. Demographic variables that were used are age, age at marriage, type of union (whether monogamous or polygamous) and another type of union (consensual or formal) for Tanzania; as well as duration since first marriage and age at first sexual relations. As described in more detail in Chapter Two, socio-economic characteristics that were assessed for differentials were current place of residence, childhood place of residence, religion, education, zone of residence and occupation.

iii. Methodological Constraints

The main methodological constraint was a direct result of inadequate questionnaire design of fertility questions for men. The first shortcoming was that dates of births of the children born to men were not available; data were in the form of counts of births only. The second shortcoming relates to what was seen in previous chapters, that is, information was available only from one partner irrespective of how many times the men had been married or how many partners they currently had. Only one partner (for men with more than one partner) was interviewed and this was the partner

currently in residence. This means that even when some men can be linked to their partners and birth histories could therefore be used, this was possible for only one partner. There is no way of establishing or distinguishing whether the children reported by the women belong to the man the woman is currently living with, or are from other unions.

While there are numerous comparative studies looking at determinants of women's fertility, another constraint for this chapter is that studies on sub-Saharan male fertility using reports from men themselves are rare. There was therefore very limited scope for comparing findings from similar studies.

Another constraint is that male fertility in sub-Saharan fertility is very complicated and under-researched. Ideally, one would need a complete marriage history and all children's dates of birth or information from all wives. Given that men are likely to have more than one relationship, it is desirable that more information concerning such relationships is collected. This might ultimately involve getting this information from men themselves, given that some of the women might have died or moved away following a divorce. As will be seen later, it was very common to find the number of children ever born to differ within couples either due to polygamy or (among current monogamous couples) due to past unions. Given such data and methodological constraints, it is only possible to do further work if one restricts analysis to those couples who met a number of conditions. Conditions could be that both partners agree that the union they are in is monogamous, that the wife has been married only once and both the husband and the wife report an equal number of children ever born. This might ultimately leaves only a few cases with which to work, which might render the exercise unfruitful.

The questionnaire design therefore makes it very hard to address under or over-reporting of children ever born to men. If information from all partners/wives were interviewed it would have been possible to add up their children and check whether it agreed with the children ever born reported by the man. Failing that, one could ask the question about children ever born in the household questionnaire, that way one could crosscheck whether the reporting in the household population is similar to that in the individual questionnaires.

Table 6.1: Distribution of Married Men by the Number of Children Ever Born.

	Number of Children					
	0	1-2	3-4	5-9	10+	Mean
Tanzania 1992	7.90	22.55	20.71	34.66	14.19	5.2
Tanzania 1996	8.33	24.93	22.05	32.83	11.85	4.8
Zimbabwe 1994	8.64	31.43	23.95	29.92	6.06	4.0
	0	1-2	3-4	5+	-	Mean
Kenya 1993*	5.7	23.9	24.0	46.3		4.7
Malawi*	8.7	31.9	26.6	32.8		3.7
Rwanda*	5.3	26.6	25.2	42.8		4.6
Burundi*	26.3	21.8	24.5	27.4		3.1
Ghana 1993*	8.1	30.0	29.4	32.4		3.8
Cameroon*	6.4	24.1	22.6	46.8		5.1
Mali*	6.1	24.0	19.9	50.0		5.2
Niger*	10.6	27.5	25.1	36.9		4.1
Senegal*	6.4	20.8	19.4	53.1		5.6

* source: (Ezeh et al. 1996)

Fig 6.1: Mean Number of Children Ever Born
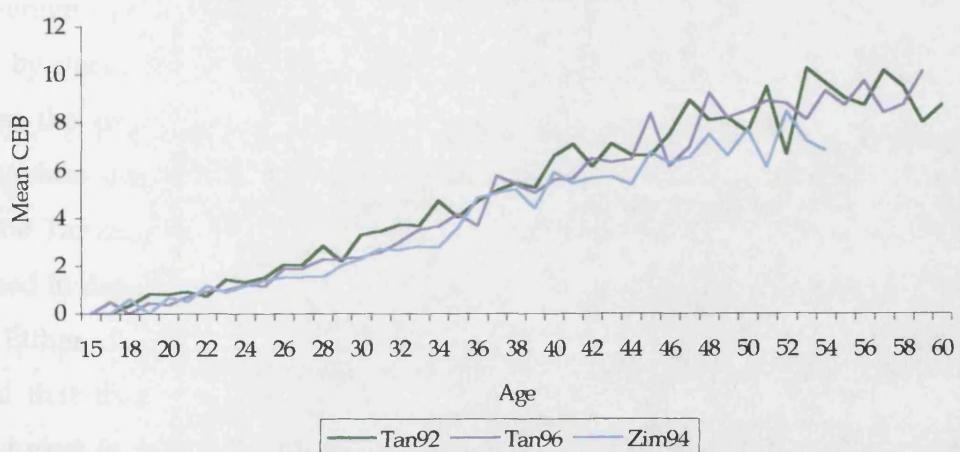
Fig 6.2: Mean Number of Children Ever Born by Age Groups

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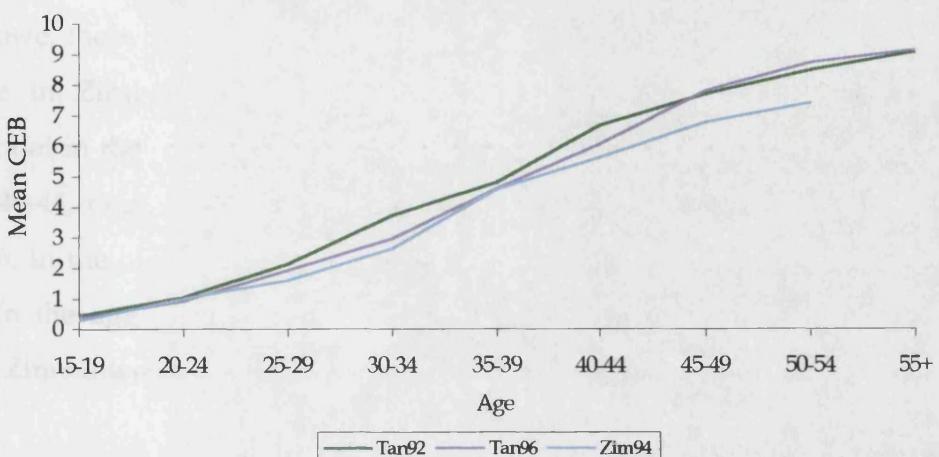
6.3. RESULTS

This section presents results on the average number of children ever born to married men. Differentials in these averages by demographic characteristics are presented in Figures 6.3 to 6.6 for Tanzania in 1996 and Figures 6.7 to 6.10 for Zimbabwe 1994. Table 6.2 presents the differentials among ever-married men in the average number of children ever born by socio-economic characteristics. These are followed by results from multivariate analysis for the determinants of male fertility. Since several methods were attempted and similar conclusions drawn, only the results from Poisson models are described. Results on fertility issues raised by looking at couples' reporting of children ever born are also included.

6.3.1 Mean Number of Children Ever Born to Men

The average number of children per married man in Tanzania is about five, but it differs by various demographic and socio-economic characteristics. The difference between the results of 1992 and those of 1996 is negligible and these similarities persist when one looks at differentials by characteristics within the two surveys. Since the Tanzania 1992 and 1996 results are very similar, only the 1996 results are discussed in detail.

Either due to reluctance to admit existence or lack of knowledge, results showed that there is hardly any fathering of children before marriage or among married men in the younger age groups. As Figure 6.2 above showed the average number of children increases as men get older. However, the average remains very low until after age 25-29 when the average is only 1.9. Even in the age group 30-34 the average is still 3 children per man. Comparing the Tanzania results with Zimbabwe, there is an indication that the average is higher in Tanzania. The overall average in Zimbabwe is four children per married man. There is very little differential in the ages up to 35-39; after which the patterns start to deviate. At age group 40-44, men in Zimbabwe have an average of 5.4 children while in Tanzania this is 6. In the older age groups following, the differences are even more than one child. In the age group 50-54 Tanzanian men have 8.7 children compared to 7.4 among Zimbabwean men.

i. Differentials by Demographic Characteristics

Figures 6.3 to 6.10 show the differentials in the average number of children by age at first marriage, marriage duration, age at first sex; and type of union i.e. whether monogamous or polygamous. As expected for both Tanzania and Zimbabwe those who marry earliest had a higher average number of children. Looking at the oldest age group in Tanzania those who married after age thirty had an average of 7.7 children compared to 12 children for men of the same age but who married before age twenty. Similarly, those who had the longest duration of marriage also had the highest average in both countries. These are the men who have been exposed for longest to the risk of childbearing.

In both countries men in monogamous unions had consistently lower fertility at all ages compared to men in polygamous unions. By age 40-49 polygamous men in Tanzania had an average of 10 children, which rises to 13 children in the 50-59 age group. Similarly in Zimbabwe, men aged 40-49 had 9 children increasing to approximately 11 children in the 50-54 age group. It would have been interesting to see how this average would rise for men much older than the truncation age in these surveys. For Tanzania, it is also possible to look at the average number of children by the status of union (i.e. formal or consensual). As pointed out in Chapter Three there is a big difference in the reporting of this variable in the two Tanzania surveys and this showed up in this section as well. According to the 1992 TDHS, there was no difference at all between the average number of children ever born in the two groups. However, in 1996 there is a clear indication that men in formalised unions at all ages had higher fertility compared to men in consensual unions, and this is as expected.

For both countries age at first sex does not form a clear differential in the mean number of children, as did other demographic characteristics. In Tanzania, those who reported first sex before age thirteen have a higher average after age 40-49 compared, for example, to those who had first sex after age twenty. For Zimbabwe, the picture is reversed, as after age 30-39 those who had sex before age 13 had a considerably lower average compared to the other groups.

Figures 6.3 - 6.6: Mean Number of Children Ever Born by Demographic Characteristics, TDHS 1996.

Fig 6.3: Mean CEB by Age at Marriage, TDHS 1996

Fig 6.4: Mean CEB by Marriage Duration, TDHS 1996

Fig 6.5: Mean CEB by Union Type, TDHS 1996

Fig 6.6: Mean CEB by Age at First Sex, TDHS 1996
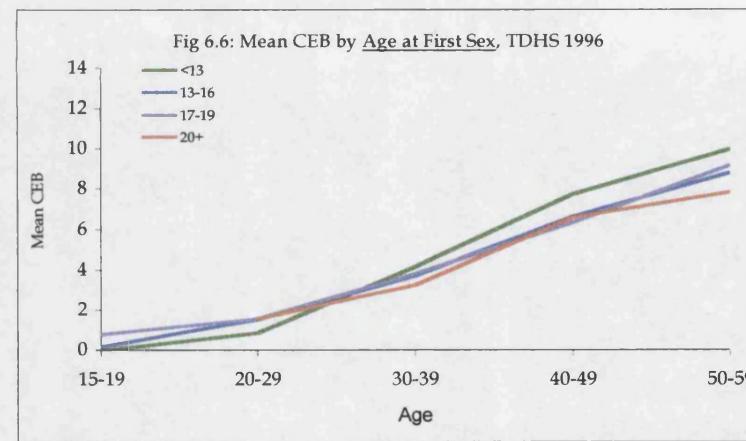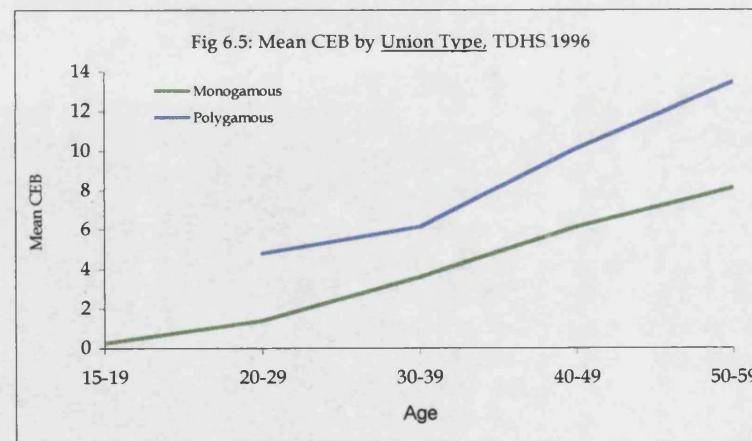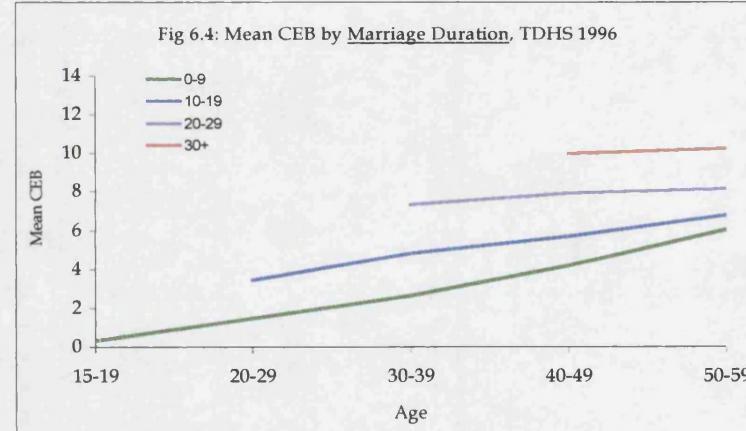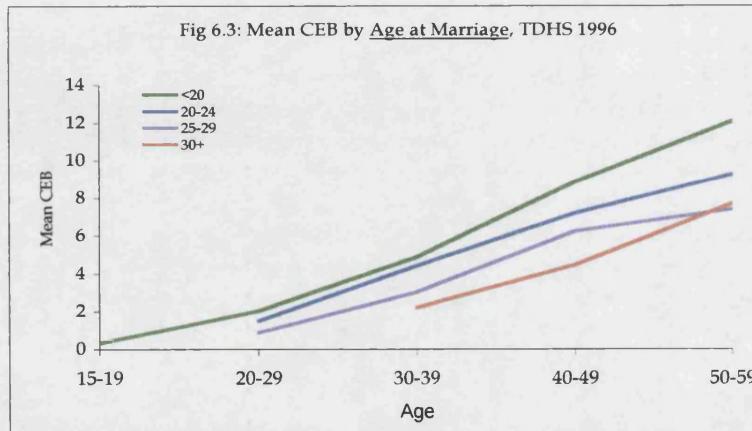
Figures 6.7- 6.10: Mean Number of Children Ever Born by Demographic Characteristics, ZDHS 1994.

Fig 6.7: Mean CEB by Age at Marriage, ZDHS 1994

Fig 6.8: Mean CEB by Marriage Duration, ZDHS 1994

Fig 6.9: Mean CEB by Union Type, ZDHS 1994

Fig 6.10: Mean CEB by Age at First Sex, ZDHS 1994
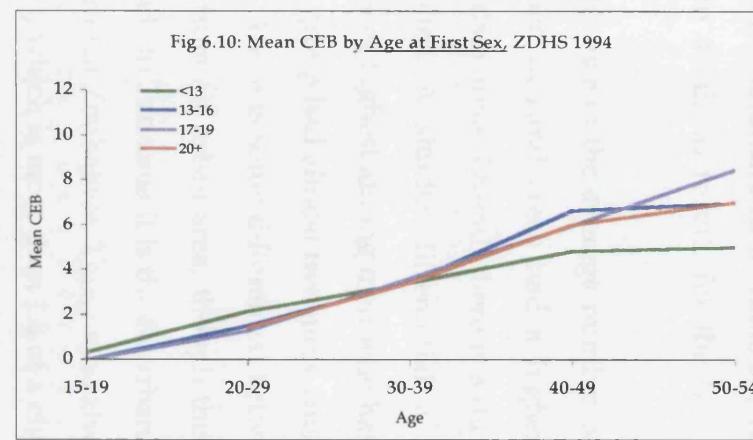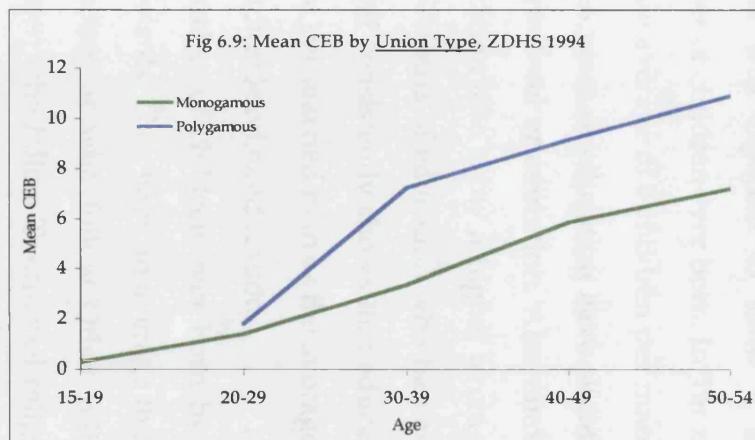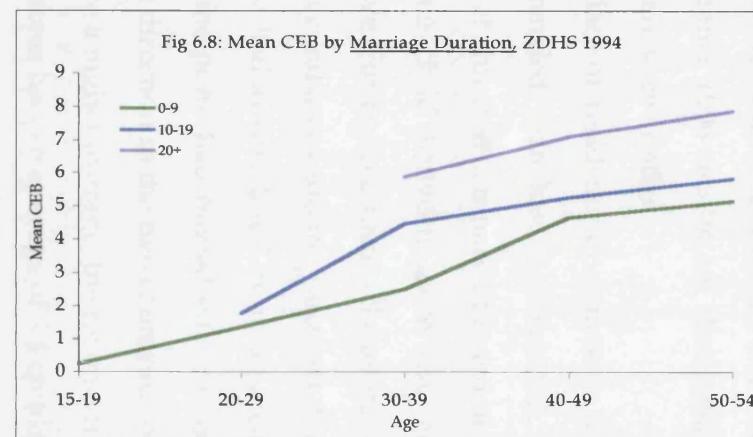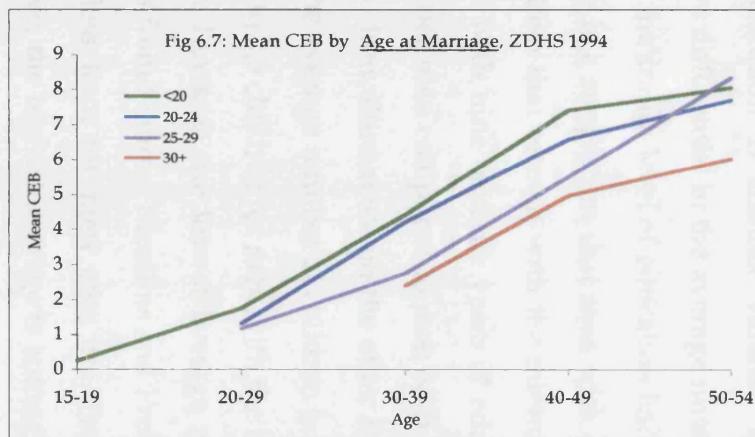
ii. Differentials by Socio-economic Characteristics

The next set of results show the differentials in the average number of children ever born by socio-economic characteristics, and are summarised in Table 6.2. Again only the Tanzania 1996 results are discussed in detail, as results for the two Tanzania surveys are very similar.

Place of residence does make a difference in the average number of children that a married man has. As expected, men in rural areas had a higher average number of children compared to men in urban areas. Overall there is a difference of about one child between these two groups. A similar differential is found in Zimbabwe. For both countries the average was highest among men who have always stayed in rural areas and for Tanzania, this group had almost two more children than men who had always lived in urban areas. There is some differential between those who at one point had moved either to or from an urban area, though this shows a different direction in the two countries. While in Tanzania it is the ex-urban residents who have a higher average, the reverse is true in Zimbabwe. Those who always lived in rural areas had an average of 4.4 children, which is more than 1.5 of a child higher than for those who were always in urban areas.

Education is another variable that was expected to show a large and consistent differential in the average number of children ever born. In Tanzania men with the minimum level of education had an average of 6 children per married man, but there is a suggestion that men with 4-6 years of education have slightly higher fertility than that of men with the minimum level of education. Also unexpected is that men with nine or more years of education also show a higher average at four children per man compared to men with 7-8 years of education who had an average of 3.5 children. Zimbabwe on the other hand consistently shows that education does reduce the average number of children born per married man as the average declines from 5.5 to 2.5 children for men with the highest level of education.

In Tanzania the lowest average number of children ever born by religious groups is found among Muslims and Protestants. They have an average that is about a child less than for men who are Catholics or who follow Other religions. In Zimbabwe, the highest average is among men who follow Traditional religions with

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all the other religious groups having a similar average of 3.8 children. This shows that differentials in Zimbabwe are generally smaller than in Tanzania.

Looking at zones, the highest averages in Tanzania are found in Zanzibar where men have an average of almost six children. As expected the lowest averages are found in the Coastal zone, home to the capital and the most urbanised area in Tanzania, and in the North, an area with a high proportion of educated men and women, and economically more advanced than many other regions. Given that the Southern zone was found to have early marriage and an early age at first sexual relations; and that in Chapter Four it was found to have fairly high prevalence of polygamy (20 percent among men aged 40+) then the low average in Southern zone is unusual. The largest difference is between the Coastal zone and Zanzibar; a difference of almost two children per married man. This high average in Zanzibar is probably because in 1996, a quarter of the married men in Zanzibar were polygamous, compared to only 10 percent in the Coastal and Northern zones. In Zimbabwe the largest differential is between Harare (the capital city and the most urbanised) and Masvingo, which has an average of 4.8 children. It was already seen in chapter four that Harare and Bulawayo (the second urban centre) had the lowest prevalence of polygamy (about 5 percent).

The above results indicate that with a crude measure like children ever born, it is possible to identify some demographic as well as socio-economic characteristics that can make a difference in the number of children men have. The next step was to use a multivariate model to see which of the differentials remain when studied in a multivariate framework.

Table 6.2: Differentials in the Mean Number of Children Ever Born to Ever Married Men.

Tanzania 1992

Characteristics	15-24	n	25-39	n	40-60	n	Total
All men	1.0	(137)	3.6	(589)	7.9	(560)	5.2
Residence							
Urban	0.8	(23)	2.7	(118)	7.0	(103)	4.3
Rural	1.0	(114)	3.8	(471)	8.0	(457)	5.3
Childhood Residence							
Town	0.6	(14)	2.8	(73)	6.3	(51)	3.8
Country	1.0	(123)	3.7	(514)	8.0	(507)	5.3
Current-past Residence							
Always Urban	0.3	(9)	2.5	(34)	5.5	(24)	3.3
Ex-Rural	1.1	(14)	2.7	(83)	7.5	(78)	4.7
Ex-Urban	1.0	(5)	3.0	(39)	7.0	(27)	4.4
Always Rural	1.0	(109)	3.8	(431)	8.1	(429)	5.4
Religion							
Muslim	0.7	(41)	3.2	(202)	7.3	(200)	4.8
Catholic	1.1	(45)	3.6	(184)	8.4	(149)	5.2
Protestant	1.1	(18)	3.6	(128)	8.1	(109)	5.3
Other	1.1	(33)	4.3	(75)	7.9	(102)	5.5
Education							
0-3 years	1.1	(25)	4.4	(135)	8.0	(267)	6.5
4-6 years	0.8	(21)	4.1	(96)	7.8	(175)	6.1
7-8 years	1.0	(89)	3.1	(296)	7.3	(84)	3.5
9+ years	0.0	(2)	2.9	(62)	8.2	(34)	4.7
Occupation							
Agricultural	1.1	(113)	3.8	(430)	8.0	(440)	5.4
Non-agricultural	0.5	(24)	2.9	(159)	7.3	(120)	4.5
Zones							
Northern	1.0	(3)	3.7	(46)	6.7	(45)	5.1
Coastal	1.0	(18)	2.8	(109)	7.1	(104)	4.6
Southern	0.5	(23)	3.2	(83)	6.7	(77)	4.3
S. Highlands	0.9	(24)	3.9	(117)	9.1	(112)	6.0
Central	1.1	(29)	3.8	(121)	8.0	(98)	5.1
Lake	1.2	(36)	4.0	(90)	8.9	(87)	5.5
Zanzibar	0.5	(4)	3.0	(23)	7.2	(37)	5.3

Tanzania 1996

Characteristics	15-24	n	25-39	n	40-59	n	Total
All men	0.8	(119)	3.2	(701)	7.6	(572)	4.8
Residence							
Urban	0.8	(24)	2.5	(183)	6.2	(135)	3.8
Rural	0.8	(95)	3.5	(518)	8.0	(437)	5.1
Childhood Residence							
Town	0.6	(18)	2.8	(123)	6.8	(78)	4.0
Country	0.9	(101)	3.3	(576)	7.7	(491)	4.9
Current-past Residence							
Always Urban	0.8	(13)	2.3	(72)	6.4	(36)	3.4
Ex-Rural	0.9	(11)	2.6	(110)	6.1	(97)	4.0
Ex-Urban	0.2	(5)	3.5	(51)	7.2	(42)	4.9
Always Rural	0.9	(90)	3.5	(466)	8.1	(394)	5.1
Religion							
Muslim	0.8	(48)	2.8	(264)	7.3	(204)	4.4
Catholic	0.8	(30)	3.4	(215)	8.0	(190)	5.2
Protestant	1.0	(26)	3.2	(157)	7.3	(105)	4.5
Other	0.7	(15)	4.2	(65)	7.7	(73)	5.5
Education							
0-3 years	0.8	(23)	3.4	(113)	8.3	(199)	6.1
4-6 years	0.6	(13)	4.0	(54)	7.9	(185)	6.7
7-8 years	0.9	(75)	3.1	(464)	6.7	(126)	3.5
9+ years	0.8	(8)	3.0	(70)	5.8	(62)	4.1
Occupation							
Agricultural	0.8	(82)	3.4	(483)	8.0	(427)	5.2
Non-agricultural	0.9	(37)	2.7	(216)	6.4	(143)	3.9
Zones							
Northern	0.7	(6)	2.9	(79)	6.7	(80)	4.7
Coastal	0.9	(26)	2.6	(193)	6.7	(128)	4.0
Southern	0.7	(24)	3.1	(96)	7.2	(79)	4.4
S. Highlands	0.8	(23)	3.5	(125)	9.0	(85)	5.2
Central	1.0	(21)	3.5	(118)	8.0	(123)	5.4
Lake	1.1	(14)	3.8	(65)	8.2	(46)	5.1
Zanzibar	0.2	(5)	4.6	(25)	7.7	(31)	5.8

Zimbabwe 1994

Characteristics	15-24	n	25-39	n	40-54	n	Total
All men	0.9	(111)	2.9	(602)	6.4	(410)	4.0
Residence							
Urban	1.1	(38)	2.8	(230)	5.2	(140)	3.4
Rural	0.9	(73)	3.0	(372)	7.0	(270)	4.3
Childhood Residence							
Town	1.1	(28)	2.5	(129)	4.9	(63)	3.0
Country	0.9	(83)	3.0	(473)	6.7	(347)	4.2
Current-past Residence							
Always Urban	1.4	(14)	2.6	(80)	4.3	(42)	3.0
Ex-Rural	0.9	(24)	3.0	(150)	5.6	(98)	3.7
Ex-Urban	0.9	(14)	2.4	(49)	5.9	(21)	3.0
Always Rural	0.9	(59)	3.1	(323)	7.1	(249)	4.5
Religion							
Traditional	0.9	(22)	3.3	(110)	7.0	(85)	4.5
Spiritual	0.8	(34)	2.8	(151)	7.5	(74)	3.9
Christian	1.1	(43)	2.8	(287)	5.9	(216)	3.9
Other	0.8	(12)	3.1	(54)	5.9	(35)	3.8
Education							
0-3 years	1.3	(6)	3.7	(72)	6.9	(113)	5.5
4-6 years	0.8	(16)	3.7	(105)	7.1	(105)	5.1
7-8 years	0.8	(23)	3.2	(142)	6.1	(121)	4.3
9+ years	0.9	(65)	2.3	(280)	5.2	(67)	2.6
Occupation							
Agricultural	1.0	(35)	3.2	(149)	7.5	(137)	4.8
Non agricultural	0.9	(76)	2.8	(453)	5.9	(273)	3.7
Zones							
Manicaland	1.2	(9)	2.7	(43)	6.7	(36)	4.2
Mashonaland	0.8	(53)	2.7	(188)	6.7	(129)	3.8
Matabeleland	0.8	(11)	3.5	(90)	6.1	(75)	4.5
Midlands	1.0	(5)	2.6	(75)	8.1	(37)	4.3
Masvingo	0.8	(6)	3.8	(49)	7.2	(33)	4.9
Harare	0.8	(17)	2.7	(73)	5.5	(47)	3.4
Bulawayo	1.8	(10)	3.0	(84)	5.2	(53)	3.7

6.3.2 Determinants of Number of Children Born to Men: Multivariate Analysis

Different multivariate methods were used to see which were the important determinants of male fertility when more than one variable was controlled for. Multivariate methods led to same conclusion that after controlling for type of unions and duration of marriage, the number of children ever born did not vary significantly for all the socio-economic variables. Where there are differentials these were very small.

i. Boulier and Rozensweig's Method: Deviations and Ratios from National Pattern

The first set of models used are similar to those of Boulier and Rozensweig (1978) and Mencarini (1999), these have been described in detail in Chapter Five above. Men living in urban areas, those following modern religions, those with comparatively more education, those living in urbanised or more economically developed zones and those who married later were all expected to show a significant departure from the national pattern. The results obtained showed how the ratios to the national pattern of fertility differed according to various characteristics.

Where instead of ratio, deviation was used, or where models used ratios and deviations from schedules obtained by controlling the national average for both age and duration of marriage at different ages), very similar results were obtained. The results still showed that the cumulated fertility of men in all the surveys did not differ by much according to socio-economic characteristics. Further analyses involved looking at young men separately from older men, i.e. those aged 40 and over, and then those aged 39 and under; anticipating that differentials might be more apparent among younger men than among older men. Another method was to look at men in polygamous unions separately from monogamous men. None of these analyses changed the overall conclusions that were reached previously that fertility differentials are minimal. In addition using robust regression did not help in drawing out the importance of socio-economic variables. Similar conclusions are reached when Poisson models were used and these are presented next.

ii. Results from Poisson Models

Results for this section are summarised in Table 6.3. This analysis took the number of births as counts that follow a Poisson process with duration of marriage as the exposure

period. Results are presented in incidence rate ratios, i.e. the rate of childbearing in a category relative to that in the reference category. From Table 6.3 it can be seen that results for Tanzania 1992 and 1996 are again very similar and so only those of 1996 and those of Zimbabwe are discussed. In general, the variables in the models do not explain much of the variance in the number of children ever born to men. The pattern and direction of the risks is very similar in Tanzania and in Zimbabwe; and in general shows that there is some evidence of statistically significant socio-economic effects on male fertility.

In Tanzania, current place of residence makes only a slight difference in the rate of childbearing for men. Not only is the effect of urban residence small, it is also similar in size in the two countries. With men in rural areas as the reference group in both countries, those in urban areas in TDHS 1996 had about a six percent lower incidence of childbearing (however, this was statistically insignificant). In Zimbabwe, Other-urban areas have odds that are 10 percent less than the rural areas which made the reference category. For men in Harare and Bulawayo, the IRR is slightly higher than for the reference group though statistically significant. It was unexpected that a characteristic that is often found to be a very important factor in affecting female fertility does not seem to be important for men.

As expected the type of union was important in affecting the rate of childbearing in both countries and it would have been very unusual to get a result any different from this. Compared to men in monogamous unions those in polygamous unions in Tanzania had about a 33 percent higher fertility. This was also the case in Zimbabwe, where compared to monogamous men, the IRR for polygamous men was 1.44***.

Looking at zones of residence there is an indication that childbearing in most zones is homogenous relative to the Coastal zone, which was the reference category for Tanzania. In 1996, all the relative risks are very close to one; only two zones show evidence of a differential. As seen in the section on the mean number of children ever born, the Southern zone had approximately a 10 percent lower rate than in the Coastal zone. The Lake zone on the other hand showed a rate 15 percent higher than the Coastal zone. In Zimbabwe Mashonaland was the reference group, there are however no zones that show evidence of a significant differential from the reference category. Zones have relative risks very close to the reference group and are all statistically insignificant.

In Tanzania, the results suggest that with more education the rate of childbearing increase, though in 1996, only for those men with nine or more years of education is

there significant evidence of a differential. The IRR for men in this group is 1.15* i.e. 15 percent higher than men with the lowest level of education who were the reference group. In 1992, both those who have 7-8 years and those with 9 or more years of education had higher fertility than the reference group. In Zimbabwe, there is no such evidence of the effect of education. All the rates are lower than the reference group (0-3 years of education) but they are statistically not important with p values > 0.1.

Religion is also not at all important a characteristic in Tanzania, although it is more relevant for Zimbabwe. For Tanzania, Muslims formed the reference category and all the other religious groups had rates very close to this group. In Zimbabwe, the rates are lower and very similar for all the groups relative to Spiritualists who formed the reference category. For Traditionalists and Christians, there is evidence of a differential where the incidence rate ratio for these two groups are about 13 percent lower.

Using the age group 30-39 as the reference category, (and having included duration of marriage as an offset), men aged 20-29 in TDHS 1992 and in Zimbabwe had marginally higher incidence rate ratios. For ages above the reference group, in all surveys, men had incidence rate ratios that were lower compared to the reference group.

It can be seen, therefore, that even when using this method the conclusions are similar to those reached using the other methods, i.e. the magnitude of differentials were not very large and where significant the incidence rate ratios are still relatively close to one. For the most part those differentials that are statistically important are for risks of about 50 percent higher or lower than the reference category.

The variable 'child dead' was also included in the model to see whether experience of child death was associated with higher fertility. It has been found among women that higher fertility is associated with higher child mortality because of mothers trying to replace dead children or a child death being followed by a birth soon after due to shortening of breastfeeding. For all the surveys in this analysis it was found that men who had experienced child death had a higher fertility. In all the three surveys, men who had experienced child death formed the reference category. The results show that fertility is between 20 and 26 percent lower for those men who have not experienced child death, showing that the effect is the same as that usually seen among women.

Table 6.3: Determinants of Fertility: Incidence Rate Ratios and 95 Percent Confidence Intervals.

Characteristics	%	IRR	[95% CI]	Characteristics	%	IRR	[95% CI]	Characteristics	%	IRR	[95% CI]
Tanzania 1992				**Tanzania 1996**				**Zimbabwe 1994**			
Residence				**Residence**				**Residence**			
Urban	18.63	0.90	[0.79 1.03]	Urban	24.02	0.94	[0.84 1.05]	Harare & Bulawayo	25.10	1.05	[0.93 1.20]
Rural (ref.)	81.37	1.00		Rural (ref.)	75.98	1.00		Other Urban	11.07	0.89	[0.78 1.00]
								Rural	63.84	1.00	
Religion				**Religion**				**Religion**			
Muslim (ref.)	34.32	1.00		Muslim (ref.)	36.71	1.00		Spiritual (ref.)	22.04	1.00	
Catholic	29.46	1.02	[0.94 1.12]	Catholic	31.65	1.07	[0.93 1.18]	Traditional	19.47	0.83 ***	[0.753 0.92]
Protestant	19.90	0.97	[0.87 1.07]	Protestant	20.39	1.01	[0.92 1.12]	Christian	48.95	0.88 *	[0.801 0.97]
Other	16.32	0.92	[0.81 1.05]	Other	11.25	0.99	[0.88 1.12]	Other	9.54	0.93	[0.824 1.05]
Type of Union				**Type of Union**				**Type of Union**			
Polygamous	83.29	1.31 ***	[1.20 1.43]	Polygamous	14.55	1.33 ***	[1.23 1.43]	Polygamous	8.94	1.44 ***	[1.294 1.61]
Monogamous (ref.)	16.71	1.00		Monogamous (ref.)	85.55	1.00		Monogamous (ref.)	91.06	1.00	
Education				**Education**				**Education**			
0-3 years (ref.)	25.08	1.00		0-3 years (ref.)	24.40	1.00		0-3 years (ref.)	18.08	1.00	
4-6 years	31.45	1.03	[0.93 1.14]	4-6 years	18.43	1.02	[0.94 1.11]	4-6 years	20.87	0.98	[0.868 1.10]
7-8 years	35.83	1.13 **	[1.01 1.26]	7-8 years	47.28	1.01	[0.93 1.10]	7-8 years	25.96	0.96	[0.870 1.07]
9 + years	7.64	1.27 **	[1.01 1.61]	9 + years	9.89	1.15 *	[0.99 1.33]	9 + years	35.10	1.04	[0.910 1.19]
Child Died				**Child Died**				**Child Died**			
Yes (ref.)	51.11	1.00		Yes (ref.)	47.66	1.00		Yes (ref.)	28.15	1.00	
No	48.89	0.74 ***	[0.69 0.79]	No	52.34	0.80 ***	[0.75 0.85]	No	71.85	0.78 ***	[0.717 0.85]
Occupation				**Occupation**				**Occupation**			
Non agricultural	23.49	1.04	[0.92 1.17]	Non agricultural	27.80	0.95	[0.87 1.05]	Non agricultural	71.18	0.95	[0.867 1.04]
Agricultural (ref.)	76.51	1.00		Agricultural (ref.)	72.20	1.00		Agricultural (ref.)	28.82	1.00	
Zones				**Zones**				**Zones**			
Northern	7.48	1.19 **	[1.040 1.36]	Northern	11.86	1.10	[0.97 1.24]	Manicaland	10.19	0.95	[0.85 1.08]
Coastal (ref.)	17.75	1.00		Coastal (ref.)	24.47	1.00		Mashonaland (ref.)	43.18	1.00	1.25
Southern	14.25	0.85 **	[0.75 0.96]	Southern	14.12	0.89 *	[0.75 1.01]	Matabeleland	21.40	1.11	[0.98 1.16]
S. Highlands	19.75	1.20 **	[1.06 1.36]	S. Highlands	16.47	1.04	[0.93 1.16]	Midlands	14.39	1.04	[0.93 1.10]
Central	19.19	1.09 *	[0.99 1.21]	Central	19.49	1.02	[0.92 1.14]	Masvingo	10.83	0.96	[0.85 1.29]
Lake	16.64	1.14 *	[0.99 1.32]	Lake	9.21	1.16 **	[1.02 1.32]				
Zanzibar	4.94	1.05	[0.88 1.24]	Zanzibar	4.38	1.03	[0.87 1.21]				
Age				**Age**				**Age**			
20-29	23.41	1.13 *	[0.98 1.31]	20-29	19.86	1.19	[1.08 1.32]	20-29	22.71	1.27 *	[1.140 1.42]
30-39 (ref.)	31.37	1.00		30-39 (ref.)	36.48	1.00		30-39 (ref.)	38.07	1.00	
40-49	25.40	0.82 ***	[0.76 0.89]	40-49	26.51	0.85 ***	[0.78 0.93]	40-49	28.05	0.88 ***	[0.814 0.95]
50-60	19.19	0.73 ***	[0.66 0.80]	50-59	16.47	0.75 ***	[0.68 0.83]	50-54	10.69	0.76 **	[0.671 0.87]

N=1137 F(20,293)=17.97 Prob>F=0.000   N=1193 F(20,280)=10.44 Prob>F=0.000   N=932 F(20,189)=9.28 Prob>F=0.000

* p<0.1 **p<0.05 ***p<0.001

6.3.3 Reporting of Children Ever Born by Couples

The aim of this section was to analyse the fertility of those women who could be matched to men. In order to find which births belonged to men, a number of conditions were thought necessary; one was to exclude women whose reported number of children ever born was different from that of their partners. The second was to exclude those women that had been married more than once (no question was put to men regarding how many times they had been married). As noted before, 1088 couples were successfully matched in the TDHS 1996, as well as 703 couples for the 1994 ZDHS.

For Tanzania, 43 out of the 1088 couples successfully matched had no children at all, i.e. about 4 percent of couples involved both the man and the women reporting no children ever born. However, there were couples where either the man or the woman had born a child while the other had not, about 6 percent of couples fell in such a group, as shown in Table 6.4.

Table 6.4: Reporting of Children Ever Born by Co-residing Couples

| | | | Woman | | |
			Some	None	Total
Tanzania 1996		Some	980	49	1029
	Man	None	16	43	59
		Total	996	92	1088
Zimbabwe 1994					
		Some	642	23	665
		None	7	31	38
		Total	649	54	703

Similarly for Zimbabwe about 4 percent of couples reported no children from either man or woman and the same proportion reported that one partner had children but not the other. It is shown therefore that it is rare that a partnership will be completely childless, as either the man or the woman would have children. It will be seen in the following sections, that childless couples were mostly young, with a short union duration.

Additionally, an investigation was made into the differences in the pattern of the reporting of children ever born. Differences in the reported number of children ever born to the man and to the woman could be due to reporting errors i.e. mistaking the total number of children an individual has. However, these could also be explained by the practice of polygamy in Tanzania and Zimbabwe, where there is

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no lifetime monogamy, as men and women can have more than one partner throughout their lives. For men, there is the possibility of having more than one partner at a time or consecutively; while for women this could be through remarriage following divorce or widowhood or premarital childbearing. It was more common for women who had no children of their own to be partnered by men that had children, than the other way around. For Tanzania, in 49 out of 65 couples, the man had children while the woman did not. In addition, in only 16 out of 65 couples was there a man with no children partnered with a woman who had children.

Table 6.5 also shows that only about a half of all couples in Tanzania and Zimbabwe report an identical number of children ever born. It is important to remember that, reporting an identical number of children does not guarantee that these are a product of the current union. In the extreme, both man and woman could have an identical number of children but all from different partners. Alternatively, each might have an identical number from another partner and the remainder with each other. Both situations could produce an identical reported number of children.

Table 6.5 shows that as expected it was more common that where the couple does not have an identical number of children ever born, then the man would have a higher number rather than the other way round.

Table 6.5: Distribution of Couples by Reporting of Children Ever Born.

	Mceb>Fceb	N	Mceb<Fceb	n	Mceb=Fceb	n	Total
Tanzania 1996	39.39	425	11.77	127	48.84	527	1079
Zimbabwe 1994	35.85	252	9.96	70	54.20	381	703

Mceb =Man's report of children ever born; Fceb =Woman's report of children ever born.

Next, an investigation into the characteristics of couples reporting different numbers of children was made, i.e. for Mceb>Fceb or Mceb<Fceb, Mceb=Fceb and Mceb=Fceb but neither report children ever born. Assuming that the individuals' reporting is correct, the next section describes such couples in terms of their age, age difference, and duration of marriage separately for monogamous and polygamous couples. Since the question on duration of union is asked about the first union and not the current one, it is only possible to look at duration of union using data for women who have been married only once. This left a smaller number of couples

since, for example, 17 percent (n=185) of couples in Tanzania had a woman who had been married more than once.

Differentials in the Reporting of the Number of Children Born by Couples

As seen in the section before, for both Tanzania and Zimbabwe, only about fifty percent of couples have an identical number of children reported by both partners. For Tanzania these results are shown below in Table 6.6 and in Table 6.7 for Zimbabwe. That this percentage was considerably lower among older men, among polygamous couples and among couples with an age difference of ten years or more is not surprising. For Tanzania, among couples where the man was aged forty and over, a little more than half of such couples showed the man reporting a higher number of children ever born than their partner. It is not always the case that men in polygamous couples will report a higher number of children, as almost 17 percent of polygamous couples either report an equal number or the woman reports a higher number of children. For Zimbabwe, polygamous couples are fewer, and in addition, a smaller percentage of these couples reported either an equal number of children or a higher number for the woman.

For Tanzania, where there are no children reported by either man or woman, these are mostly young monogamous couples who had been married for a short duration. For example, all such couples had been married for 0-9 years, and about 81 percent of such couples had been married for a year or less. Only one couple with no children had been married for more than 4 years. All but two of these couples were also monogamous.

As seen above, for Tanzania, couples where the man reports no children but the woman does are fewer than couples where the woman reports no children but the man does. For monogamous couples, there were only 14 couples where the man reported no children but the woman did. These were couples in the younger age categories. There was only one polygamous couple with a man reporting no children while the partner had children, also falling in the young age group. For Zimbabwe, among monogamous couples, about the same percentage as in Tanzania reported that the number of children was equal. Similarly, there were more couples where the man reported a larger number of children than the wife than the other way round.

However, in both countries, among monogamous couples, the number of couples where the wife reports a higher number of children ever born is not negligible. Nevertheless, as expected, among polygamous couples the majority of couples had the man reporting a larger number of children than the wife.

In Zimbabwe, where there are no children ever born reported by either man or woman, these were all monogamous couples and, as in Tanzania, were relatively young couples that had been married for a short duration. For example, 90 percent of such couples had been married for 0-9 years and in 96 percent of such couples the man was aged 39 years or less. As expected, couples where the man reports no children but the woman does are fewer than couples where the woman reports no children while the man does, even for monogamous couples. In Zimbabwe, there were no polygamous couples where the woman reported that she had children while the man reported no children.

In general, the number of children will differ between couples due to the type of union, the number of unions that the woman has been in or perhaps due to children that have moved or that have died. It is therefore hard to disentangle whether the lack of congruence in the reporting of children ever born is due to errors or is genuine.

Table 6.6: Distribution of Couples by Reporting of CEB, Tanzania 1996.

	Characteristics	Categories	Mceb<Fceb		Mceb=Fceb		Mceb>Fceb	
			%	n	%	n	%	n
Monogamous	**All Couples**		13.05	116	56.92	506	30.03	267
	Age 1	Man <40	11.06	62	67.40	381	21.54	121
		Man 40+	15.76	55	42.88	149	41.36	144
	Age 2	Woman <30	9.84	47	64.00	309	26.16	126
		Woman >30	16.23	70	51.36	221	32.41	139
	Age	Woman Older	41.97	12	41.92	12	16.11	4
	Difference	0-5 years	13.30	50	68.53	259	18.17	68
		6-9 years	11.23	30	62.03	169	26.74	72
		10+ years	10.40	24	38.60	90	51.00	120
	Union	0-9 years	7.04	28	68.56	274	24.40	97
	Duration	10-19 years	9.16	20	60.16	136	30.68	69
		20+ years	11.92	17	60.02	90	28.06	42
Polygamous	**All Couples**		5.79	11	11.05	21	83.16	158
	Age 1	Man <40	7.79	6	13.84	12	78.38	69
		Man 40+	5.21	5	5.62	6	89.17	98
	Age 2	Woman <30	0.00	0	11.18	9	88.82	78
		Woman >30	11.36	12	7.76	8	80.88	90
	Age	Woman Older	54.03	3	12.53	1	33.45	2
	Difference	0-5 years	8.83	5	20.69	12	70.48	43
		6-9 years	0.00	0	7.06	3	92.94	43
		10+ years	4.43	3	1.85	1	93.72	79
	Union	0-9 years	0.00	0	13.25	8	86.75	55
	Duration	10-19 years	8.19	4	5.32	2	86.49	48
		20+ years	8.12	2	14.78	4	77.10	25

Table 6.7: Distribution of Couples by Reporting of CEB, Zimbabwe 1994.

	Characteristics	Categories	Mceb<Fceb		Mceb=Fceb		Mceb>Fceb	
			%	n	%	n	%	n
Monogamous	**All Couples**		10.31	69	56.65	379	33.03	221
	Age 1	Man <40	9.42	36	64.14	245	26.44	101
		Man 40+	13.12	29	52.94	117	33.94	75
	Age 2	Woman <30	6.84	21	60.91	187	32.25	99
		Woman >30	14.86	44	59.12	175	26.01	77
	Age	Woman Older	30.77	8	53.85	14	15.38	4
	Difference	0-5 years	11.89	34	66.78	191	21.33	61
		6-9 years	8.12	13	64.38	103	27.50	44
		10+ years	7.63	10	41.22	54	51.15	67
	Union	0-9 years	11.46	33	61.46	177	27.08	78
	Duration	10-19 years	8.54	17	60.30	120	31.16	62
		20+ years	12.93	15	56.03	65	31.03	36
Polygamous	**All Couples**		2.94	1	5.88	2	91.18	31
	Age 1	Man <40	-	-	16.67	2	83.33	10
		Man 40+	4.55	-	-	-	95.45	21
	Age 2	Woman <30	-	-	6.25	1	93.75	15
		Woman >30	5.56	1	5.56	1	88.89	16
	Age	Woman Older	-	-	-	-	100.00	1
	Difference	0-5 years	28.57	2	0.00	0	71.43	5
		6-9 years	0.00	0	0.00	0	100.00	9
		10+ years	5.88	1	0.00	0	94.12	16
	Union	0-9 years	0.00	0	20.00	1	80.00	4
	Duration	10-19 years	0.00	0	9.09	1	90.91	10
		20+ years	5.56	1	0.00	0	94.44	17

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The Magnitude of the Differential in the Reported Number of Children Ever Born

The next part of the investigation into the reporting of children ever born looked at the magnitude of the difference in the reported number of children. The difference is defined as (Mceb-Fceb). For Zimbabwe, only the distribution of monogamous couples is presented because there was a small number (only 34) of polygamous couples. Table 6.8 and 6.9 below present the distribution of couples, separately for monogamous and polygamous couples.

It was not surprising that there was a higher percentage of monogamous couples than polygamous couples reporting an equal number of children. The distribution of monogamous couples by different characteristics is very similar in the two countries. Looking at the age of the man, men in the youngest age group had the highest percentage of couples that reported an equal number of children by both the man and the woman. This was also true when the age of the woman is used instead. As expected, a higher percentage of couples who had been married for a shorter duration reported an equal number of children ever born. Where the woman was older than the man was, then it was more rare that the man would report a higher number of children. Where couples report an equal number of children who were at home, who were away or who had died, then the percentage reporting an equal number of children was also highest. For couples where a woman had been in more than one union, then there was a smaller percentage reporting an equal number of children to the man. A higher percentage of such women also reported a higher number of children than did their partner. For Tanzania, where the man was 'just staying', then a higher percentage of couples had men reporting more children than the woman. However, in Zimbabwe, the reverse is true as in couples where the man was 'just staying' slightly more than three-quarters reported an equal number of children. In both countries, for couples where one partner could not read easily then a smaller percentage reported an equal percentage number of children between man and woman, than was for couples where both man and women were literate.

Unsurprisingly, among polygamous couples in Tanzania, fewer couples report an equal number of children. As already seen above, there was also a smaller percentage of couples where the woman reported a higher number of children than the man did.

Table 6.8: Distribution of Couples by Mceb-Fceb, TDHS 1996

MONOGAMOUS	Mceb-Fceb					n	POLYGAMOUS	Mceb-Fceb					n
	-ve	0	1	2/3	4+			-ve	0	1	2/3	4+	
All Couples	13.05	56.92	12.15	10.91	6.97	889	**All Couples**	5.79	11.05	7.37	22.63	53.16	190
Age of Man							**Age of Man**						
15-29	7.96	79.49	11.19	1.36	0.00	201	15-29	4.35	30.43	13.04	34.78	17.39	23
30-39	12.95	60.03	13.46	10.64	2.93	343	30-39	8.93	10.71	16.07	30.36	33.93	56
40-49	17.24	45.28	10.47	15.11	11.90	229	40-49	4.41	8.82	1.47	20.59	64.71	68
50-59	12.86	38.15	11.25	15.45	22.29	116	50-59	4.65	4.65	2.33	9.30	79.07	43
Age of Woman							**Age of Woman**						
16-19	3.86	78.89	10.89	5.40	0.96	71	16-19	0.00	12.50	0.00	62.50	25.00	8
20-29	10.87	61.43	12.46	9.49	5.74	389	20-29	0.00	12.33	13.70	31.51	42.47	73
30-39	15.50	52.41	13.73	10.52	7.84	285	30-39	9.33	6.67	5.33	16.00	62.67	75
40-49	17.62	49.35	7.28	13.95	11.80	144	40-49	11.76	17.65	0.00	8.82	61.76	34
Duration of Union							**Duration of Union**						
0-9 years	7.04	68.56	11.71	7.69	5.00	376	0-9 years	0.00	14.55	7.27	29.09	49.09	55
10-19 years	9.16	60.16	13.83	11.88	4.98	223	10-19 years	7.69	7.69	13.46	26.92	44.23	52
20+years	11.92	60.02	5.83	12.53	9.70	152	20+years	6.45	19.35	3.23	16.13	54.84	31
Age Gap							**Age Gap**						
Woman older	41.97	41.92	2.73	8.19	5.19	36	Woman older	40.00	20.00	0.00	20.00	20.00	5
0-5 years	13.30	68.53	11.06	4.19	2.92	421	0-5 years	10.53	24.56	12.28	28.07	24.56	57
6-9 years	11.23	62.03	9.99	11.86	4.89	318	6-9 years	0.00	8.89	6.67	17.78	66.67	45
10 + years	10.40	38.60	16.55	18.24	16.21	313	10 + years	3.61	2.41	4.82	21.69	67.47	83
Children away							**Children away**						
Fcaway>Mcaway	57.34	27.46	8.60	6.05	0.54	111	Fcaway>Mcaway	25.00	25.00	3.57	17.86	28.57	28
Fcaway=Mcaway	7.77	78.95	8.91	4.17	0.21	587	Fcaway=Mcaway	5.36	25.00	10.71	32.14	26.79	56
Fcaway<Mcaway	2.11	11.25	23.10	31.54	32.00	191	Fcaway<Mcaway	0.94	0.00	6.60	18.87	73.58	106
Children at home							**Children at home**						
Fchome>Mchome	47.14	32.79	9.95	5.39	4.73	68	Fchome>Mchome	37.50	0.00	25.00	0.00	37.50	8
Fchome=Mchome	11.08	66.71	10.70	7.63	3.88	696	Fchome=Mchome	7.35	17.65	8.82	17.65	48.53	68
Fchome<Mchome	5.94	19.69	19.88	27.92	26.58	125	Fchome<Mchome	2.63	7.89	5.26	27.19	57.02	114
Children Dead							**Children Dead**						
Fcdead>Mcdead	74.01	11.29	2.93	8.19	3.58	72	Fcdead>Mcdead	16.67	22.22	11.11	16.67	33.33	18
Fcdead=Mcdead	7.91	73.18	8.41	7.11	3.40	669	Fcdead=Mcdead	8.75	21.25	12.50	23.75	33.75	80
Fcdead<Mcdead	4.08	9.24	33.69	26.53	26.46	148	Fcdead<Mcdead	1.09	0.00	2.17	22.83	73.91	92
Co-residence							**Co-residence**						
Living with	12.97	58.20	11.89	10.09	6.85	881	Living with	6.15	10.06	7.26	24.02	52.51	179
Just Staying	0.00	33.24	13.27	27.26	26.23	7	Just Staying	0.00	20.00	10.00	0.00	70.00	10
Number of Unions							**Number of Unions**						
One	8.61	64.45	11.19	9.85	5.90	751	One	4.35	13.04	8.70	25.36	48.55	138
Two or more	38.63	19.29	16.49	11.78	13.80	133	Two or more	9.80	3.92	3.92	15.69	66.67	51
Occupation							**Occupation**						
Non agricultural	9.59	51.98	12.90	14.85	10.69	245	Non agricultural	5.88	11.76	14.71	20.59	47.06	34
Agricultural	13.82	60.43	11.39	8.41	5.94	632	Agricultural	5.81	10.97	5.81	23.23	54.19	155
Residence							**Residence**						
Urban	13.11	46.20	15.72	13.87	11.11	210	Urban	0.00	12.50	3.12	21.88	62.50	32
Rural	12.79	61.15	10.88	9.26	5.92	679	Rural	6.96	10.76	8.23	22.78	51.27	158
Literacy							**Literacy**						
Both Literate	8.42	65.18	12.07	7.94	6.40	394	Both Literate	5.97	7.46	13.43	29.85	43.28	67
One/Both	16.14	53.06	11.82	11.50	7.48	493	One/Both	5.69	13.01	4.07	18.70	58.54	123

Table 6.9: Distribution of Couples by Mceb-Fceb, ZDHS1994.

MONOGAMOUS	Mceb-Fceb					n
	-ve	0	1	2/3	4+	
All Couples	10.31	56.65	11.81	12.26	8.97	669
Age of Man						
15-29	5.73	75.09	13.56	5.62	0.00	169
30-39	10.32	54.64	13.86	11.52	9.66	251
40-49	8.45	50.61	11.81	15.14	13.98	189
50-59	14.04	40.33	8.45	16.85	20.32	60
Age of Woman						
16-19	0.00	74.98	15.66	5.75	3.61	52
20-29	6.29	54.48	14.89	12.49	11.85	295
30-39	11.10	59.55	8.38	13.90	7.07	228
40-49	17.79	52.79	14.43	5.53	9.46	94
Duration of Union						
0-9 years	10.23	60.97	16.10	8.66	4.05	310
10-19 years	6.61	59.44	8.10	15.65	10.21	226
20+years	9.66	45.97	12.61	10.94	20.82	133
Age Gap						
Woman old	28.84	51.03	11.35	2.06	6.72	31
0-5 years	9.76	68.30	11.03	7.96	2.96	306
6-9 years	6.36	62.71	16.80	10.12	4.02	174
10 + years	6.26	33.21	11.78	21.32	27.43	158
Children away						
Fcaway>Mcaway	46.31	35.97	4.91	10.25	2.56	105
Fcaway=Mcaway	3.07	86.76	6.76	2.22	1.19	372
Fcaway<Mcaway	0.60	11.67	28.70	30.32	28.71	192
Children at home						
Fchome>Mchome	22.23	50.41	11.03	7.55	8.77	35
Fchome=Mchome	9.19	65.12	12.12	9.30	4.27	517
Fchome<Mchome	4.03	27.20	15.90	21.83	31.04	117
Children Dead						
Fcdead>Mcdead	-	-	-	-	-	0
Fcdead=Mcdead	17.04	54.83	8.59	9.25	10.30	516
Fcdead<Mcdead	18.95	54.90	7.19	9.80	9.15	153
Co-residence						
Living with	9.50	56.57	12.90	11.87	9.16	624
Just Staying	1.18	76.64	9.72	2.49	9.96	41
Number of Unions						
One	5.20	63.63	13.14	9.54	8.50	565
Two or more	31.16	23.26	10.01	21.31	14.20	100
Occupation						
Non agricultural	8.06	57.76	15.09	11.15	7.94	410
Agricultural	8.64	57.28	9.40	12.17	12.52	210
Residence						
Urban	7.51	59.24	14.79	10.87	7.59	232
Rural	9.85	56.57	11.33	11.85	10.40	437
Literacy						
Both Literate	6.52	62.18	13.99	10.17	7.14	372
One/Both not literate	12.45	50.67	11.02	13.43	12.43	295

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Further, it was found that even among those couples who reported an equal number of children ever born, there was a small percentage that reported a different number of children at home, children who were away and children that had died. The distribution of such couples is presented in Table 6.10 below. Only results for monogamous couples are shown, since in Tanzania only 21 polygamous couples (2 in Zimbabwe) had an equal number of children reported by both man and woman.

Table 6.10:Distribution of Couples who reported Mceb=Fceb.

		TDHS 1996 Monogamous	n	ZDHS 1994 Monogamous	n
Children at home	-ve	4.15	21	4.22	16
(Mchome-Fchome)	0	90.71	459	86.81	329
	1+	5.14	26	8.97	34
Children Away	-ve	6.32	32	9.23	35
(Mcaway-Fcaway)	0	89.33	452	84.43	320
	1+	4.35	22	6.33	24
Children Dead	-ve	1.98	10	2.90	11
(Mcdead-Fcdead)	0	95.45	483	95.78	363
	1+	2.57	13	1.32	5

It can be seen that the majority of monogamous couples who had reported an equal number of children ever born, also reported an equal number of children at home, away and dead. The lowest percentage of agreement in both countries was for the reporting of children that were away, although for Tanzania, the percentage is similar to the reporting of children at home. For both countries there was no clear tendency for couples to have a larger disagreement depending on the sex of the children. Of the couples that reported Mceb =Fceb in Tanzania, about 7 percent gave unmatched responses on the number of daughters that were at home. Nine percent gave unmatched responses on the number of daughters who were away and 5 percent gave unmatched responses in the number of daughters who had died. About the same percentages of unmatched responses were given when sons at home, away and dead were looked at.

Mis-reporting of Husbands' Characteristics by Their Wives

The number of children ever born was not the only area where couples' responses did not agree. Using the same couples data, it was possible to look at the responses that women gave regarding their husbands and how these compared to the men's own responses. For example women were asked the age of their husbands, their

level of education and their occupations; as well as their husbands' views regarding the number of children desired, and whether the couple had discussed family planning issues.

On women's reporting of age as many as a third of the women gave the age of her partner as different from the man himself. The distributions were more or less the same irrespective of the characteristic of the woman. It was, however, interesting to note that a higher percentage of urban women gave a different age than did women in rural areas. This is contrary to what would have been expected. Leaving out those who did not know the ages or those who gave inconsistent answers, the difference between the age reported by the woman and that reported by the man ranged from 15 years below to 18 years above.

On the reporting of the husband's education only about 84 percent gave the same response as that of the husband himself. About an equal percentage gave a number of years of education that was higher or lower than the husband's own response. As for the reporting of age there were no differentials by type of union, i.e. the percentage that gave the wrong response was more or less the same, irrespective of the type of union. Slightly more urban women (5 percentage points higher) gave the same response as their husbands. This was also true for women who had been in union for longer duration. However, a higher percentage of men who are aged 40+ had wives who gave the wrong response than did men who were aged less than 40 years.

Discussion of family planning issues was another question that provided an opportunity for checking the compatibility of responses. Respondents were asked whether they had discussed family planning with their partner; of the valid responses, almost 46 percent of all couples disagreed. About 94 percent of men who responded that they had never discussed such issues had partners who agreed that indeed they had had no discussion. Of the men that said that they had discussed family planning with their partners, only 13 percent had partners who agreed with them.

The sections above show that restricting analysis to only those birth histories of couples where reported children ever born are equal between the couple would be unsatisfactory. This is for a number of reasons. First, even for such couples (reported

mceb=fceb), one can not be sure that the children in the woman's birth history do belong to her current male partner. Even among couples where the reporting was identical by both the man and the woman, it was still the case that the whereabouts of children was reported inconsistently. The second issue is that as seen in Table 6.5, only about 50 percent of couples in Tanzania and slightly more than a half the number of couples in Zimbabwe report the same number of children ever born by both the man and the woman. This created the first major constraint in the intention to analyse further birth histories of women attached to the men who were interviewed. For Zimbabwe, this would mean looking at the fertility of 381 women and of 527 women in Tanzania (before other conditions are met). The third issue is that such a group of couples is probably not that fruitful to study. Where the number is identical between the man and the woman and the responses in the other questions are consistent, then it is more profitable to look at birth histories for all the women in the survey and to look at differentials by husbands' characteristics, as reported by the woman. As the section above shows, the reporting of wives regarding their husband's characteristics is at times at variance with that reported by the man himself.

6.4 DISCUSSION AND CONCLUSIONS

This chapter aimed first to review the literature on fertility levels and trends in sub-Saharan Africa and where possible to review literature on male fertility. As in many other areas of demography there is still very little written on male fertility and so a large part of the literature on the determinants of fertility was from based on data from women. While it is true that factors that affect female fertility are likely to be similar to those affecting male fertility this is not always the case. Apart from demographic variables, such as age, age at marriage, duration of marriage and type of union, male fertility did not vary by a great deal according to levels of education, as it does for women.

The chapter reviewed some of the methods that are useful in the analysis of female fertility and from the review it was clear that despite the recent emergence of male demography as an important area of study, most of the current methods are not suitable for analysis of male fertility. In addition, the data collected from men are not

easily manipulated by most methods; as dates of births of the children were required. For analysis, the descriptive section looked at the average number of children per man, and in addition, several multivariate analysis methods were used. The results of the 1992 and 1996 Tanzania DHS were very similar and so only the 1996 results were discussed. It was interesting to note that there is little fathering of children reported by men who have never been married. Given that contraceptive use is low and that a large percentage of men had had sex by age twenty, the report on children ever born by unmarried men cannot be showing the true situation; given that pre-marital pregnancies among girls are common in sub-Saharan Africa. This concern has also been raised by Kgosidintsi and Mugabe (1994) who found that while 70 percent of men in education establishments had sexual partners, only 1.8 percent had fathered a child although only 8 percent were using contraception. Rendall et al. (1997) also found that between 1/3 and 1/2 of men's non-marital fertility was missed in Britain (using the British Household Panel Survey) and the United States (using the US Panel Study of Income Dynamics).

Why unmarried men are not reporting children they have fathered is subject to speculation as no one has asked such a question in a study. It might be the case that single men would not admit paternity until after they are married and able to offer a home and security to a child they fathered before marriage, even though it was with another woman. It seems that once married a man is more inclined to report children he had prior to the marriage. In the UK for example, men might be reluctant to admit paternity in order not to pay for child support. The other demographic variables behaved in the way that was expected, that is, the average number of children ever born increased with age, duration of marriage and age at first marriage.

There is an indication that there is higher fertility among Tanzanian men than among Zimbabwean men. This result was expected given that among women, fertility is currently lower in Zimbabwe than in Tanzania (Tanzania 1996 TFR= 5.8 in Zimbabwe 1994=4.3) and the fertility decline started much earlier and is more convincing in Zimbabwe than in Tanzania. Contraceptive use and other pathways to lower fertility such as lower prevalence of polygamy, exposure to a western way of life, work outside agriculture and higher levels of education for girls are more common in Zimbabwe. The difference in the average number of children ever born

between the two countries is however not very large, as it only differs by about one child.

Differentials showed that the average number of children varied considerably by demographic characteristics. As expected being polygamous made a great difference to the number of children a man had and this was true in Tanzania and in Zimbabwe. In Tanzania those in consensual unions had a lower average number of children as expected. This might be because those in consensual unions might not live in the same house unlike those who are formally married. In addition, those in consensual unions might have been in the union for a shorter time compared to those who are formally married.

One of the interesting results even in a multivariate model was that the Southern zone has comparatively lower fertility than would have been expected. The 1992 DHS reports show that the TFR for this area was 5 compared to 6.2 for the nation. This zone lies within a matrilineal belt, desired fertility among women is low and birth intervals for women in the regions of this zone are longer than in most other regions. The median is around 38 months in Lindi and Mtwara compared to 30-33 months in most other regions (Ngallaba et al. 1993). The prevalence of sterility due to high incidence of STDs has been linked to the low levels of fertility among women (Swantz 1998).

Multivariate analysis showed that differentials are not very large. There were however unexpected results, for example, after controlling for age and duration of marriage, there was no large differential in the fertility of urban men from those in rural areas in Tanzania. In Zimbabwe this differential was small. This is a strange result, which is also contrary to what is usually the case for women. Another unexpected result was that in Tanzania, more educated men showed a higher fertility compared to men with less number of school years. This is also a factor that has a negative association where women's fertility is concerned. However, for men in sub-Saharan Africa, the association between husbands' education and fertility has been found to be weak (Rodriguez and Cleland 1988). Unlike Tanzania, religion seems to be important in Zimbabwe. With followers of Spiritual religions as the reference group, Christian men and those in Traditional religions had lower fertility. The reason for this might be the restrictions that Spiritual religions might have on the

use of contraception. In all the surveys, the loss of a child was very strongly linked with higher fertility.

The main lesson of this chapter was that some socio-economic characteristics are important in affecting male fertility, once demographic variables are controlled for. In some cases where characteristics that affect female fertility operate, the reverse is true for men. While the education mechanism that lowers fertility through a reduction in the reproductive span works for women; for men education may give them the means and the opportunities to acquire more wives. On the other hand, it can be speculated that education for men might expose them to a different way of thinking and reduce their ideal family size for example. Peer pressure to reproduce could work in the opposite direction than for women. The homogeneity of male fertility has also been found in the study by Magnani et al. (1995). The reason for this is that the measure that was used to look for differentials is a crude one, fertility is still relatively high and differentials between groups are still very small and so the mean number of children ever born as a measure might not be very sensitive.

The analysis of couples' data shows that it is rare that a couple will have no children at all and that in most cases the number of children reported by a man is higher than that reported by the woman. Where the number reported by the man is higher this could be due to exaggeration for prestige reasons. However, as observed, it was indeed more common that a man will have a higher number than the woman and this is not necessarily a result of errors, as men can be polygamous or remarried. It would have been useful to have information as to the biological parenthood of children (i.e. whether the children were from the current family) and how many other wives the men had children with, and when. However, it is also possible to have unions were the man reports no children and the woman does.

The conclusion reached is that male fertility does not differ significantly by socio-economic characteristics such as urban residence and education that have been found to be important determinants of women's fertility. The lack of differentials could be due to the inability of the methods used to capture differentials or that there are in reality no large differentials among men. In an area of study where dates of events are of utmost importance, lack of such information greatly compromises the

options available. For more insights on male fertility, better design of surveys is crucial. As discussed in earlier chapters, the first piece of useful information to be gathered would be the male marriage history. Second, one would also need to collect information on the children that the man has fathered with all the different women in his life history. Since some of the women might have been his partners before he was married, wives he has divorced, or wives who have died, the only option is to collect all the information about his children from the man himself. It is fair to say that standardised studies, such as those by the DHS, are not well equipped to study an area that requires so much information.

7 Summary and Conclusions

The recent availability of data from male respondents, collected through the Demographic and Health Surveys Programme, makes it possible to address some aspects of male demography; an area that has been on the fringes of demographic research. This chapter summarises findings and discussions arising from analyses of data from men in Tanzania and Zimbabwe. In this final chapter, recommendations are made on two fronts. Those relevant for policy interventions are based mainly on the chapter on sexual behaviour in conjunction with findings from other chapters. Those concerning methodology and data requirements are based on the fact that while useful results were obtained, in some areas data were found to be deficient. This calls for efforts to improve the quality of data collected from male respondents. This chapter also looks at those areas of the thesis that could benefit from further analysis. The thesis ends with a note on the experience of analysing demographic data from men, at a time when such issues are not at the forefront of demographic research priorities, despite the 1994 ICPD.

The aim of this thesis was to analyse data on male nuptiality, sexual behaviour and fertility using the 1992 and 1996 Tanzania Demographic and Health Surveys (DHS) and compare these results to Zimbabwe, using the 1994 Zimbabwe DHS. Given that little of male demography has been studied, the recent availability of data on men provided an opportunity to explore some issues that have in the past few years become important in the population and health area. The main issues covered in these analyses are of interest to demographers due to the role they play in the transition to lower fertility, in the HIV/ AIDS epidemic, and in other reproductive health issues. Methods of analysis ranged from the descriptive to more analytical models, depending on the topic. In some cases, traditional methods of analysis were not appropriate because of data deficiencies. For example, lack of dates of birth of children born to men for the section on fertility considerably reduced the range of methods that would have been useful and informative. While the analysis is mainly based on data from men, literature based on research from responses from women was also used. Comparisons, where possible, were made to other societies, mostly in sub-Saharan Africa.

The fact that male demography is a growing area of research made the work interesting and challenging. The work was interesting because while one could speculate on possible results, one was still challenged by what came out as the important determinants of patterns of marriage, sexual behaviour and fertility. The main challenge arose from methodological constraints, insufficient information and poor data quality; as well as a deficit of comparative literature. For most sections of the thesis it was hard to find a benchmark from which to assess the results obtained. This is especially true for the chapters on family formation and determinants of male fertility. Starting with literature based on women, it was speculated that since certain female socio-economic characteristics lead to different marriage, sexual behaviour and fertility patterns, this would also be the case for men, although not necessarily of the same direction and magnitude. In addition, given the differences in levels of economic development between Tanzania and Zimbabwe, it was anticipated that the two countries would provide an opportunity to observe how economic conditions and levels of development might affect the issues studied.

Despite a number of constraints, useful results emerge from this work. The following sections reiterate the conclusions reached in the course of the thesis. Recommendations are made for policy and methodology and on the data requirements for further analysis.

7.1 SUMMARY OF FINDINGS

Differentials in female patterns of marriage, fertility and sexual behaviour by social and economic characteristics are large, but this thesis found that for the most part this was not true for men. There were few strong differentials by socio-economic characteristics, especially once variables were analysed in a multivariate framework. For some topics this lack of differentials was stronger in Zimbabwe than in Tanzania as for example, in the case of determinants of entry into marriage. However, this was not always the case, as seen in patterns of initiation of sexual relations.

7.1.1 Family formation

On the process of entry into marriage, the main findings were that marriage is late both in Tanzania and in Zimbabwe; with men starting to marry in large numbers in their mid twenties. The pace is slightly slower in Zimbabwe, especially in the early twenties, but eventually the mean ages at first marriage are more or less the same. This result conforms to what has been found to be generally true for men in sub-Saharan Africa (Lesthaeghe et al. 1989). It is probable that men marry later because, unlike women, they face conditions regarding financial security and residential arrangements that have to be met before they can marry. Employment and residential arrangements have, for example, been found to be influential to the fertility of men in Italy (Francovich et al. 1998). Meeting such requirements takes time, as men usually have to learn a trade, or migrate to seek employment elsewhere or await an inheritance. Male migration to work places outside Botswana, for example, has been found to be one of the main factors affecting entry into marriage (Timaeus and Graham 1989). In addition to economic independence, there may be restrictions on ages below which men cannot marry; simply because socially they are still regarded as not mature enough to support a family. As a result, even for those

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few men who have been able to acquire financial independence early, this might not be sufficient to enable them to marry.

While some differentials in age at first marriage were found, these were small, especially once variables were analysed in a multivariate model, and this was especially true for Zimbabwe. An attempt was made to find out whether the conclusion that male patterns of marriage were homogenous was genuine, or whether it was due to the inability of methods used to capture differentials. Using women's data, it was found that the same methodology was able to draw out important determinants of women's age at marriage such as type of place of residence, religion and education. However, it is to be noted that sample sizes were also larger for women's data.

Homogeneity in pattern of entry into marriage coincided with what has been found by Dixon (1971); that among men, the range in ages at marriage was smaller than for women. That is, for a wide range of societies the difference in ages at which men married was small and in addition, the overlap among regions was wider than when looking at women's ages at marriage. The most unexpected result from the analysis of entry into marriage was that differentials in the younger ages such as those seen between urban and rural women were minimal, and on the whole were statistically unimportant when other factors were controlled for. However, the probability of delaying marriage after age 28 was significantly different between urban and rural men and it was interesting to note that the magnitude of this differential was much larger in Tanzania than in Zimbabwe. As mentioned above, the similarity in this aspect of marriage is probably because, unlike rural women, rural men still have to acquire economic independence before they can marry. In a rural setting, economic independence for a young man will be acquired through inheriting a piece of land or having his father, at his own convenience, carve out a piece of his own land for his son. Alternatively, the young man might have to seek communal or lineage land away from family land. In addition, in sub-Saharan Africa young men might be in competition for brides with older men who are already established and might be attracting second wives. The process of getting established can take long, but probably not as long as it would take in an urban area.

As expected, education had the effect of delaying marriage, but more so in Tanzania than in Zimbabwe, where only those men with 9 or more years of education had a significantly delayed entry into marriage. One could speculate that differentials by education level will be stronger in Tanzania than in Zimbabwe, due to the different characteristics of the labour market in the two countries. In most of Tanzania, there are still plenty of opportunities in agriculture, and these do not exist to the same extent in Zimbabwe where access to land is restricted. Men with low levels of education in Zimbabwe cannot be assimilated into agriculture as quickly, and might have to seek employment in an urban area, delaying their entry into marriage.

As for other characteristics, the role of religion in Zimbabwe was weak showing no difference across groups in all models. However, in the younger ages, Protestant men in Tanzania married significantly later than followers of Other religions. There is no immediately apparent reason why Protestant men have a slightly delayed entry into unions. A uniformity of marriage patterns for religious groups was found in Zimbabwe, where the divergence between Christians and Spiritualists for example, did not greatly affect ages at marriage. This is because, even more than for Tanzania, most Zimbabwean men have received quite high levels of education and, Christians and followers of other religions are likely to have attended similar schools and followed the same curriculum. While certain denominations of Spiritualists might discourage further education for its members, this does not seem to affect the proportion of Spiritualists who are educated. For example, almost equal percentages of Spiritualists and Christians have 0-3, 4-6, 7-8 years of education. At the highest levels of education, i.e. nine or more years the difference in the percentage of Christians and Spiritualists who have this level of education is still about 10 percentage points only.

The most significant differentials in the rate of entry into unions were by zones of residence, and this was again truer for Tanzania than it was for Zimbabwe. That zonal differentials are large in Tanzania is probably due to its wider heterogeneity, Tanzania is home to more than 120 tribes while Zimbabwe is made up of mainly two tribes, one of which (the Shona people) makes up 80 percent of the population. Differentials found in Tanzania are consistent with the different

economic activities in the various zones; as well as with the distribution of proportions of the population that has had formal education. The zones that stand out as having the slowest rates of entry into marriage are not only those with the most highly-educated populations in the country i.e. Coastal and the Northern zone, but also those that have a wider base of economic activities compared to other zones. There is also likely to be a cultural component that drives the marriage patterns. The Northern zone is home to tribes (such as Masai, Mangati, and Mbulu) who still have the age set system that regulates entry into marriage. For example, a Masai man is traditionally unable to marry until he has been circumcised, passed through the warrior (*morani*) stage and acquired enough cattle to marry. Before the spread of a monetary economy, the only way to acquire cattle was through inheritance or cattle raids, this meant that a man could not marry early.

In Tanzania, the Southern zone was the most outlying zone in terms of age at marriage. This zone is one of the most remote and least developed in the country in terms of infrastructure and levels of education (Seppala and Koda 1998). The population in the zone is very sparsely distributed (apart from a few areas such as the Newala plateau), and farming land is widely available. Development experts have described the residents of this zone as almost apathetic when it comes to development efforts. The earlier work of Liebenow (1971) and the later of Seppala and Koda (1998), on several attributes of modernity, shows inhabitants of this zone to be even less modern than the Gogo (who inhabit the Central zone); usually considered the least modern in Tanzania. The Southern zone is also subject to high levels of out migration especially of young men who become petty traders in large cities like Dar es Salaam. In addition, one of the most important characteristics that differentiates this zone from the others, and one that is likely to affect its nuptiality patterns, is that it lies within the matrilineal belt of Southern Africa. Low ages at marriage and early pregnancies in the area have been linked to the practice of 'jando'; traditional initiation ceremonies into adulthood that, for girls, can take place as early as age seven (Swantz 1998).

Zones in Zimbabwe were more homogenous in their marriage patterns than was the case in Tanzania. However, Matabeleland was an outlier by having a later age at marriage. This is a pattern that has also been noted by Meekers and Wekwete

(1997) who found that among women, ages at marriage were high and that the zone also had one of the lowest fertility rates in the country. Later marriages for men in this zone are consistent with low food production; as well as fewer economic activities in the area and high levels of out-migration. Matabeleland is home to the Ndebele, culturally different from the Shona (who make 80 percent of the population). The rest of the zones in Zimbabwe are predominantly in Mashonaland and likely to be culturally very similar. The homogeneity between the other zones is possibly a reflection of the fact that Zimbabweans have had wide access to education, especially after independence. Most men had at least primary education (90 percent compared to 42 percent in Tanzania); and in addition, unlike most sub-Saharan African countries, a comparatively higher percentage of the population lives in urban areas. This makes the characteristics of the labour force different from those in small-scale agrarian societies. For example, of all the men who were working, 76 percent worked outside agriculture and of those working in agriculture less than 1 percent owned their own land i.e. most of them worked for a large landowner or on communally owned land. The shortage of land to farm in Zimbabwe might also remove one of the main incentive that is usually given for higher fertility (facilitated by early marriage) in sub-Saharan Africa. This could explain both the lack of incentive and the means to marry early in rural areas, as men are pushed into seeking work and opportunities outside agriculture.

While results show that male marriage was late and fitted the results in other societies, they are not fully compatible with most anthropological literature that suggested that marriage for most men started even later, i.e. towards their late twenties. This is a picture that might have been accurate a long time before the period of the survey data used here (the men in the survey must have been born after 1932). Given what can be assembled from anthropological literature, it is easy to assume that the age at marriage of men has been falling. However, results from the surveys used in these analyses show that this was not the case. In fact there were indications (though not always consistent) that younger cohorts were marrying slightly later compared to older men.

While a look at the rates of entry into marriage suggest that younger men have lower rates of entry into marriage, once these were summarised into medians, it was hard to get a consistent pattern and so difficult to quantify by exactly how much

age at marriage has changed. Such data quality constraints are to be anticipated, given cautions by authors such as Ewbank (1981), Lesthaeghe et al. (1989) and van de Walle (1993), who specify the potential pitfalls when analysing data based on dates of events in societies with limited knowledge of dates or record keeping.

7.1.2 Types of Unions

While anthropological literature is rich in its descriptions of types of unions and the different ways that unions can be formed in sub-Saharan Africa, the type of data collected by the DHS is limited in its scope. The data were suitable for analysis of differentials between men in consensual unions and those in formal unions or differentials by the number of partners in the union. Given the data at hand, several assumptions were necessary and as seen in Chapter Four, suspect data compromised the quality of interpretation especially of the prevalence of consensual unions in Tanzania. Nevertheless, useful results were found in this chapter and these are summarised below.

As regards consensual unions, it was found that men of all socio-economic backgrounds were involved in this type of union. The 1996 TDHS results clearly showed that consensual unions were more prevalent among younger men, suggesting that consensual unions were a temporary stage towards formalised unions. It was therefore among younger men that some socio-economic differentials were found. In 1992, it was unusual to see such a large percentage of the followers of modern religions (Catholics, Protestants and Muslims) in consensual unions, though not to such a large extent as followers of 'Other' religions (who, it is suspected, are more likely to have misunderstood the question on the type of their union). Differentials in the prevalence of consensual unions by zones of residence showed the Southern zone again to be an outlier; having almost 25 percent of men aged under 40 in this type of union.

This section of the thesis also showed that polygamy remains prevalent in Tanzania but less so in Zimbabwe. Both Tanzania and Zimbabwe conformed to the geographical pattern found in the literature by showing comparatively lower prevalence and intensity compared to societies in West Africa. A number of factors could explain the lower prevalence of polygamy in Zimbabwe. For example, high

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levels of education among women and less reliance on agriculture as the main economic activity; the latter removing one of the main incentives for polygamy. It is also the case that agriculture in Zimbabwe is less reliant on human labour compared to farming in Tanzania.

As for differentials by socio-economic characteristics, these were small when differentials were studied separately for older men and for younger men. Despite this homogeneity in the prevalence of polygamy, the small differentials found were as expected. Prevalence increased with age as well as with duration of marriage; indicating that it takes time before a man has the desire, backed by the means, to acquire additional wives. The percentage of men in polygamous unions was higher in the rural than in the urban areas; similarly prevalence was higher among men in agricultural than in non-agricultural occupations. Unexpectedly for Tanzania, higher levels of education did not massively lower the prevalence of polygamy. This lack of strong differentials with education is likely to be because education might actually equip men with the means to acquire additional wives. Only in Zimbabwe did men in one category of education have a significantly different probability of being polygamous. Men with 4-6 years of education were significantly more likely to be polygamous compared to men with 7-8 years of education. A result that does not have an obvious explanation.

While results showed that being a Christian did not radically reduce the percentages in polygamous unions, controlling for other variables showed that Christian men in both countries were about half as likely to be polygamous. It was however remarkable, given religious restrictions, to see that that the prevalence of polygamy among Christians was not even lower; and therefore that the probability of not being polygamous was not even greater. As seen in other sections of the thesis, the lack of an even stronger religious effect in these two countries might seem strange. However, as discussed by Lesthaeghe (1989a), a person's religion in most of Africa is not such a straightforward characteristic. Inhabitants of this region probably adhere more to traditional rules and values than those advocated by the modern religions. In addition, in some parts modern religions have mixed with local culture. As seen in Zimbabwe, there has been a fusion of Christianity with traditional ideas, producing Spiritualists who even among themselves are not necessarily

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homogenous. The effects of religion might not be easy to capture in the conventional divisions of religious groups, being a Christian therefore might not mean necessarily adhering to the monogamy rule.

In Tanzania, it was clear that some zones had a higher prevalence of polygamy than others, though in multivariate analysis differentials by zones of residence were not as large. Only in TDHS 1992 is the Coastal zone significantly different, probably because it is the one that has undergone the most social change. For Zimbabwe, the descriptive section showed that Manicaland and Midlands have higher prevalence of polygamy, but that in a multivariate model differentials are significant only for Manicaland and Masvingo. This lack of variation in Zimbabwe is probably because the country is culturally more homogenous as discussed in sections above.

Ultimately, characteristics that showed the closest association with the probability of being polygamous were age and duration of marriage, which is hardly a surprise. Overall, intensity of polygamy was low, with most men having only two wives. Although a handful of men had a larger number of wives, this was very rare.

In addition, when polygamy was studied from women's perspective almost all the expected differentials were found to be important in Tanzania and in Zimbabwe. As expected, age, age at marriage as well as duration of marriage affected the odds of a woman being the first wife in a polygamous union rather than in a monogamous union. In addition, the fact that a woman had been married more than once considerably reduced the odds of being the first wife in a polygamous union. Infertility as a factor associated with polygamy did find support, however, fewer women than was expected could be classed as infertile; a result that was also found to be true for the countries analysed by Timaeus and Reynar (1998). Unlike the results for men, women in urban areas were strongly less likely to be polygamous and religion as well as education showed strong differentials, all in the expected direction. In Zimbabwe, a contrast was made between all polygamous women and all monogamous women. As in Tanzania, the characteristics of polygamous women showed the same differentials as well as magnitude. In addition, education made a slightly stronger differential in the odds. However, unlike Tanzania, non co-residence was not strongly associated with being in a polygamous union. The

smaller probability of being polygamous if the husband was not residing with the woman is likely to be due to the higher labour mobility in Zimbabwe than in Tanzania.

On the reporting of the types of unions, results of this section called to attention to the validity of results when only women or only men are interviewed. In both countries, where couples were matched, a percentage of couples did not have the same responses regarding the type of union they were in. This was true even for couples where the wife responded that the husband was living in the same household (and not 'just staying'). There were also cases of women not knowing what type of union they were in. Where there was a mismatch of reported type of union that a couple was in, it was more common for the women to report that the union was polygamous and the husband to respond that it was monogamous. It is usually assumed that men would respond that they are polygamous to gain prestige and the reverse for women, but this assumption did not find support. This was not expected since a logical speculation is that if a woman wants to portray a more favourable impression, then the preferred response would be that the union she is in is monogamous. However, as Timaeus and Rayner (1998) discussed, women whose husbands report their union as monogamous might actually be 'outside wives' who would report themselves as junior wives in a polygamous union. This result has therefore implications as to how far one can trust reports from respondents regarding the type of union they are in.

7.1.3 Sexual Behaviour

Results from this section showed that age at first sexual relations among men is low and hence age at marriage is not a good indicator of the beginning of exposure to the risk of childbearing. For the majority of men, early to late teens is the period of highest risk; a period during which the majority of men are not married. The pattern seen in Zimbabwe is of a more delayed entry with the highest risk in the later teens to early twenties. The median is at least one year later than in Tanzania (according to TDHS 1996 and three years according to TDHS 1992). Despite the differences, the patterns observed in the two countries are consistent with the range of medians for countries in sub-Saharan Africa (Carael 1995).

There is evidence that age at first sex has been changing; more so in Zimbabwe than in Tanzania. Zimbabwe, which starts from a higher age at first sex, has seen a larger decline that shows up in the smaller proportion of older cohorts who had sex at younger ages. Since for Zimbabwe higher levels of education were associated with earlier initiation of sexual relations, one could speculate that it is increasing levels of education (especially after independence) that could be affecting ages at first sexual relations. However, at the national level, the higher proportions of educated men in Zimbabwe, did not lead to an overall earlier initiation of sexual relations when compared to Tanzania.

The reason for initiation into sexual relations being earlier in Tanzania than in Zimbabwe is probably due to a combination of factors that are not so easily measured by surveys such as the DHS. For example in Zimbabwe, there are enforceable measures should a man make a woman he is not married to pregnant. For example, it is widely known that a man has to pay large damages to a woman's parents; and when there is no intention of forming a lasting union with the woman, then damages are even higher than if there were plans for a lasting union. When it comes to legislation on maintenance of women and children from informal unions, Zimbabwe is also ahead of many countries in sub-Saharan Africa. The law makes it possible for a woman to be entitled to maintenance from the father of her children, and she can obtain it directly from a man's employer even when the two are not married. This might partially explain the restricted initiation into sexual relations in Zimbabwe and might have a potential policy implication for other countries (Armstrong and Ncube 1987). It could also have implications for men's reporting of the number of children they have.

Given that marriage is late and sexual relations start early, this chapter also found evidence that the gap between first sexual relations and marriage for men is long. This section highlighted the health risks to which most young men are exposed during this interval; especially in recent years where the risk of HIV/AIDS infections is high in both countries. However, there was no evidence that the gap is increasing for younger men. This was probably because (especially) older men did not correctly report one of the inputs of this gap (i.e. age at first marriage). This lack of evidence of a wider gap for younger men was also found by Carael (1995).

Unlike the previous two chapters, this section of the thesis showed slightly more variation in entry into sexual unions by socio-economic characteristics in Zimbabwe than Tanzania. For example, while education in Tanzania did not show a strong differential, in Zimbabwe this was not the case. Men with higher levels of education had significantly higher risk of earlier sexual initiation, suggesting that there might be factors associated with education that increase the risk in Zimbabwe. While this might be an important finding for Zimbabwe, results from different parts of the developing world find a wide range in the effects of education (as seen in the literature review for Chapter Five). With no obvious explanation, in Tanzania, only one category in 1996 showed a significant differential, men with 7-8 years of education had a higher risk compared to the reference group.

Differentials between religious groups were also minimal. This is indeed an unexpected result since matters of sexual behaviour are very likely to be subject to religious edicts. One could speculate that this lack of strong differential by religious groups is due to the fact that sexual relations occur too early for religious teachings to have taken root in people. However, it is hard to imagine why differences in parental strictness (if one also assumes that Christian parents would be stricter regarding sexual behaviour), would not have an effect on their children's behaviour. It is very likely that there is a gap between what people do and what they say they do. As the literature suggested, there were no large or very clear differentials by men's place of residence. It is only men who have always lived in urban areas in TDHS 1992 and, in Zimbabwe, men that used to live in urban areas, who had a slightly higher risk of entry into sexual relations.

As found in other chapters, zones of residence showed wider differentials than did other socio-economic characteristics, suggesting that researchers need to look more into cultural determinants and social attitudes for issues such as entry into sexual relations. That in Tanzania zones showed the widest differentials suggests that it is more the differences and variations of the cultural practices such as 'jando', (a ceremony to mark entry into adulthood) widely practised in the Southern zone, and in some areas in the Coastal zone, that might explain initiation of sexual relations. This ceremony takes different forms in different areas, after which young men and women acquire the status of young adults. It is important in the initiation of

sexual relations since it defines when an individual gains responsibility. The practice of jando in the Southern zone, although modified by Christian Churches, is still linked to the very low ages at first sexual relations, and the highest levels of teenage pregnancies in Tanzania (Swantz 1998). While among the Masai, the circumcision ceremony also allows a man access to sexual relations, the ceremony usually takes place when men are older than they are in the Southern zone. In addition circumcision among the Masai is not a signal that a man is ready for marriage. In fact a man will spend a number of years learning how to be independent and responsible as a married man (Talle 1988).

Another important aspect of sexual behaviour that was studied is the number of sexual partners that men have. It was seen that according to the 1992 TDHS the majority of married men had only one sexual partner. Even in the 1996 survey, where the questions aimed to establish the number of partners outside the regular relationships, there was a smaller number who reported extra-marital partners than was expected. This finding does not agree with the literature from for example Mott et al. (1996) or the series of papers by Caldwell and his colleagues on this topic. However, this was not true for unmarried men, where a smaller percentage had only one sexual partner. The results also showed that higher percentages of unmarried men in Zimbabwe had more than one sexual partner compared to unmarried men in Tanzania. Conclusions that are similar to those reached by Cleland et al. (1995) or Gregson et al. (1996) who found that a large number of married men had only one sexual partner. However, it is hard to conclude which results are more accurate given that they covered different parts of sub-Saharan Africa and used different types of data and analyses. This reinforces the view that applying findings from one area to all societies in such a diverse region is likely to be erroneous (Ahlberg 1994; Leblanc et al. 1991).

Having looked at the literature and the socio-economic characteristics as collected in the DHS, it is sensible to conclude that these characteristics though useful, probably miss out on a lot of important cultural determinants of sexual behaviour. It is sensible to speculate that characteristics such as education, religion, place of residence and type of work become important well after one has already had sex for the first time. While it might complicate questionnaires, attitudinal questions

regarding sexual behaviour would be more useful in helping the understanding of these issues. It is very important to try and understand why, for example, there are such significant zonal differentials in Tanzania.

7.1.4 Male Fertility

As expected, the cumulated fertility of men increased as men got older and with longer durations of marriage. Polygamy considerably increased the number of children that men have, while men in consensual unions had considerably lower fertility than those formally married. Compared to Zimbabwe, fertility was higher in Tanzania; the differential being more apparent at the older ages. Considering the earlier age at first sexual relations, and relatively late marriage for a large proportion of men in both countries, it was odd that fertility among unmarried men was very low. In addition, there was no effect of age at first sex on the average number of children that men had. These results suggest that it is highly likely that information about early childbearing is not accurately reported, either due to lack of knowledge or due to reluctance to admit paternity by unmarried men. As has been suggested by Caldwell et al. (1992a), it could also be that young men are having sexual relations with older women, who if they became pregnant are likely to record those children as belonging to their husbands. This is indeed how customary declarations describe the norm, i.e. children, even of illicit affairs, belong to the husband. A similar concern regarding the low number of children born to younger and unmarried men was also raised in the Botswana research by Kgosidintsi and Mugabe (1994); and might be a common feature of mis-reporting by unmarried men.

It could not be anticipated what effect socio-economic characteristics of men would have on their fertility. This was because while there are areas where characteristics that affect female fertility might also affect men's fertility, one can also think of reasons why the reverse could also be true. For example, while education might reduce the reproductive span for women and hence their fertility, education for men might give them the means and the opportunities to acquire more wives. While education does shorten the total number of years in a union, once married men can easily catch up on lost time. They could have children in shorter intervals with the same woman (who is likely to be younger in age) or with multiple partners

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at the same time. While education for men might expose them to a different way of thinking and a desire for a smaller family, social and peer pressure might work to pull their fertility in a different direction. Issues are therefore very complicated, though in the end this section of the thesis showed that most socio-economic characteristics are not strongly important in affecting male fertility, once controls for demographic characteristics are in place.

Overall, most differentials in the average number of children were consistent with the pattern that is found among women. However, differentials were small, especially in the older ages when men who had started childbearing late had in the meantime caught up with the early starters. The average number of children for married men decreased with the level of education and was also lower for men in urban areas and among those working in non-agricultural occupations. As for women in Tanzania, the average number of children was lower for men in the Southern zone. Fertility rates in this area are among the lowest due to sexually transmitted diseases such as gonorrhoea and syphilis; the area is also characterised by high levels of divorce and remarriage (Seppala and Koda 1998). Another factor that is likely to contribute towards low fertility is that, according to Ngallaba et al. (1993), women in the regions making up this zone have low levels of desired fertility, as well as the longest birth intervals in the country.

Multivariate analyses showed that socio-economic differentials are not very large. There were in addition unexpected results, for example, after controlling for age and duration of marriage, there was no differential in the fertility of urban men from those in rural areas in Tanzania, and for Zimbabwe this differential was small. This is a unusual result which is also contrary to what is usually the case for women. Urban women are usually associated with lower desired family sizes, they have better access to contraception as well as to work outside agriculture, which contribute to lower fertility. Another unexpected result was that in Tanzania, more educated men showed a higher fertility compared to men with fewer years of schooling. This is a factor that has a negative association where women's fertility is concerned, however, for men in sub-Saharan Africa, the association of husbands' education on fertility has been found to be weak (Rodriguez and Cleland 1988; Mbizvo and Adamchack 1994). It seems that while education might delay onset of

childbearing, this might only be a postponement of childbearing. The time lost can be easily recovered by increased access to more women with whom they can father children. Religion seems to be more important in Zimbabwe than in Tanzania. With followers of Spiritual religions as the reference group, Christian men and those in Traditional religions had lower fertility. The reason for this might be the restrictions that Spiritual religions might have on the use of contraception.

While eventually it was not feasible to use the birth histories of the women who were matched to men, it was possible to look at the nature of differentials in the reporting of children ever born for couples. Given the prevalence of polygamy and high possibilities for union dissolution and remarriage, only about half the number of couples reported an equal number of children between them. It was also rare that a couple would report no children at all and where this was the case, it was those couples who were young or had been in a union for a comparatively shorter duration. The analysis of cumulative fertility from couples' data showed that in most cases the number of children reported by a man is higher than that reported by the woman even in cases of monogamous unions. Of course, the mean of the difference in the reported children was higher among polygamous than monogamous couples. Identical numbers of children were reported more frequently by couples where the man or the woman was young, where the duration of the union was short and among couples where the woman had been married only once. For couples where the woman was older, it was also the case that the number of children reported by the woman would be higher than that reported by the man.

Even among those couples where the number of children reported is the same, there were still some differentials in the whereabouts of the children. The difference in the reporting of children ever born was not the only area that showed differentials in reporting between couples. Even for other characteristics it was found that reports by women about their husbands' characteristics were not 100 percent correct. For example, only about 70 percent of women gave the same answer as the husband regarding the husband's age. There were other characteristics that were not identically reported, such as the level of education of the husband. This section of the thesis informs of the risks of measuring indicators based on the reports of a partner.

The major conclusion for this section was that male fertility was hard to analyse effectively and that it was challenging to overcome the constraints built into the data as collected by DHS. In addition to methodological constraints, the lack of a benchmark with which to assess results also made the topic of male fertility hard investigate fully. Despite the large number of surveys that have collected male fertility data in the DHS not much literature has been published in this area. While authors such as Ezeh et al. (1996) or more recently Bledsoe et al. (2000), present some information on children ever born to men, this did not go deep into demographic or socio-economic determinants of fertility as has come to be expected for women. For men there is no such work as that by Cleland and Rodriguez (1988), where one could effectively look at determinants of fertility in a multivariate model. It was therefore hard to rank the results obtained on male fertility in terms of high, middle or low male fertility. Nevertheless, there were useful insights gained in this chapter.

7.2 POLICY IMPLICATIONS

A number of implications arise out of the analysis of data on male nuptiality, sexual behaviour and fertility as undertaken in this thesis. This section first presents recommendations arising from the results on sexual behaviour in conjunction with knowledge gained from other chapters. Most of the recommendations hinge on the on sexual behaviour findings, not because results on patterns of nuptiality, and fertility are unimportant, but because the most urgent concerns in Tanzania and Zimbabwe would probably be those related to the HIV/AIDS epidemic and how its spread can be checked. These are followed by recommendations concerning methodology, survey and questionnaire design in Section 7.3.

The most disturbing result was that not only is age at first sex very low but that there were also indications that age at first sex is falling in both countries. This has serious implications for the management of the AIDS epidemic. Given the low levels of condom use and the lack of strong policies to start sex education at an earlier age. The Tanzania 1996 and Zimbabwe 1994 DHS data on AIDS awareness and condom usage, show that the percentage of men who admit to using condoms is very low. For example, among Zimbabwean men, despite high levels of knowledge

about AIDS, only 11.8 percent of men used a condom with their spouse in the 4 weeks before the survey. Only 60 percent did so with another partner who was not the spouse; the majority doing so for family planning reasons (Zimbabwe Central Statistical Office 1995). Such results, coupled with a young age at first sexual relations, indicate that there are reasons to start targeting men at a young age and to educate them not only about family planning but also about the risks of AIDS.

Zones such as the Southern zone in Tanzania and Matabeleland in Zimbabwe have to be targeted in educating the inhabitants about the risks of early age at first sex. For both countries, alternatives or alterations to ceremonies that mark entry into adulthood will have to be researched. It is probably the case that the early ages at marriage/ first sexual relations in the Southern zone in Tanzania (in TDHS 1992) are linked to the lack of education opportunities and economic activities outside agriculture. Campaigns for safe sex and delayed initiation into sexual relations will have to be addressed in tandem with economic development projects.

In addition to concerns about early ages at first sexual relations, there is even more concern about the fact that among young and unmarried men, the percentage with more than one sexual partner is high. The high number of sexual partners increases the risks to sexually transmitted diseases. This also has implications for teenage pregnancies and pregnancies before marriage and hence both for the health of the young women who have children when they are too young, and the children born to such mothers. There are also implications arising from lost opportunities to acquire further education since girls who become pregnant rarely have an opportunity to go on with schooling. With such low ages at first sex for men, there is the need to recognise that there could be social implications of early fatherhood, which are rarely studied, and which might be associated with why few unmarried men acknowledge fatherhood despite the low age at first sexual relations.

Another result that has implications for policy relating to the management of the AIDS epidemic concerns the long gap between first sexual relations and marriage for men. While several avenues could be taken to reduce the risk of infection during this period, e.g. advocating sexual relations with one partner only as well as safe sex using condoms, one can also foresee the possibility of campaigns to shorten this gap. This could be through early marriage accompanied by contraceptive use to maintain

the desired level of fertility, or alternatively reducing the gap by delaying sexual initiation; a campaign that would probably be more enthusiastically taken on by religious leaders and government policy makers.

Since there is no strong differentiating factor in the initiation into sexual relations but age at first sex is low, the targeted audience should be the general public and especially parents, the majority of whom might still believe that age at first sexual relations is not so low. Educating parents that their children are probably already sexually active by age fifteen might prompt them to educate their children about risks to STDs or underage pregnancies at a much earlier age. Starting sexual education at secondary school (age 15/16) is probably too late for a large proportion of boys.

That polygamy is still prevalent has implications not only for male fertility levels but also for the welfare of women and children as was seen in the literature review section of Chapter Four. The practice of polygamy itself is not necessarily undesirable. As Wright (1994) points out, polygamy might for most polygamous women be a rational choice, providing means of redistributing the wealth of a rich man between a wider circle of women. All other things being equal, it suits a woman better to be the junior wife of a rich man than to be the only wife of a poor monogamous one. However, the most urgent implication lies in the sharing of sexual partners and so in the transmission of diseases such as AIDS. It has been suggested that polygamous men are less likely to seek sexual relations from commercial sex workers, which might thus protect the wives from infection. However, men in polygamy might still be at risk from their wives, who might have sexual partners other than their husbands and therefore increased risk of transmitting the disease to other co-wives.

7.3 METHODOLOGY AND DATA REQUIREMENTS

While efforts to collect demographic data directly from male respondents are to be commended, there is still a lot to be done before analysis can yield deeper insights as to the socio-economic determinants of nuptiality, sexual behaviour and fertility.

During the course of analysis, several obstacles arose as a direct result of inadequate questionnaire design.

The first issue is that of sample sizes which for most analyses necessitated the use of broader than desirable groups in order to have meaningful results. For example, it was impossible to use the tribal characteristic of respondents as there were too many tribes and too few respondents in each category i.e. the sample size was not large enough. In addition, some of the tribes were even too obscure to appear in anthropological literature, making it impossible to construct meaningful categories. It would have been better either to have a larger number of people or to have classifications of tribes that are not too specialised. As zonal differentials showed, there is a lot to be gained by looking at cultural/ tribal characteristics. To be able to look at such characteristics might mean more involvement of ethnographers and anthropologists in the questionnaire design stage.

The second point concerns the surveys' upper cut-off age for male respondents. It seems that not enough thought went into the implications of having the cut-off age as age 54, 59 or 60 (as was the case in the TDHS 1992, TDHS 1996 and the 1994 ZDHS, respectively). Obviously, the little that is known about male fertility tells us that fertility can continue well beyond these years and so, if men marry in their mid to late twenties, only part of their experience is being studied. Of course, there will be concerns about the recalling of events by older men, but as among women, this information even if faulty might be more useful than no information. It is important that men older than 60 are interviewed so that issues of fertility and polygamy can be explored more fully, as it is known that it is in the older ages that men acquire additional wives. Moreover, as the study by Donadje and Tabutin (1994) shows, it is possible to get such information for men who are older than those in the surveys used in these analyses.

In addition to the above obstacles, for all areas of the thesis, questionnaire design was also found to be inadequate suggesting that the range and depth of questions did not incorporate a great deal of knowledge regarding male demographic behaviour. There are areas where the questions, without any alteration, were lifted from female questionnaires. In other sections, questions for

male respondents had less depth compared to questions on the same topic put to women, indicating that the watering down of questionnaires was conscious.

Marriage in sub-Saharan Africa is complicated, described as a process rather than a single event, and entry into and exit from unions is frequent. However, little of what is known about the process of marriage in this region was translated into the questions posed to men, i.e. questionnaires were too simplistic to capture many of the special features of marriage in sub-Saharan Africa. For a start, questions were only raised concerning the current marriage for the man. No attempt was made to go deeper by asking whether he had been married before, as was done for women respondents. In addition to asking how many times a man has been married, it might be desirable to include questions on dates of other unions as well as the possible reasons why the unions were dissolved (Meekers 1992; Meekers 1994a).

It would also be useful to have questions regarding the nature of past unions if any are reported; whether such past unions were consensual or formal. Moreover, it would be useful to know if any children were produced from such past unions. It might be desirable to design a different type of survey, i.e. opting for smaller scale and culture-specific qualitative questions where respondents can be asked about issues such as their motivation for marrying more than one wife. In addition, the issue of 'outside' wives should be included in the questionnaires, especially in urban areas where it has been learnt that outside wives might be replacing polygamous unions (Bledsoe 1990).

On sexual behaviour there is the need for questions concerning the number of sexual partners in a certain period to be standardised. As they stand, one needs to assume that behaviour in the last twelve months is fully comparable to behaviour in the last four weeks. Another issue that needs to be addressed further concerns who the sexual partners of young men were. Questions about their age and marital status would be useful especially in order to understand more about sexual activities of young people and to see whether the sexual networks as described by Caldwell and his colleagues are universal in sub-Saharan Africa (Caldwell et el. 1989; Caldwell et al. 1991; Caldwell et al. 1992a, Caldwell et al. 1992b). As regards sexual behaviour and other topics covered in this thesis, the range of socio-economic characteristics

available in the data sets are unsatisfying and are not really useful in capturing aspects of sexual behaviour.

If one of the aims of the questionnaire is to look at factors that influence initiation into sexual relations, then the range of questions as provided in the DHS is inadequate. There is a need for questions regarding activities at younger ages which would define risk taking behaviour. The type of questions in the study by Mturi et al. (1997), are more appropriate as questions on risk taking behaviour like smoking and alcohol consumption were asked. If such questions are not feasible then there is a possibility of targeting questions to men and women with children about whether they were aware of the sexual activities of their children. Investigating the attitude of parents to the sexual activities of their children, and how they educate their children on sexual relations is probably a better predictor of entry into sexual relations than socio-economic characteristics such as residence. After all, for most men these characteristics might have changed from the time they were fifteen.

It is also necessary to pay more attention to cultural factors that might affect age at first sexual relations. For example, one of the strongest characteristics associated with an early age at first sex is residence in Matabeleland, and this situation might be largely explained by the fact that in this area virginity is not necessarily a desirable trait at marriage.

As it is usually expected that +-men are not able to give accurate accounts of their fertility, (either because they do not know or might be reluctant to admit paternity), it is understandable that questions on fertility were very basic. For future work it is clear that questions on fertility of men need to be better designed. First, the maximum age of eligibility for men needs to be raised since it is known that male fertility continues for longer than women. If the effect of polygamy on male fertility is to be fully appreciated then a higher cut-off age is necessary. Another major deficiency was the lack of dates of birth of the children born to men; a matter that greatly hinders analysis of fertility. However, the quality of data that will be collected also needs to be considered. The study by Donadje and Tabutin (1994) for Southern Benin has shown that it is possible to get dated fertility information from men and for it to be useable. Donadje and Tabutin (1994) were able to get information on the dates of birth of the men's children and so were able to calculate the Total

Fertility Rate for men. Lastly, it would be useful to be able to link a man to all the women he has partnered. Since there are difficulties interviewing all the women who have given birth to his children (either because the women have moved away or have died), it might be necessary to interview the man. The questions will then have to be on the different partners' characteristics and the different children that he fathered with the different women. Finally it would be necessary to collect the birth histories for the children. This could be an alternative route to getting to more details on male fertility i.e. one that includes a picture of timing of births. Since the analysis of reporting of children ever born among couples showed that it is in about a half of cases that reporting of children ever born is equal for the man and the woman, this avenue still has limitations. Once conditions such as equality of children ever born by both parties and where the woman had been married only once are met, the numbers remaining are too small. It is also the case that the men whose reported number of children equals those of the women are probably the least interesting to study. In such cases it is better to look at the birth histories of the women in the women file and classify results by characteristics of the husbands as reported by their wives.

The data as collected makes it impossible to study premarital fatherhood. To get a better understanding of men's premarital childbearing and sexual behaviour it would be useful to ask already married men how many of their children were born before marriage. As described above if questions about timing were asked of all the women it might be possible to look at such issues. It seems that men might be more open once they are married, but not before.

Issues of interviewer training cannot be overemphasised. Given that the nature of questions that are to be asked of men is different from that of those asked of women, there is need to train interviewers appropriately. They should be aware of the different avenues through which errors can creep into data. For example, it is more likely that men will over-report the number of their wives or their children not because of recall errors as is usually the case, but because these two things stand for higher status in traditional societies. In addition, interviewers need to be aware that there is the potential to get faulty data on marriage as older men, who are now

formally married, might not report on past 'living together' arrangements when answering questions on age at first marriage.

7.4 FURTHER WORK IN MALE DEMOGRAPHY

The work undertaken for this thesis was difficult because this is a new area of research without well - developed methodology and without a broad literature within which to place the results. While one can think of developing methods to address male demographic issues, it is important that data requirements, (some of which were mentioned above) are met. This section looks at those areas that need further thought and research.

Work on male demography would benefit from a comparative study of a larger number of countries to study issues such as age at marriage, age at first sexual relations, prevalence of polygamy and levels of fertility. This would make it possible to uncover regional patterns of behaviour and might enhance our understanding of determinants. It might also be useful to have more than one survey per country in order to see whether persistent patterns emerge or whether there are changes over time. Another gain might be made by using more than one data source per country, for example, using some census data. While this might be confusing if different sources show different results given different ways of asking questions, such findings are still useful in informing us about sources of differentials and errors and what should be done in order to collect better data and get better estimates.

In addition to a more comparative approach, further understanding of entry into marriage for men would be furthered by analysing information from cultural determinants of entry into marriage. For example, it might be useful to look into how different societies decide when an individual is ready for marriage. For most societies, a woman is ready for marriage soon after, or even before, first menses but not much is known about the definitions of ability to marry for men.

On the topic of types of union, further work on consensual unions would require better definitions as well as more accurate information, especially from older men. Questions in this area would have to be culturally specific, and based on research as to what exactly is marriage for a particular society. As the data stand, it

would be hard to undertake a comparative study of the prevalence of consensual unions, because the definition of a union varies by culture. Further knowledge about polygamy and its determinants can be obtained by having more information of the dates of marriages in which a man has been. Information on dates of divorce would also be useful, and would provide us with more knowledge about the fluidity of marriage.

Since it has been hard to identify exactly what socio-economic determinants strongly define the probability that a man will be polygamous, it would be constructive to have information on the motivations for having additional wives and men's views on the advantages of having more than one wife. It might also be useful to ask women why they enter polygamous unions given the conventional ideas that this would not be the ideal type of union for them. In addition, it would be useful to have an idea of the prevalence of 'outside wife' or 'small house' unions as are known in Tanzania. Questions about the motivation for it, the 'main' wives' attitude and the characteristics of the women who opt for these arrangements would be vital.

The study of sexual behaviour generates many issues that require further work. It is obvious that a different type of survey would be required to capture issues such as why some men delay the onset of sexual relations and why others start much earlier. First, it would be useful to understand the role of parental control of their children's sexual behaviour. Second it would be useful to look at the sexual partners of young and unmarried men. While it was seen that for married men there were few with extra-marital sexual partners, this was not the case for younger unmarried men but no information was obtained as to who these partners were. This would be useful in defining the risks that men take, as for example, the risk is higher if they are having relations with commercial sex workers. Information about the sexual partners of young men would provide more knowledge in addition to what we already know about sexual networking in this region. So far there exists mostly the account by Caldwell and his colleagues, based on the Ekiti region of Nigeria, but supposed to explain behaviour all over sub-Saharan Africa (Caldwell et el. 1989; Caldwell et al. 1991; Caldwell et al. 1992a, Caldwell et al. 1992b).

It would also be beneficial to analyse attitudinal questions regarding sex before marriage and how childbearing before marriage is regarded. Are there any

social implications for a man who has children before he is married? Is the social stigma for a man the same as that for a woman who has a child before marriage? These findings might explain why unmarried men are not reporting on the number of children they have.

It should be possible to study more about the determinants of fertility if additional and detailed information were collected. For example, it would be possible to use a model fertility schedule if one had the dates of birth of the children born to men. For this, it will be necessary to construct a model based on data for a number of countries. In addition, if all the women married to a man with more than one wife were interviewed or included in the household questionnaire, it would be possible to use their birth histories more effectively. Explanation of the determinants and patterns of fertility would probably be easier if it was accompanied by an analysis of contraceptive use.

In conclusion, the study of these four aspects of male demography has been a useful experience, if at times incredibly frustrating. After working with data from male respondents it is very clear that it is an area that did not receive enough attention in the planning and collection of the data. Even after data have been collected for a number of countries, the area has not produced sufficient literature as its female counterpart has. The questionnaire design leaves a lot to be desired and in many areas shows that questions, without modification, were lifted from female questionnaires regardless of the complexities of male processes of reproduction. Future work in male demographic data collection will have to take a number of issues into consideration in the different stages of data collection. Otherwise, the data collected will only serve to inform research about very superficial dynamics of male reproduction.

REFERENCES

Ahlberg, M.A. 1994. Is There A Distinct African Sexuality? A Critical Response to Caldwell. *Africa* 64 (2): 220-242.

Ajayi, A.A., L.T. Marangu, J. Miller *et. al.* 1991. Adolescent Sexuality and Fertility in Kenya: A Survey of Knowledge, Perceptions and Practices. *Studies in Family Planning* 22 (4): 205-216.

Alan Guttmacher Institute. 1998. Into A New World: Young Women's Sexual and Reproductive Lives. New York: The Alan Guttmacher Institute.

Alpers, E.A. 1968. The Nineteenth Century: Prelude to Colonialism. In *Zamani: A Survey of East African History*, edited by B.A. Ogot and J.A. Kieran. Nairobi, Kenya: East African Publishing House and Longmans, Green & Co. Ltd.

Anderson, D. 1997. Men, Reproduction and Fatherhood. IUSSP Policy and Research Papers. Belgium: International Union for the Scientific Study of Population.

Antoine, P., and M. Pilon. 1998. La Polygamie en Afrique: Quoi de Neuf? : La Chronique du Centre Français sur la Population et le Développement (CEPED).

Armitage, P., and G. Berry. 1994. *Statistical Methods in Medical Research*. Third ed. London: Blackwell Science.

Arnold, F., and A. Blanc. 1990. Assessment of the Quality of Birth History Data in the Demographic and Health Surveys. In *Assessment of DHS-1 Data Quality, Methodological Reports 1*, edited by Demographic and Health Surveys. Calverton, Maryland: Institute for Resource Development, Macro Systems Inc.

Armstrong A.K. and W. Ncube. 1987. Women and Law in Southern Africa, edited by Armstrong A.K. and W. Ncube. Harare, Zimbabwe: Zimbabwe Publishing House.

Auret, D. 1990. *A Decade of Development: Zimbabwe 1980-1990*. Harare, Zimbabwe: Mambo Press and The Catholic Commission for Justice and Peace in Zimbabwe.

Bagachwa, M., and B. Ndulu. 1996. Structure and Potential of the Urban Small-Scale Production in Tanzania. In *What Went Right in Tanzania: People's Response to Directed Development*, edited by M.L. Swantz and A.M. Tripp. Dar es Salaam, Tanzania: Dar es Salaam University Press.

Balepa, M., M. Fotso, B. Barrere *et. al.* 1992. Enquête Démographique et de Santé Cameroun 1991. Calverton, Maryland: Diréction Nationale du Deuxième Recensement Géneral et Macro International Inc.

Becker, S. 1996. Couples and Reproductive Health: A Review of Couples Studies. *Studies in Family Planning* 27 (6): 291-306.

Belsey, M.A. 1976. The Epidemiology of Infertility: A Review with particular Reference to Sub-Saharan Africa. Geneva, Switzerland: World Health Organisation.

Bennett, N.R. 1968. The Arab Impact. In *Zamani: A survey of East Africa History*, edited by B.A. Ogot and J.A. Kieran. Nairobi, Kenya: East African Publishing House and Longmans, Green & Co. Ltd.

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, A.K., and A.J. Gage. 2000. Men, Polygyny and Fertility Over the Life-Course in Sub-Saharan Africa. In *Fertility and the Male Life-Cycle in the Era of Fertility Decline*, edited by C. Bledsoe, S. Lerner and J.I. Guyer. New York: Oxford University Press.

Blanc, A.K., and N. Rutenberg. 1991. Coitus and Contraception: The Utility of Data on Sexual Intercourse for Family Planning Programmes. *Studies in Family Planning* 22 (3): 162-176.

Bledsoe, C. 1990. Transformations in Sub-Saharan African Marriage and Fertility. In *World Population: Approaching the Year 2000*, edited by S.H. Preston. London: Sage Publications.

Bledsoe, C., and B. Cohen. 1993. *Social Dynamics of Adolescent Fertility in Sub-Saharan Africa*. Washington, D.C: National Academy Press.

Bledsoe, C., and U. Isiugo-Abanihe. 1989. Strategies of Child-Fosterage among Mende Grannies in Sierra-Leone. In *Reproduction and Social Organisation in Sub-Saharan Africa*, edited by R. Lesthaeghe. California: University of California Press.

Bledsoe, C., and W.F. Hanks. 1998. Legitimate Recuperation or Illicit Stalling? Time, Contraceptive Use, and the Divided Man in Rural Gambia. Paper read at the Population Association of America (PAA) Annual Meeting, April 1998, Chicago, Illinois.

Bledsoe, C., S. Lerner, and J.I. Guyer, eds. 2000. *Fertility and the Male Life-Cycle in the Era of Fertility Decline*. United States: Oxford University Press.

Bongaarts, J. 1978. A Framework for Analysing the Proximate Determinants of Fertility. *Population and Development Review* 4 (1): 105-132.

Bongaarts, J., O. Frank, and R. Lesthaeghe. 1984. The Proximate Determinants of Fertility in Sub-Saharan Africa. *Population and Development Review* 10 (3): 511-537.

Bongaarts, J., and R.G. Potter. 1983. *Fertility, Biology, and Behavior: An Analysis of the Proximate Determinants.* New York: Academic Press.

Boohene, E., J. Tsodzai, K. Hardee-Cleaveland *et. al.* 1991. Fertility and Contraceptive Use Among Young Adults in Harare, Zimbabwe. *Studies in Family Planning* 22 (4): 264-271.

Boroffice, O.B. 1995. Women's Attitudes to Men's Sexual Behaviour. *Health Transition Review.* Supplement to Volume 5: 67-79.

Boserup, E. 1970. *Women's Role in Economic Development.* London: Allen & Unwin.

Boulier, B., and M.R. Rozensweig. 1978. Age, Biological Factors, and Socio-economic Determinants of Fertility: A New Measure of Cumulative Fertility for Use in the Empirical Analysis of Family Size. *Demography* 15 (4): 487-497.

Briggs, J. 1993. Population Change in Tanzania: A Cautionary Note for the City of Dar es Salaam. *Scottish Geographical Magazine* 109 (2): 117-118.

Bureau of Statistics (Tanzania). 1989. The 1988 Population Census: Preliminary Report. Dar es Salaam: Ministry of Finance, Economic Affairs and Planning; and Government of Tanzania.

Caldwell, J.C., and P. Caldwell. 1993. The South African Fertility Decline. *Population and Development Review* 19 (2): 225-262.

Caldwell, J.C., P. Caldwell, and I.O. Orubuloye. 1992a. The Family and Sexual Networking in Sub-Saharan Africa: Historical Regional Differences and Present-Day Implications. *Population Studies* 46 (3): 385-410.

Caldwell, J.C., P. Caldwell, and P. Quiggin. 1989. The Social Context of AIDS in Sub-Saharan Africa. *Population and Development Review* 15 (2): 185-234.

Caldwell, J.C., P. Caldwell, and P. Quiggin. 1991. The African Sexual System: Reply to Le Blanc et al. *Population and Development Review* 17 (3): 506-515.

Caldwell, J.C., I.O. Orubuloye, and P. Caldwell. 1992b. Fertility Decline in Africa: A New Type of Transition? *Population and Development Review* 18 (2): 211 -242.

Carael, M. 1995. Sexual Behaviour. In *Sexual Behaviour and AIDS in the Developing World*, edited by J. Cleland and B. Ferry. London: Taylor & Francis on Behalf of the WHO.

Carael, M., J. Cleland, J. Deheneffe *et. al.* 1992. Research on Sexual Behaviour that Transmits HIV: The GPA/WHO Collaborative Surveys-Preliminary Findings. In *Sexual Behaviour and Networking: Anthropological and Socio-Cultural Studies on the Transmission of HIV.*, edited by T. Dyson. Liege, Belgium: International Union for the Scientific Study of Population.

Carballo, M. 1995. History and Background. In *Sexual Behaviour and AIDS in the Developing World*, edited by J. Cleland and B. Ferry. London: Taylor & Francis on Behalf of the WHO.

Casterline, J.B., L. Williams, and P. McDonald. 1986. The Age Difference Between Spouses: Variations Among Developing Countries. *Population Studies* 40 (3): 353-374.

Chittick, N. 1968. The Coast Before the Arrival of the Portuguese. In *Zamani: A Survey of East Africa History*, edited by B.A. Ogot and J.A. Kieran. Nairobi-Kenya: East African Publishing House and Longmans, Green & Co. Ltd.

Chojnacka, H. 1980. Polygyny and the Rate of Population Growth. *Population Studies* 34 (1): 91-107.

Clark, A.L., and P. Wallin. 1964. The Accuracy of Husbands' and Wives' Reports of the Frequency of Marital Coitus. *Population Studies* 18 (2): 165-173.

Cleland, J. 1996. Demographic Data Collection in Less Developed Countries 1946-1996. *Population Studies* 50 (3): 433-450.

Cleland, J., B. Ferry, and M. Carael. 1995. Summary and Conclusions. In *Sexual Behaviour and AIDS in the Developing World*, edited by J. Cleland and B. Ferry. London: Taylor & Francis Ltd. on Behalf of the WHO.

Cleland, J., and G. Rodriguez. 1988. The Effect of Parental Education on Marital Fertility in Developing Countries. *Population Studies* 42 (3): 419-442.

Clignet, R. 1970. *Many Wives, Many Powers: Authority and Power in Polygynous Families*. Evanston, Illinois: NorthWestern University Press.

Coale, A.J., and D.R. McNeil. 1972. The Distribution by Age of the Frequency of First Marriage in a Female Cohort. *Journal of the American Statistical Association* 67 (340): 743-749.

Coale, A.J., and J. Trussell. 1974. Model Fertility Schedules: Variations in the Age Structure of Childbearing in Human Populations. *Population Index* 40 (**2**): 185-258.

Coale, J.A. 1971. Age Patterns of Marriage. *Population Studies* 25 (**2**): 193-214.

Collett, D. 1994. *Modelling Survival Data in Medical Research*. London: Chapman & Hill.

Cory, H. 1953. *Sukuma Law and Custom*. London: Oxford University Press.

Cory, H. 1955. *Sheria na Kawaida za Wanyamwezi (Laws and Customs of the Nyamwezi)*. London: Oxford University Press for the International African Institute.

Cory, H., and M. Hartnoll. 1971. *Customary Laws of the Haya Tribe*. London: Frank Cass and Co. Ltd.

Demographic and Health Surveys+. 2000a. About DHS+ Surveys & Research. Web Page: *http://macroint.com/dhs/about/types_of_surveys.cfm*: Macro International Inc.

Demographic and Health Surveys+. 2000b. About DHS+ Surveys &Research: Specialised Research Activities.
Web Page: *http://macroint.com/dhs/about/specialised_research.cfm*: Macro International Inc.

Demographic and Health Surveys+. 2000c. Survey Information. Web Page: *http://macroint.com/dhs/data/listmodules.cmf*: Macro International Inc.

Demographic and Health Surveys+. 2000d. Who We Are. Web Page: *http://macroint.com/dhs/who/our_history.cfm*: Macro International Inc.

Dixon, R. 1971. Explaining Cross-Cultural Variations in Age at Marriage and Proportions Never Married. *Population Studies* 25 (**2**): 215-233.

Donadje, F., and D. Tabutin. 1994. Male Nuptiality and Fertility in Southern Benin. In *The Onset of Fertility Decline in sub-Saharan Africa*, edited by T. Locoh and V. Hertrich: International Study for the Scientific Study of Population.

Dzekedzeke, K., and N. Nyangu. 1994. Fertility Patterns and their Determinants in Zambia: Findings from the Zambia Demographic and Health Survey. Regional Analysis Workshop for Anglophone Africa. Maryland: DHS/ Macro International Inc.

Ewbank, D.C. 1981. *Age Misreporting and Age Selective Under-enumeration: Sources, Patterns and Consequences for Demographic Analysis*. Washington D.C: National Academy Press.

Ezeh, A.C., M. Seroussi, and H. Raggers. 1996. Men's Fertility, Contraceptive Use and Reproductive Preferences. DHS Comparative Studies Number 18. Calverton, Maryland: DHS/ Macro International Inc.

Francovich, L., M. Livi-Bacci, and S. Salvini. 1998. Male Fertility in Italy, 1995-96: A Delay of Fatherhood. Paper read at the Population Association of America (PAA) Annual Meeting, April 1998, Chicago, Illinois.

Gage-Brandon, A.J., and D. Meekers. 1993. Sex, Contraception and Childbearing in Sub-Saharan Africa. *International Family Planning Perspectives* 19 (1): 14-18+33.

Ghana Statistical Office. 1994. Ghana Demographic and Health Survey 1993. Calverton, Maryland: GSS and Macro International Inc.

Goldman, N. 1981. Dissolution of First Unions in Colombia, Panama and Peru. *Demography* 18 (4): 659-679.

Goldman, N., and A. Pebley. 1989. The Demography of Polygyny in Sub-Saharan Africa. In *Reproduction and Social Organisation in Sub-Saharan Africa*, edited by R. Lesthaeghe: University of California Press.

Goldscheider, F.K., and G. Kauffman. 1996. Fertility and Commitment: Bringing Men Back In (in Marriage and Fertility). *Population and Development Review* 22 (**Supplement:** Fertility in the United States: New Patterns, New Theories): 87-99.

Goode, W.J. 1963. *World Revolution and Family Patterns*. New York: Free Press of Glencoe.

Government of Tanzania. 1971. The Law of Marriage Act 1971. Government Notice Number 240 Published on 5/11/71. Part 2b. Dar es Salaam, Tanzania.

Greene, M.E., and A.E. Biddlecom. 1996. Absent and Problematic Men: Demographic Accounts of Male Reproductive Roles. Policy Research Division Working Paper. New York: Population Council.

Gregson, S., T. Zhuwau, R.M. Anderson *et. al.* 1996. The Early Socio-Demographic Impact of the HIV-1 Epidemic in Rural Zimbabwe. Work Programme on Population Based Studies. Harare: Blair Research, United Kingdom Overseas Development Administration, and Oxford University.

Hajnal, J. 1948. Some Comments on Mr. Karmel's Paper 'The Relations between Male and Female Reproduction Rates'. *Population Studies* 2 (3): 354-360.

Hajnal, J. 1953. Age at Marriage and Proportions Marrying. *Population Studies* 7 (2): 111-136.

Hajnal, J. 1965. European Marriage Patterns in Perspective. In *Population in History*, edited by D.V. Glass and D.E.C. Eversley. London: Edward Arnold (Publishers) Ltd.

Hajnal, J. 1982. Two Kinds of Pre-industrial Household Formation System. *Population and Development Review* 8 (3): 449-494.

Henry, L. 1961. Some Data on Natural Fertility. *Eugenics Quarterly* 8.

Hertrich, V., and M. Pilon. 1998. Changing Patterns of Marriage in Africa. Volume 4, July-December. France: Centre Francais Sur la Population et la Developpement (CEPED).

Hill, K., and R. Marindo. 1997. Trends and Differentials in Fertility in Zimbabwe, 1980-1994: Analysis of the 1988 and 1994 DHS Surveys. Zimbabwe Further Analysis. Calverton, Maryland: Macro International Inc.

Hinde, P.R.A. 1996. Complete???

Hirschman, C. 1985. Premarital Socio-economic Roles and the Timing of Family Formation: A Comparative Study of Five Asian Societies. *Demography* 22 (1): 35-59.

Holleman, J.F. 1952. *Shona Customary Law*. Oxford: Oxford University Press.

Hopkin, W.A.B., and J. Hajnal. 1939. Analysis of the Births in England and Wales, 1939, by Father's Occupation. *Population Studies* 1 (2): 187-203.

Institute of Resource Development. 1987. Model A Questionnaire With Commentary for High Contraception Prevalence Countries. Basic Documentation. Columbia Maryland: Demographic and Health Survey.

Institute for Resource Development. 1990. An Assessment of DHS-I Data Quality. DHS Methodological Reports, No. 1. Columbia, Maryland: Institute for Resource Development, Macro Systems Inc.

International Monetary Fund. 1996. Zimbabwe: Recent Economic Developments. IMF Staff Country Report. Report Number 96/33. Washington, D.C: International Monetary Fund.

International Monetary Fund. 1999. Article IV With Tanzania. Public Information Notice, (PIN) No. 99/28. Web Page: http://www.imf.org/external/np/sec/pn/1999/PN9928.HTM: International Monetary Fund.

Isiugo-Abanihe, U.C. 1994. Nuptiality Patterns, Sexual Activity and Fertility in Nigeria. DHS Working Paper. Calverton, Maryland: Demographic and Health Survey/ Macro International.

Jones, E.F., J.D. Forrest, S.K. Henshaw *et. al.* 1985. Teenage Pregnancy in Developed Countries: Determinants and Policy Implications. *Family PlanningPerspectives* 17 (2): 53-63.

Kane, T., R. De Buysscher, T. Taylor-Thomas *et. al.* 1993. Sexual Activity, Family Life Education and Contraceptive Practice Among Young Adults in Banjul, The Gambia. *Studies in Family Planning* 24 (1): 50-61.

Karmel, P.H. 1947. The Relations between Male and Female Reproduction Rates. *Population Studies* 1 (3): 249-274.

Karmel, P.H. 1948a. A Rejoinder to Mr. Hajnal's Comments. *Population Studies* 2 (3): 361-372.

Karmel, P.H. 1948b. The Relations Between Male and Female Nuptiality In a Stable Population. *Population Studies* 1 (4): 353-387.

Kenya Central Bureau of Statistics. 1993. Kenya Demographic and Health Survey 1993. Nairobi, Kenya: Demographic and Health Survey & Macro International Inc.

Kenyatta, J. 1979. *Facing Mount Kenya: The Traditional Life of the Kikuyu*. London: Heinemann Group.

Kgosidintsi, B.N., and M. Mugabe. 1994. Botswana Males and Family Planning. Botswana: The National Institute Of Development Research and Documentation & University of Botswana.

Kiernan, K. 1986. Teenage Marriage and Marital Breakdown: A Longitudinal Study. *Population Studies* 40 (1): 35-54.

Kiernan, K., and I. Diamond. 1983. The Age at which Childbearing Starts - A Longitudinal Study. *Population Studies* 37 (3): 363-380.

Kiernan, K., and J. Hobcraft. 1997. Parental Divorce during Childhood: Age at First Intercourse, Partnership and Parenthood. *Population Studies* 51 (1): 41-55.

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Kiondo, A. 1992. The Nature of Economic Reforms in Tanzania. In *Tanzania and the IMF: The Dynamics of Liberalisation*, edited by H. Campbell and H. Stein. Colorado, USA: Westview Press.

Kiragu, K., and L.S. Zabin. 1993. The Correlates of Premarital Sexual Activity Among School-age Adolescents in Kenya. *International Family Planning Perspectives* 19 (3): 92-97+109.

Kisanje, M., and J.K. Kalule. 1994. The Estimation for Potential Demand for Contraception and the Implication for Fertility in Uganda. Regional Analysis Workshop for Anglophone Africa. Calverton, Maryland: DHS/ Macro International Inc.

Kizito, P.M.L., W. Obungu, M. Kibet *et. al.* 1991. Fertility Transition in Kenya. DHS Further Analysis Studies 11. Calverton, Maryland: DHS/ Macro International Inc.

Kodjogbe, N., G. Mboup, J. Tossou *et. al.* 1997. Enquête Démographique et de Santé, République de Benin 1996. Calverton-Maryland: Institut National de la Statistique et de l'Analyse Economique et Macro International Inc.

Komba, A.S., and S.A. Aboud. 1994. Fertility Levels, Trends and Socio-economic Differentials: Findings from the Tanzanian Demographic and Health Survey. Regional Analysis Workshop for Anglophone Africa. Maryland: DHS/ Macro International Inc.

Lauritsen, J.I., and C.G. Swicegood. 1997. The Consistency of Self-Reported Initiation of Sexual Activity. *Family Planning Perspectives* 29: 215-221.

Lazo, A.V. 1994. Marital Fertility in Brazil: Differential by Type of Union and Its Importance in the Fertility Transition, 1976-1991. DHS Working Papers Number 15. Calverton, Maryland: Demographic and Health Survey, Macro International.

Leblanc, M., D. Meintel, and V. Piche. 1991. The African Sexual System: Comment on Caldwell et al. *Population and Development Review* 17 (3): 497-515.

Lee, J., and W. Feng. 2000. Male Nuptiality and Male Fertility among the Qing Nobility: Polygyny or serial Monogamy? In *Fertility and the Male Life-Cycle in the Era of Fertility Decline*, edited by C. Bledsoe, J.I. Guyer and S. Lerner. New York: Oxford University Press.

Lesthaeghe, R. 1989a. Production and Reproduction in Sub-Saharan Africa: An Overview of Organising Principles. In *Reproduction and Social Organisation in Sub-Saharan Africa*, edited by R. Lesthaeghe. California: University of California Press.

Lesthaeghe, R. 1989b. *Reproduction and Social Organisation in Sub-Saharan Africa.* California: University of California Press.

Lesthaeghe, R., G. Kaufmann, and D. Meekers. 1989. The Nuptiality Regimes in Sub-Saharan Africa. In *Reproduction and Social Organisation in Sub-Saharan Africa,* edited by R. Lesthaeghe. California: University of California Press.

Liebenow, J.G. 1971. *Colonial Rule and Political Development in Tanzania: The Case of the Makonde.* Evanston, USA: NorthWestern University Press.

Loaiza, E. 1998. *Male Fertility, Contraceptive Use and Reproductive Preferences in Latin America.* Paper read at Seminar on Men, Fertility, Family Formation and Reproduction, Buenos Aires, Argentina.

Lockwood, M. 1998. *Fertility and Household Labour in Tanzania: Demography, Economy, and Society in Rufiji District, c.1870-1986.* Oxford: Clarendon Press.

Locoh, T. 1994. Will the Decline in Fertility in Sub-Saharan Africa Last? A Time of Uncertainty. In *The Onset of Fertility Transition in Sub-Saharan Africa,* edited by T. Locoh and V. Hertrich. Liege, Belgium: International Union for Scientific Study of Population.

Lopes, C. 1996. Choosing Sustainable Human Development For Zimbabwe's Future. In *Balancing Rocks: Environmental and Development in Zimbabwe. A UNDP Zimbabwe Staff Research Project,* edited by C. Lopes. Zimbabwe: Sapes Books.

Magnani, R.J., J.T. Bertrand, B. Makani *et. al.* 1995. Men, Marriage and Fatherhood in Kinshasa, Zaire. *International Family Planning Perspectives* 21 (1): 19-25+47.

Mair, L. 1971. *Marriage.* London: Cox & Wyman Ltd.

Makinwa-Adebusoye, P. 1992. Sexual Behaviour, Reproductive Knowledge and Contraceptive Use Among Young Nigerians. *International Family Planning Perspectives* 18 (2): 66-70.

Makinwa-Adebusoye, P.K., and B.J. Feyisetan. 1994. The Quantum and Tempo of Fertility in Nigeria. Regional Analysis Workshop for Anglophone Africa. Calverton, Maryland: Macro International Inc.

Marckwardt, A.M., and S.O. Rutstein. 1996. Accuracy of DHS-II Demographic Data: Gains and Losses in Comparison with Earlier Surveys. DHS Working Papers Number 19. Calverton, Maryland: Macro International Inc.

Mason, K.O., and A.M. Taj. 1987. Differences between Women's and men's Reproductive Goals in Developing Countries. *Population and Development Review* 13 (4): 611-638.

Mbizvo, M.T., and D.J. Adamchak. 1994. The Impact of Husband's and Wife's Education and Occupation on family size in Zimbabwe. *Journal of Biosocial Sciences* 26 (4): 553-558.

McCaa, R. 1997. SMAM. 7/28/97 , Department of History, University of Minnesota.

McDonald, J.W., and I.D. Diamond. 1992. Analysis of Current Status Data. In *Demographic Applications of Event History Analysis*, edited by J. Trussell, R. Hankinson and J. Tilton. New York: Oxford University Press.

Meekers, D. 1992. The Process of Marriage in African Societies: A Multiple Indicator Approach. *Population Development Review* 18 (1): 61-78.

Meekers, D. 1994a. Combining Ethnographic and Survey Methods: A Study of the Nuptiality Patterns of the Shona of Zimbabwe. *Journal of Comparative Family Studies* 25 (3): 313-328.

Meekers, D. 1994b. Sexual Initiation and Premarital Childbearing in Sub Saharan Africa. *Population Studies* 48: 47-64.

Meekers, D., and N. Wekwete. 1997. The Socio-economic and Demographic Situation of Adolescents and Young Adults in Zimbabwe. Calverton, Maryland: Macro International Inc.

Mencarini, L. 1999. *An Analysis of Fertility and Infant Mortality in South Africa Based on the 1993 LSMS Data.* Paper read at The Third Africa Population Conference: African Population in the 21st Century, 6-10 December 1999, Durban, South Africa.

Mott, F.L., M.M. Fondell, P.N. Hu *et. al.* 1996. The Determinants of First Sex by Age 14 in a High-Risk Adolescent Population. *Family Planning Perspectives* 28 (1): 13-18.

Msokwa, Z.E. 1994. Statistical Analysis of Data on Knowledge and Use of Contraceptive Methods by Men in Tanzania. Unpublished MSc. Dissertation. Faculty of Social Sciences- Department of Social Statistics, University of Southampton.

Mturi, A.J., and P.R.A. Hinde. 1995. Recent Demographic Change in Tanzania: Causes, Consequences and Future Prospects. *Journal of International Development* 7 (1): 117-134.

Mturi, A.J., and P.R.A. Hinde. 1997. *An Analysis of Recent Trends and Differentials in Tanzania*. Paper read at Royal Geographical Society/ Institute of British Geographers Annual Conference, 7-10 January 1997, University of Exeter.

Mturi, A.J., and P.R.A. Hinde. 1994a. Fertility Decline in Tanzania. *Journal of Biosocial Science* 26 (4): 529-538.

Mturi, A.J., and P.R.A. Hinde. 1994b. The Importance of Traditional Spacing Practices in Determining Birth Interval lengths in Tanzania. Department of Social Statistics, (Working Paper no 94-04), University of Southampton.

Mturi, A.J., M. Tuoane, and I. Diamond. 1997. *Patterns of Sexual Behaviour Among Adolescent Women in Lesotho*. Paper read at British Society for Population Studies (BSPS) Annual Conference, 1-3 September 1997, University of Exeter.

Muganzi, Z., and T. Takona. 1994. Fertility Decline and Demand for Family Planning in Kenya. Regional Analysis Workshop for Anglophone Africa. Calverton, Maryland: Macro International Inc.

Muhwava, W., and I.M. Timæus. 1996. Fertility decline in Zimbabwe. *CPS research paper no. 96-1*. London: Centre for Population Studies London School of Hygiene & Tropical Medicine.

Murphy, M. 1985. Demographic and Socioeconomic Influences on Recent British Marital Breakdown Patterns. *Population Studies* 39 (3): 441-460.

Ndiaye, S., M. Ayad, and A. Gaye. 1997. Enquête Démographique et de Santé au Senegal (EDS-III), 1997. Calverton, Maryland: Ministère de L'Economie, de Finances et du Plan and Macro International Inc.

Ngallaba, S., S.H. Kapiga, I. Ruyobya *et. al.* 1993. Tanzania Demographic and Health Survey 1991/ 92. Dar es Salaam: Bureau of Statistics and Planning Commission.

Ng'weshemi, J.Z.L., J.T. Boerma, R. Pool *et. al.* 1996. Changes in Male Sexual Behaviour in Response to the AIDS Epidemic: Evidence from a Cohort Study. *AIDS* 10 (12): 1415-1420.

Nyblade, L., and J. Menken. 1993. *Husband-Wife Communication: Mediating the Relationship of Household Structure and Polygyny to Contraceptive Knowledge,*

Attitudes and Use. Paper read at International Population Conference, 1993, Montreal, Canada.

Nyoni, T.M. 1996. Income Distributional Effects of Economic Adjustment in Tanzania. Research Report Series Number 7. Addis Ababa-Ethiopia: Organisation for Social Science Research in Eastern and Southern Africa.

Orobaton, N. 2000. Dimensions of Sexuality Among Nigerian Men: Implications for Fertility and Reproductive Health. In *Fertility and the Male Life-Cycle in the Era of Fertility Decline,* edited by C. Bledsoe, S. Lerner and J.I. Guyer. New York: Oxford University Press.

Orubuloye, I.O., J.C. Caldwell, and P. Caldwell. 1991. Sexual Networking in the Ekiti District of Nigeria. *Studies in Family Planning* 22 (**2**): 61-73.

Page, H. 1977. Patterns Underlying Fertility Schedules: A Decomposition by Both Age and Marriage Duration. *Population Studies 31* (**1**): 85-106.

Paget, W. J., and I.M. Timæus. 1994. A Relational Gompertz Model of Male Fertility: Development and Assessment. *Population Studies.* 48 (**2**): 333-340.

Pebley, A.R., and W. Mbugua. 1989. Polygyny and Fertility in Sub-Saharan Africa. In *Reproduction and Social Organisation in Sub-Saharan Africa,* edited by R. Leshaeghe. California: University of California Press.

Phillips, J.F., W.I. Greene, and E.F. Jackson. 1999. Lessons from Community-based Distribution of Family Planning in Africa. Population Council.

Pilon, M. 1994. Types of Marriage and Marital Stability: The Case of the Moba-Gurma of North Togo. In *Nuptiality in Sub-Saharan Africa,* edited by C. Bledsoe and M. Pison. Belgium: International Union for the Scientific Study of Population.

Pison, G. 1986. A Demographic Study of Polygyny. *Population* 41 (**1**): 93-122.

Planning Commission. 1992. National Population Policy. President's Office, United Republic of Tanzania.

Rendall, M. S., L. Clarke et al. 1997. Incomplete Reporting of Male Fertility in the United States and Britain. Cornell University, Population and Development Programme. Working Paper No. 97.03.

Rodriguez, G., and R. Aravena. 1991. *Socio-economic factors and the Transition to Low Fertility in Less Developed Countries: A Comparative Analysis.* Paper read at Demographic and Health Surveys World Conference, Washington, D.C.

Rodriguez, G., and J. Cleland. 1988. Modelling Marital Fertility by Age and Duration: An Empirical Appraisal of the Page Model. *Population Studies* 42: 241-257.

Rodriguez, G., J. Hobcraft, J. McDonald *et. al.* 1984. A Comparative Analysis of Determinants of Birth Intervals. WFS Comparative Studies no. 30. London: World Fertility Survey.

Rodriguez, G., and J. Trussell. 1980. Maximum Likelihood Estimation of the Parameters of Coale's Model of Nuptiality Schedule from Survey Data. WFS Technical Bulletin no 7. London: World Fertility Survey.

Roy-Campbell, Z.M. 1992. The Politics of Education in Tanzania: From Colonialism to Liberalisation. In *Tanzania and the IMF: The Dynamics of Liberalisation*, edited by H. Campbell and H. Stein. Colorado, USA: Westview Press.

Rutenberg, N., and I. Diamond. 1993. Fertility in Botswana: The Recent Decline and Future Prospects. *Demography* 30 (2): 143-157.

Rwezaura, B. 1985. *Traditional Family Law and Change in Tanzania*. Baden-Baden: Nomos Verlagsgesellschaft.

Santow, G., and A. Bioumla. 1984. An Evaluation of the Cameroun Fertility Survey 1978. WFS Scientific Reports. Voorburg- Netherlands: International Statistical Institute.

Seppala, P., and B. Koda, eds. 1998. *The Making of a Periphery: Economic Development and Cultural Encounters in Southern Tanzania*. Dar es Salaam, Tanzania: Mkuki na Nyota.

Shryock, H.S., J.S. Siegel, and Associates. 1976. *The Methods and Materials of Demography*. Edited by E.G. Stockwell. Condensed Edition. San Diego-California: Academic Press, Inc.

Singh, S., and R. Samara. 1996. Early Marriage Among Women in Developing Countries. *International Family Planning Perspectives* 22 (4): 148-157+175.

Smith, D.P. 1980. Life Table Analysis. WFS Technical Bulletin Number 6. The Hague: International Statistical Institute and World Fertility Survey.

Stata Corp. 1997. Stata Statistical Software: Release 5.0. 5 (Statistical). Stata Corporation, College Station, TX.

Stata Corp. 1999. Stata Statistical Software: Release 6.0. 6 (Statistical). Stata Corporation, College Station, TX.

Stewart, M. 1995. Rural Tanzanian Youth's First Intercourse is Early, Number of Partners is High. *International Family Planning Perspectives* 21 (1): 42-43.

Studies in Family Planning. 1996. Zimbabwe 1994: Results from the Demographic and Health Survey. *Studies in Family Planning* 27 (1): 52-56.

Studies in Family Planning. 1998. Tanzania 1996: Results from the Demographic and Health Survey. *Studies in Family Planning* 29 (3): 142-145.

Stupp, P.W. and H.I.Goldberg. 1997. Components of Male Fertility in Honduras and Jamaica. Paper read at the Population Association of America (PAA) Annual Meeting, March 1997, Washington, D.C.

Swantz, M. 1998. Notes on Research on Women and Their Strategies for Sustained Livelihood in Southern Tanzania. In *The Making of a Periphery: Economic Development and Cultural Encounters in Southern Tanzania*, edited by P. Seppala and B. Koda. Dar es Salaam, Tanzania: Mkuki na Nyota.

Talle, A. 1988. Women At a Loss: Changes in Maasai Pastoralism and their Effects on Gender Relations, University of Stockholm: Department of Social Anthropology.

Tanzania Bureau of Statistics. 1997. *Tanzania Demographic and Health Survey 1996*. Calverton, Maryland: Bureau of Statistics, Planning Commission and Macro International Inc.

Timæus, I.M, and W. Graham. 1989. Labour Circulation, Marriage and Fertility in Southern Africa. In *Reproduction and Social Organisation in Sub-Saharan Africa*, edited by R. Lesthaeghe. California: University of California Press.

Timæus, I.M., and A. Reynar. 1998. Polygynists and Their Wives in Sub-Saharan Africa: An Analysis of Five Demographic and Health Surveys. *Population Studies* 52 (2): 145-162.

Trussell, J., and D.E. Bloom. 1988. Estimating the Covariates of Age at First Marriage and First Birth. *Population Studies* 37 (3): 403-416.

Uganda Statistics Department. 1996. Uganda Demographic and Health Survey 1995. Calverton, Maryland: Statistics Department (Uganda) and Macro International Inc.

UNAIDS. 1998. AIDS Epidemic Update 1998. Joint United Nations Program on HIV/ AIDS,. Geneva: UNAIDS & WHO.

United Nations. 1994. La Grossesse de l'Adolescence en Afrique, ses Conséquences Sanitaires, Sociales et Economiques/ Mesures Proposées pour en Reduire l'Ampleur notamment pour Remédier aux Abandons Scolaires. Web Page: *http://undp.org/popin/regionalneca/unecapop/pe1994/pe1994tb.htm*: United Nations Economic Commission for Africa (UNECA).

United Nations. 1998. World Population Prospects: The 1998 Revision. Volume 1: Comprehensive Tables. ST/ESA/SER.A/177. New York: United Nations.

United Nations. 1999. The World at Six Billion. Web Page: *http://www.popin.org/6billion/t15.htm*: United Nations.

van de Walle, E. 1968. Marriage in African Censuses and Inquiries. In *The Demography of Tropical Africa*, edited by W. Brass, A.J. Coale, P. Demeny. Princeton New Jersey: Princeton University Press.

van de Walle, E. 1993. Recent Trends in Marriage Ages. In *Demographic Change in Sub-Saharan Africa*, edited by K.A. Foote. Washington, D.C: National Research Council.

van de Walle, E., and D. Meekers. 1994. Marriage Drinks and Kola Nuts. In *Nuptiality in Sub - Saharan Africa: Contemporary Anthropological and Demographic Perspectives*, edited by C. Bledsoe and G. Pison. Oxford: Oxford University Press.

von Mitzlaff, U. 1988. *Maasai Women: Life in a Patriachal Society Field Research Among the Parakuyo Tanzania*. First ed. Munich & Dar es Salaam: Trickster Verlag & Tanzania Publishing House.

Vuorela, U. 1992. The Informal Sector, Social Reproduction and the Impact of the Economic Crisis on Women. In *Tanzania and the IMF: The Dynamics of Liberalisation*, edited by H. Campbell and H. Stein. Colorado-USA: Westview Press.

Wangwe, S.M., H.H. Semboja, P. Tibandebage *et. al.* 1998. *Transitional Economic Policy and Policy Options in Tanzania*. Dar es Salaam, Tanzania: Mkuki na Nyota Publishers.

Were, G.S., and D.A. Wilson. 1969. *East Africa Through a Thousand Years: A History of the Years A.D. 1000 to the Present Day*. Nairobi, Kenya: Evans Brothers.

Westoff, C.F. 1974. Coital Frequency and Contraception. *Family Planning Perspectives* 6 (**3**): 136-141.

WHO/UNAIDS. 1998a. Epidemiological Fact Sheet On HIV/ AIDS and Sexually Transmitted Diseases: United Republic of Tanzania. Fact Sheet. Geneva, Switzerland: World Health Organisation/ UNAIDS.

WHO/UNAIDS. 1998b. Epidemiological Fact Sheet On HIV/ AIDS and Sexually Transmitted Diseases: Zimbabwe. Fact Sheet. Geneva, Switzerland: World Health Organisation/UNAIDS.

Wills, A.J. 1985. *An Introduction to the History of Central Africa: Zambia, Malawi and Zimbabwe*. United States: Oxford University Press.

World Bank. 1995a. Zimbabwe: Achieving Shared Growth. Country Economic Memorandum. Volume II: Main Report. Report Number 13540-ZIM. IBRD: Macro, Industry and Finance Division, Southern Africa Department, Africa Region.

World Bank. 1995b. Zimbabwe: Achieving Shared Growth. Country Economic Memorandum. Volume 1: Overview. Report Number 13540-ZIM. IBRD: Macro, Industry and Finance Division, Southern Africa Department, Africa Region.

World Bank. 1999. Countries At a Glance Tables.
Web Page: *http://worldbank.org/data/countrydata/countrydata.html*: World Bank.

Wright, R. 1994. *The Moral Animal*. Great Britain: Abacus.

Zambia Central Statistical Office. 1997. Zambia Demographic and Health Survey 1996. Calverton, Maryland: Zambia CSO and Macro International Inc.

Zimbabwe Central Statistical Office. 1995. *Zimbabwe Demographic and Health Survey 1994*. Calverton, Maryland: Central Statistical Office and Macro International Inc.

Zinanga, A.F. 1992. Development of the Zimbabwe Family Planning Programme. Policy Research Working Papers. WPS 1053. World Bank: Department of Population and Human Resources.