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Understanding the Puzzle of High Fertility and High Contraceptive Use in Malawi

by

Jesman Michael Ndombondombo Chintsanya

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<u>ABSTRACT</u>

The present study seeks to compare, over time, changes (if any) in the proximate determinants of fertility with a view to understanding whether transition to lower fertility has begun in Malawi where a woman's average number of children (TFR) has dropped by one birth between 1992 to 2010 (from 6.7 to 5.7) At the same time, there has been a notable improvement in use of modern contraception among married women (CPR). CPR increased from 7.4 % (1992) to 42.2 % (2010). Through the integration of quantitative and qualitative approaches, a mixed-method approach is used in the study in order to explore the reasons for the little change in fertility level.

Using birth histories data from the 2000 to 2010 Malawi Demographic and Health Surveys, cohort fertility techniques is applied to women aged 15–49 years, and for each survey, to better understand the trends in Malawian fertility over time. Although there is a slow fertility decline, the findings show that fertility decline started in urban areas in 1980s, while rural areas lagged behind by five years. Significant fertility declines were associated with increased women's education and urban residence. The slow fertility decline is due to the lack of change in median age at marriage, with half of women still being married by the age of 18 years.

The rapid increase in modern contraceptive use is largely because the proportion of young women (aged 15–24) using modern contraceptives doubled between 2000 and 2010. However, the predominant method is the three-month injection, which is used for spacing and not for limiting. The key feature of the use of sterilisation in Malawi is that it is parity-dependent. While fieldwork findings show that men encourage their wives to use contraceptives, the women who start using them have already had a high number of children—typically five—implying that the desire for a large family is strong.

Although the study findings show that there was no apparent sex preference in either patrilineal or matrilineal study sites, some women deliberately stop using contraceptives to secure the sex distribution of children—a practice likely to adjust the reproductive behaviour of the couple.

Although the fertility aspirations of some men were higher, men were found to be supportive or approving of women's use of contraceptives, which has led to increased use of contraceptives. Similarly, some cultural values of observance of long sexual abstinence are receding, and the period of abstinence has become shorter, partly because couples are

increasingly using contraception to avoid pregnancies, but also due to women's fears of men having extramarital affairs in which they might contract HIV.

Fieldwork identified two contexts that lead to the dual existence of high fertility and high contraceptive use. First, the use of contraceptives is intermittent; women would first start using contraceptives after proving fertility, mainly to achieve adequate spacing between pregnancies. Second, women would mull over terminating childbearing altogether because they were worried about marriage breakdown. Facing threats of marital disruption, women in these relationships might use less effective methods or reversible methods of contraception that will allow them to have children with future partners.

The conclusion is that a strong family planning distribution programme will work to drive up CPR; but without a multi-sectoral approach to address the socio-economic and cultural factors that promote the desire for large family size, the increased CPR will have limited effect on TFR. Increasing age at first marriage through implementation of marriage bill 2015 and ensuring that girls stay in school longer are some of the strategies that government is implementing to drive fertility decline.

Table of Contents

List of Tables

List of Figures

List of Boxes

List of Acronyms

CHAM	Christian Health Association of Malawi
BLM	Banja La Mtsogolo
CBD	Community Based Distribution
CPR	Contraceptive Prevalence Rate
EHP	Essential Health Package
FGD	Focus Group Discussion
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
IDI	In-Depth Informant Interview
IEC	Information Education Communication
IUD	Intra-Uterine Device
KII	Key Informant Interview
MDHS	Malawi Demographic and Health Surveys
MDGs	Millennium Development Goals
MoH	Ministry of Health
NSO	National Statistical Office
PoW	Programme of Work
SWAP	Sector Wide Approach
DFID	The Department for International Development (DFID)
UNFPA	The United Nations Population Fund
USAID	The United States Agency for International Development
TFR	Total Fertility Rate
WHO	World Health Organisation

Acknowledgments

Declaration of Authorship

I, Jesman Chintsanya, declare that the thesis entitled

"Understanding the Puzzle of High Fertility and High Contraceptive Use in Malawi"

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;

- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

- where I have consulted the published work of others, this is always clearly attributed;

- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

- I have acknowledged all main sources of help;

- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

- parts of this work have been published as: Chintsanya, J.M.N., (2013) Trends and Correlates of Contraceptive Use among Married Women in Malawi: Evidence from 2000-2010 Malawi Demographic and Health Surveys *Demographic and Health Surveys (DHS) working papers series* no. 87

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Chapter 1.   Introduction

There has been growing interest among researchers in studies dealing with fertility and contraceptive use. This interest has been motivated in part by the availability of cross-sectional surveys, such as demographic and health surveys, which have prompted scholars to suggest that fertility transition from high to low levels is underway in sub-Saharan Africa. A number of studies have suggested that fertility transition in the region is primarily driven by rising age at marriage (Harwood-Lejeune 2000, Garenne 2008), the spread of contraceptives (Ross, Stover et al. 2005, Bongaarts 2006), and the decline in child mortality (Shapiro and Gebreselassie 2008). Despite there being signs of fertility decline in the region, the pace and magnitude of fertility decline in sub-Saharan Africa vary remarkably and in most countries, fertility remains high.

While previous research has focused on the reasons for slow fertility decline, citing low contraceptive use primarily due to husbands' opposition to the use of contraceptives (Bongaarts and Bruce 1995), fear of side effects, tradition and culture (Bledsoe, Hill et al. 1994, Makinwa-Adebusoye 2001, Ratcliffe, Hill et al. 2001), and effectiveness of family planning programmes (Sharif 2007, May 2012); to date, no study has focused on understanding the relationship between high fertility and high contraceptive use.

High fertility has a potential to derail the current and future progress in the socioeconomic development of a country. The age structure in Africa is characteristically youthful, consisting of higher proportions of youths relative to smaller percentages of the population in the working force (Guengant and Kamara 2012, Zulu 2014). As they are not working, this would bring more stress to the governments' resources, making it more difficult to invest in the physical and human capital needed for expanding the economy (Bongaarts, 2013). Africa is one of the fastest growing urbanised regions, second to Asia (65%), and according to the United Nations, the rate poses challenges with respect to employment, consumption patterns, and access to basic services such as housing, water, sanitation, and education in urban areas (United Nations 2014).

Given that low contraceptive use has tended to be associated with high fertility in the region (Bongaarts and Casterline 2013), the case of Malawi is puzzling; contraceptive use has increased without corresponding fertility decline. In Malawi, the average total fertility (TFR), defined as the number of children per woman would expect to have in her lifetime at prevailing age-specific fertility rates (Hinde 1998, Swanson, Siegel et al. 2004), has declined by only one birth (from 6.7 to 5.7 children) in the last three decades. The slow decline in fertility does not reflect the notable improvement in use of modern contraception among currently married women (contraceptive prevalence rate, or CPR). CPR increased six-fold in that time, from 7.4% (1992) to 42.2% (2010): at par, for example, with Kenya where the average fertility per woman is at least two births lower.

This study adopts a mixed-method approach comprising nationally representative surveys to examine changes or lack of thereof in the factors affecting fertility over time, which is complemented by a qualitative study, with a view to getting a deeper understanding on the value placed on children, and the contexts in which women use contraceptives in order to reach their desired fertility. Such a high contraceptive use without apparent decline in fertility raises several questions which, to date, no study has considered to answer. For example, is modern contraception used merely for spacing births, while the desired fertility is still very high? Or, is the increase in contraception a marker that a significant transition in fertility is underway in Malawi? The present study makes a substantial empirical contribution to the understanding of fertility transition in sub-Saharan Africa. The study will also help to explain regional differences, and the reasons behind the slow fertility decline in the region.

1.1   Study Context

Geographically, Malawi[1] is a small landlocked country south of the equator. To the eastern, southern, and south-western parts of Malawi lies Mozambique, while Zambia and Tanzania lie to the western and northern parts, respectively (Figure 1). The country is divided into three administrative regions: north, centre and south. These

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[1] Malawi lies on the geographical coordinates of 13° 30' 0" S, 34° 0' 0" E

are further subdivided into a total of 28 administrative districts. The northern region is the least populated, accounting for only 12.9% of the population, compared with the more densely populated central (42.2%) and southern (44.9%) regions.

In Malawi, as much of Africa, ethnicity is important because it partially explains the cultural and ethnic practices, and these vary considerably within the country. The largest ethnic group is the Chewa (32.6%), followed by the Lomwe (17.6%), Yao (13.5%), Ngoni (11.5%), and Tumbuka (8.8%), while Nyanja, Sena, Tonga, and Ngonde together form the remainder (National Statistical Office 2010). The Tumbuka, Chewa, and Yao are predominantly found in the north, centre, and south respectively. The regions also vary in fertility levels, partly due to variously matrilineal and patrilineal descent systems. In terms of religion, Christians are in the majority (87%), followed by Muslims (11%). Thus it is important to study differentials by religion and ethnicity separately as they may contribute to different fertility and contraceptive behaviour.

Figure 1.1:   Map of Malawi
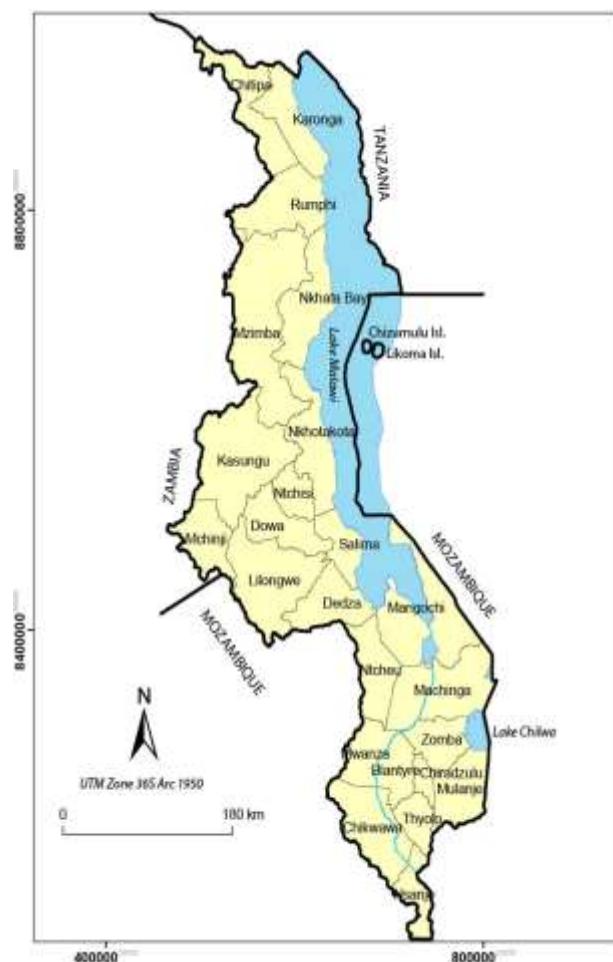
Source: Author's map

1.2   Demographic Situation in Malawi

According to the latest population projections, Malawi has a population of 16.4 million, growing rapidly at 2.8% per annum (National Statistical Office (henceforth NSO), 2010). The 2010 Malawi Demographic and Health Survey (MDHS) shows that a woman's lifetime birth among women aged 15–49 years was, on average, 5.7 children, down from 6.0 and 6.4 children in 2004 and 2000 respectively. Rural women have more children than their urban counterparts at 6.4 and 4.2 children per woman respectively. Eighty five per cent of Malawi's population resides in rural areas and the country has a young demographic structure. Fifty two per cent of the population is under 15 years of age (NSO, 2010). Thus, in the absence of effective fertility control measures, a youthful population entails that its fertility rate is likely to stay high in the foreseeable future, and is likely to contribute to contribute to further population growth.

Infant mortality rate (IMR) in Malawi is high (66 deaths per 1000 live births) (NSO, 2010). For every 100,000 live births, 675 women die from complications during pregnancy and childbirth (maternal mortality ratio). High fertility and death rates put Malawi in a category of high birth rate, high mortality country in Demographic Transition theory (Manda and Meyer 2005) suggesting that Malawi is in the third stage of the demographic transition. In this case, a woman would need to have more children in order to be confident of children surviving into adulthood. Due to high IMR and HIV prevalence rates, life expectancy at birth in Malawi is low; it was estimated to be 48 years (NSO, 2008). The country is also faced with challenges arising from human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS)-related morbidity and mortality, which contribute to low life expectancy. The adult HIV prevalence appears to have gone down and stabilised, and is currently estimated at 10% (National Statistical Office (NSO) and ICF Macro 2011); nonetheless, Malawi remains one of the countries severely affected by HIV and AIDS.

The ability to read is important for accessing social and economic opportunities during a person's lifetime. Men and women with adequate literacy levels are able to obtain health and other messages that are important for their socioeconomic development. Literacy levels are low in Malawi; only three in five women (67.8%) compared to 81.0% of men are literate. There are large variations in literacy levels; young people

(15–19 years) have high literacy rates (80.9%), but the rates sharply decline amongst older women (45–49 years (National Statistical Office (NSO) and ICF Macro 2011). By contrast, adult male literacy level are much higher (81.0%) than female ones (67.6%), with marginal variation between age groups. With lower adult literacy levels, a large proportion of women may not get health and other messages which can help in social and economic development. Only 2% of women are involved in managerial positions, with the majority (70%) involved in agriculture manual labour (National Statistical Office (NSO) and ICF Macro 2011).

1.2.1 Socioeconomic Situation in Malawi

The country is poorly placed in terms of key socioeconomic indicators. The national poverty line, the threshold level of welfare that distinguishes poor households from non-poor households shows that half (50.7%) of the population is poor (National Statistical Office 2012). Malawi has an agriculture-based economy, with tobacco, tea, sugar and coffee dominating the country's exports and accounting for more than 85% of total export revenue (Malawi Government 2012).

Malawi is one of the world's least-developed countries with a gross national product (GNP) per capita of US$233.00 as of 2012 (International Monetary Fund 2014). Malawi's economy has always been a troubled one as evidenced by manufacturing growth volatilities and low average annual growth rates of 2.8% during the SAP compared to 1.9% of SAPS pre-implementation period. As early as 1980, Malawi had to yield to the IMF's structural adjustment systems (SAPs) (Easterly 2005, Munthali 2014). The aims of the structural adjustment systems were to reduce expenditure on social services such as health, education sectors, subsidising on agricultural farm inputs while encouraging private investment to promote production and reduce poverty (Thirtle, Lin et al. 2003, Fan, Yu et al. 2008).

Between 2005 and 2009, the economy of Malawi improved; GNP increased from USD$263.00 (2005) to US$439.00, before declining in 2010 (International Monetary Fund 2014). During this period, President Bingu wa Mutharika succeeded Bakili Muluzi and put in place economic measures; between 2009 and 2010 the economy of Malawi registered a growth of 7%, and the success of the agricultural subsidy programme gained him local and international acclaim (Dionne and Dulani 2013,

Tsoka 2013). However, Mutharika's second term (2009–2012) was characterised by poor human rights and governance issues; the health delivery system, which was revitalised in his first term, deteriorated leading to a scarcity of anti-retroviral drugs (ARVs) (Tsoka 2013). Subsequently, the IMF, the United Kingdom and other development partners suspended aid to Malawi, calling upon the country to implement key reforms such as to follow democratic governance principles and devalue the local currency (African Development Bank 2013)

Mutharika's government responded to the suspension of donor aid by raising taxes on basic products. As a result, the prices of essential products skyrocketed. Within a short period, the inflation rate increased from 7% to 25% (Reserve Bank of Malawi 2012). In April 2012, President Mutharika died in office and a caretaker president, Joyce Banda, immediately implemented reforms the donor community had asked for including easing all the forex restrictions which had been imposed by her predecessor. Mutharika had artificially fixed the currency, and steadfastly refused to devalue the currency, arguing that doing so would hurt the economy and the poor. As per the IMF's recommendations, on 8th May 2012 the currency was devalued from K166, to 250, to USD$1.00, representing a 33.6% drop in value (*ibid*, 2012). This was an attempt to reach early agreement with donors, which would lead to the releasing of the aid flow. Nevertheless, the change in policy did not influence donors to release the funds immediately, such that whatever donors agreed to release was subject to monitoring and the performance of the new government (Jass 2013).

All these political and economic changes have had a bearing on health system delivery. This is because the withdrawal of aid, which accounts for 40% of budgetary support, affected the key health and education sectors. It is likely that the economic challenges affected financing of the health service delivery in the country leading to inadequate support of family planning programmes' efforts to reduce fertility levels; to help people realise their reproductive needs by determining the number and spacing of their children; and to prevent unintended pregnancies as well as the transmission of HIV and other sexually transmitted infections.

1.2.2 Health Service Delivery in Malawi

Nearly all healthcare services in Malawi are provided by three main agencies, with the Ministry of Health (MoH) as the majority (60%) followed by the Christian Health Association of Malawi (CHAM) (37%) and the Ministry of Local Government (1%). In addition, there is a small private, for-profit health sector limited to the urban areas, as well as health services provided by private companies and practitioners, commercial companies, the army and the police (Government of Malawi 2004). In the agreement, Catholic CHAM facilities are allowed to offer family planning services that are limited to counselling on methods of family planning, and natural methods such us the rhythm methods, while clients who want to access modern contraceptives are referred to the nearest facilities which offer them.

Figure 1.2: Hierarchy of Health Service Delivery in Malawi
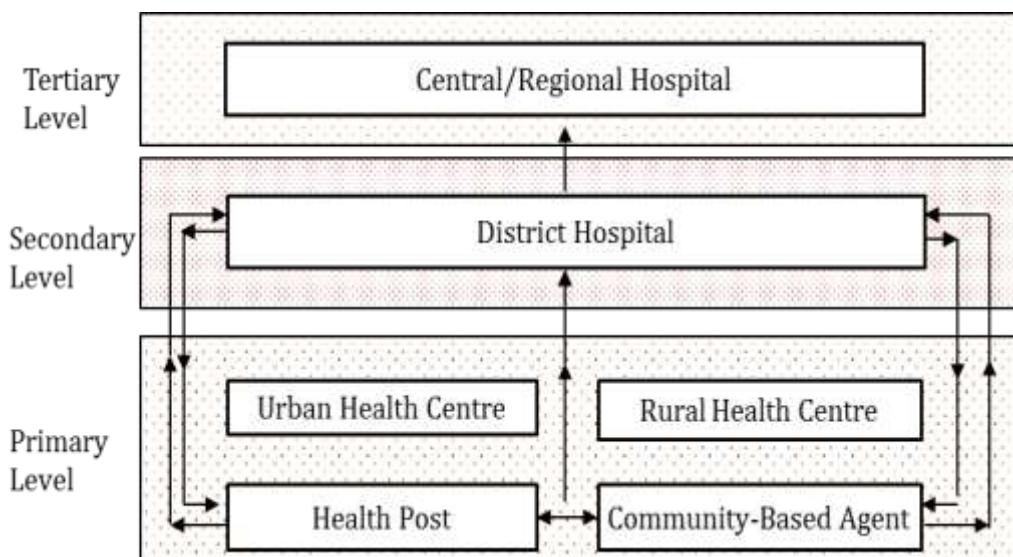
Adapted from Ministry of Health, 2006

The health system in Malawi comprises an extensive referral system. Each administrative region has a central referral hospital. As shown in Figure 1.2, there are three levels in the health system, with the primary level comprising health centres, health posts, dispensaries, and rural hospitals. The services in primary healthcare (PHC) are provided through the community-based outreach programmes at health posts, and static health facilities including dispensaries and health centres (Government of Malawi 2011).

7

The secondary level of the health system is made up of district and CHAM hospitals. The services offered at this level include diagnostic services such as X-raying, admission, and ante and postnatal services. The tertiary level, which is located in each region, consists of the central hospitals. There is also one private hospital with specialized services, which is located in Blantyre.

The community-based facilities are limited to providing essential health services and health promotions such as vaccinations. Health surveillance assistants (HSAs) usually manage these facilities. The MoH employs HSAs with a minimum qualification of the Malawi Secondary Certificate Examinations (MSCE), the equivalent of GCSE, or Junior Certificate (JCE), and for eight weeks, they are trained to provide services in health promotion and prevention such as HIV testing and counselling, and immunisation (Kok and Muula 2013). The Government of Malawi (GoM) came up with an innovation that involved using local cadres known as health surveillance assistants (HSAs), to provide contraceptives (*ibid*, 2013). Besides providing basic maternal and neonatal care sensitisation campaigns at community level, HSAs mobilise men and women and provide them with pre-counselling services on a range of contraceptive methods. They are also responsible for informing communities about the day the family planning mobile outreach team will call at their community (Banja La Mtsogolo 2009, The RESPOND Project 2012).

Another challenge concerns financing. As mentioned in section 1.2.1, donors provide 40% of all health financing in Malawi. Limited funding implies that diagnosis is largely based on clinical presentation. Available laboratories are inadequate in many facilities and often lack the necessary laboratory equipment, such as imaging and testing equipment (Record and Mohiddin 2006, Mueller, Lungu et al. 2011). This is coupled with a shortage of health personnel, both in terms of skills and quantity. In terms of physician-to-patient ratio, Malawi has one of the lowest ratios: in 2008 for every 1,000,000 patients, there were two doctors, and 34 nurses and midwives, compared to the expected acceptable minimum health worker to patient ratio of one to 600 as recommended by the World Health Organisation (WHO) by 2015 (World Health Organisation 2014).

1.2.3 Background to Changes in Family Planning Services Delivery

In Malawi, high contraceptive use and high fertility should be understood in the context of the programmes that the GoM implemented to reduce high HIV prevalence rates, maternal and child mortality rates as presented in section 1.2. The first major step towards health reform started in the 1990s, when GoM implemented the first Emergency Human Resource Development Plan (1997–2004) (EHRDP) to guide recruitment of health personnel (Ministry of Health 2007). The EHRDP as an interim measure aimed to recruit health service personnel to fill the vacant posts which existed in the health sector, while a long-term objective was to train health professional students who, upon qualifying, would fill the gaps in the health workforce through the Emergency Pre-Service Training Programme (Ministry of Health 2004, Maleta 2011). This was found to be futile, and remained so until 2003 (Ministry of Health - Planning Department 2004). The initiative was slow to produce enough health professionals to fill the required positions, and had limited success because GoM inadequately financed the initiatives (Muula and Maseko 2006, Mueller, Lungu et al. 2011). It is also suggested that declining human resource levels accelerated the collapse of public health services delivery (Maleta 2011). Furthermore, GoM and the private sector operated in a fragmented manner in their approach to combating child and maternal related morbidity and mortality. As a result, there were no substantial reductions in the five major causes of deaths in Malawi: HIV and AIDS, lower respiratory infections, malaria, diarrhoea and prenatal conditions (Maleta 2011).

1.2.4 Establishment of the Health Service Commission (HSC)

International development donors recognised low staffing levels as a key impediment to service delivery in the entire health system. Consequently, through the Act of Parliament Number 15 of 2002, the Ministry of Health, with assistance from the donors, established the Health Service Commission (HSC). The HSC was responsible for conducting systemic recruitment of human resources for the health sector, including nurses and midwives, clinical officers, medical assistants and doctors (Ministry of Health & Population 2002). To prioritise interventions relating to burden

diseases, GoM created the Essential Health Package (EHP)[2] to guide both the planning and funding of health service delivery, and the strengthening of community health centres, as well as reducing costs of access (Government of Malawi 2011). The EHP was a prioritized but limited package of services that should be available to every individual in Malawi at all times, and it included a major scale-up of HIV and AIDS related services (Government of Malawi 2011) .

1.2.5   Sector Wide Approach (SWAp)

To deliver the EHP in a coordinated manner, GoM in cooperation with the donor community designed the Sector Wide Approach (SWAp) in 2003 that aimed to form a partnership and collaborate with the private sector (Muula & Maseko, 2006). Under the partnership, GoM signed an agreement with the private sector with the aim of addressing the critical challenges and shortages of health services, particularly for people in rural areas. With the new partnership, the MoH would provide leadership for implementing and managing the sector strategy and the Programme of Work[3] (PoW) (Ministry of Health 2007). This was the point of departure from the previous approaches in improving health service delivery that were largely uncoordinated.

1.2.6   Service Level Agreement (SLA)

Another important factor which enhanced maternal and child health service delivery was the removal of costs associated with accessing these services, especially for poor and marginalised people living in rural areas (McCoy, McPake et al. 2008). Since SWAp was implemented, the MoH has signed 66 agreements with 40% of non-profit Christian Association of Malawi (CHAM) facilities known collectively as the Service Level Agreement (SLA) (Christian Health Association of Malawi [CHAM] 2009). The agreement allows CHAM facilities, which constitute 90% of health facilities found in rural areas, to render services to rural poor people without user fees; in return,

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[2] The Essential Health Package covered vaccine-preventable diseases, malaria, reproductive health, tuberculosis, schistosomiasis, acute respiratory infections, acute diarrhoeal diseases, sexually transmitted infections, HIV/AIDS, malnutrition and nutritional deficiencies, eye, ear and skin infections, and common injuries. The EHP covered the period from 2004 to 2010.
[3] PoW outlines the priority health activities to be implemented by the MoH, development partners and the major not-for-profit NGOs within the health sector in Malawi.

payment would be claimed from the District Health Office (Ministry of Health 2007). Thus, this was an important agreement towards bringing services to rural areas, since studies show that, besides user fees, distance is one of the biggest barriers to accessing family planning services if they are located far away (Stephenson and Hennink 2004, Nalwadda, Mirembe et al. 2010).

The agreement meant that development partners would also support topping up doctors' salaries by 52% and training nurses by providing scholarships to CHAM colleges (Palmer, 2006). This had the effect of increasing health personnel in the rural areas, because one condition for scholarships was that the recipients would be required to work in the rural areas upon graduation (Chirwa, Kazanga et al. 2013).

The 2007 evaluation report of the SWAp showed that these initiatives registered some success in that about 35,000 additional posts were filled between 2003 and 2007, representing a 26% increase on the 2003 establishment. In addition, training institutions increased enrolment by 165% for pre-service (auxiliary nurses) and 79% for postgraduate courses between 2003 and 2007 (Ministry of Health 2007). However, the EHRP (1997–2004) had limited success because the programme was inadequately funded by the government, while the EHP (2004–2010) registered a number of success because it was supported by donors at its inception (Government of Malawi 2011).

1.3 Population and Family Planning Policies

Health reforms and population policy play an important role in changing fertility rates. The policy can create a conducive environment so that organisations (for example not-for-profit organisations) are able to implement programmes aimed at reducing fertility (May 2012). However, the institutions can also impose restrictions or inhibitions in the form of norms and rules.

Since 2005, GoM implemented several policies at reducing family size and TFR. Table 1.1 chronicles the evolution of the family planning policy and strategies in Malawi, and as background will help in answering as to why TFR has marginally declined.

Table 1.1: Overall policy goals to contribute to the reduction of high fertility in Malawi since 2005

Year of implementation	Policy/Strategy	TFR		CPR		Population Growth (%)	
		Base	Target	Base	Target	Base	Target
2005–2010	National Reproductive Health Strategy (2006-2010)	6.0	4.9	28.0	40.0	NA	NA
2009	Sexual And Reproductive Health and Rights (SRHR)	NA[2]	NA	38.0	65.0	NA	NA
2006–2011	Malawi Growth and Development Strategy I (MGDS I)[1]	6.3	5.5	33.0	40.6	2.0	1.5
2011–2016	Malawi Growth and Development Strategy II (MGDS II)	5.9	3.5	46.0	65.0	NA	NA
	National Population Policy	NA	NA	NA	NA	NA	NA
2012–2017	Population Action Plan	193[3]	81[3]	33.0	40.6	2.0	1.5

Sources: Ministries of Health (MoH), Economic Planning and Economic Development (MEP&D), and National Statistical Office (NSO).

[1] Also known as Malawi Poverty Reduction Strategy

[2] Information not available in the document

[3] births per 1000 women

As seen from the table, there are very few policies or strategies specifically aimed at reducing fertility. For example, the National Reproductive Health Strategy, which was launched in 2006 and finished in 2010, aimed to reduce TFR from 6.0 children per woman (base level) to 4.9 children in 2010. This target was missed by 0.8 births. Furthermore, the table shows that although Malawi implemented a number of policies, the focus has been on scaling up contraceptive prevalence rates, and not on reducing TFR.

Box 1.1: Fertility related startegies as outlined in the 2012 National Population Poplicy and 2012 Population Action PlanFertility related strategies as outlined in the National Population Policy (2012) and the Population Action Plan (2012).

The National Population Policy (NPP) (p.10).	The Population Policy Action Plan (PPAP) (Annex pp.35)
pp. 10 of the Implementation plan of the 2012 National Population Policy states that (emphasis added in bold): 2.1 Main Issues/Problems The overriding concern of this policy is to contribute to the improvement of the standard of living and quality of life of the people. Under this thematic area, the Plan of Action focuses on environmental issues, youth, water and sanitation, income and employment, health, education and migration, and crime and security. 2.1.1 Population and Environment […] 2.1.2 Strategies …increasing awareness of population problems and **benefits of small family sizes** in the conservation and management of natural resources, integrate gender in the management and conservation of natural resources… promoting improved management of solid waste in all urban centres, promoting afforestation of rural areas… promoting electrification of rural areas…	Annex pp.35 of The NPP aims: - Reduce the annual growth rate of the Malawian population from 2.0% to 1.5% per annum; - **Promote smaller family sizes of 4 children for each couple** - Reduce the Total Fertility Rate (TFR) from 6.0 to 4.9; - Reduce by 50% the age specific fertility rate (15-19) - Reduce the IMR and CMR from 76 to 60 and from 133 to 90 per 1,000 live births, respectively - Increase life expectancy at birth from 40 to 45 and 45 to 49 years for males and females respectively, and - Reduce the MMR by 50% from the current level of 1120 deaths per 100,000 live births

Source: Government of Malawi, Ministry of Economic Planning and Development (2014) (Bold added for emphasis)

Box 1.2 illustrates GoM's strategies aimed at reducing fertility as described in the NPP and PPAP. While the NPP acknowledges rapid population as the key barrier to development in the country, it does not explicitly show how it intends to reduce the high fertility rate. Furthermore, there is a clear disconnect in how the targets will be

achieved. A rapid population growth would entail that the government invests in education programmes, especially in secondary education. This would allow young girls to stay longer in school, thereby delaying births. By contrast, the NPP implementation plan focuses on environmental issues as a way of raising people's awareness—which is a clear disconnection. Similarly, just like with other health reforms, the emphasis of the NPP is on reducing the MMR and IMR further.

<u>Promotion of Small Family Size</u>

(Bongaarts and Casterline 2013) identified the desired number of children as one of the reasons sustaining high fertility in the sub-Saharan region. According to the 2010 MDHS, men want more children than women, and past trends reveal a fairly stable pattern: five children for men compared to 4.7 children for women in 2000, while in 2004, men and women wanted 4.6 and 4.4 children respectively. Noting the high desire for children, the 2009 SRHR policy spelled out a number of strategies for reducing TFR from high to lower levels. Besides encouraging men, women and couples to space births by a minimum of three years, the policy discouraged women from having births after they are 35 years old, while discouraging couples from having more than four children.

The SRHR policy is the only document to make an estimated budget of K177 million to implement these activities. However, it is not clear whether the amount was spent on these activities. Among the ambitious targets the SRHR policy had set, only one that aimed at increasing CPR from 38% to 65% nearly achieved its target: CPR increased from 38% (2004) to 59%, a shortfall of 6% (National Statistical Office 2015).

1.3.1 The Role of the Government of Malawi's Partners in Increasing the Contraceptive Prevalence Rate

As discussed in 1.3.2, a considerable amount of success has also been achieved in creating viable partnerships with the donor community and local NGOs. Family planning has specifically received considerable assistance from international development partners since the implementation of SWAp, leading to a collaboration between the government of Malawi and donors such as United Nations agencies, DFID and USAID (The RESPOND Project 2012). The following paragraphs present a few of the organisations that are actively involved in family planning provision in Malawi

today. It should be noted that these organisations and many others are working in the area of reproductive health are also focussing on HIV and AIDS.

The United Nations Population Fund (UNFPA)

UNFPA Malawi is one of GoM's key development partners. It focuses on and lobbies for family planning and reproductive health issues in Malawi. UNFPA Malawi focuses on building the capacity in training, strengthening national institutions and reproductive health care. UNFPA's five-year work plan is aimed at improving demographic parameters in the country, and other indicators, with a budget of USD$52 million.

Figure 1.3 shows that the reproductive health and rights programmes take the largest share of the USD$52 million allocated to the 2012–2016 work plan. In implementing these programmes, UNFPA aligns its objectives with the Malawi Growth and Development Strategy (MGDS), which is an overarching development framework in the country. For example, the 2010–2016 programme cycle aims at increasing contraceptive prevalence to 60% by 2016 (UNFPA 2012).

Figure 1.3:   Percentage distribution of the assistance by core programme, UNFPA 2012–2016 Project Cycle
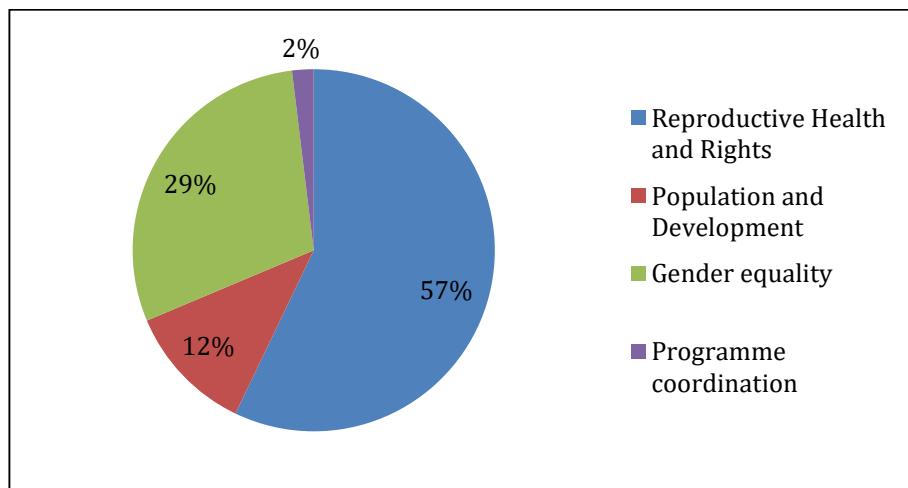
Source: UNFPA Final Country Programme Document for Malawi, 2013

One of the major focuses of UNFPA's support is provision of reproductive health services to the youth through implementing youth-friendly programmes (UNFPA, 2013). The UNFPA 2013 report notes that that, despite implementing the EHP, specific activities focusing on the youth were lacking. This is because the interventions in the

15

EHP were limited to the provision of family planning, SRH, and prevention and management of STIs including HIV and AIDS to mainly older women, but which failed to reach the youth. The youth face many challenges; for example, according to the 2010 MDHS, the percentage of young women (15–20 years) who already have children ranged from 16% to 38% for all districts in Malawi. Further, about 110,000 people are newly infected with HIV every year in the country. About 46% of these infections occur among people aged 15–24 years (National AIDS Commission 2011).

Young unmarried and married youth (as is the case elsewhere in sub-Saharan Africa) face numerous challenges in accessing reproductive health services. A study by Munthali, Zulu et al. (2006) in Malawi found that there were negative attitudes displayed towards adolescents engaging in premarital sex because society both assumes and expects that young people will not engage in sexual activities. In addition, service providers may exacerbate the situation by refusing to provide services to adolescents because they do not approve of premarital sexual activity (Tilahun, Mengistie et al. 2012, Ahanonu 2014). In addition, young women face numerous barriers to accessing health services: young adults show a knowledge gap in young people's health issues, and services are often inadequate. Therefore the youth has remained a marginalised group in relation to family planning in Malawi (Ministry of Health 2004, National Youth Council of Malawi 2010).

To address some of the problems, in 2006, GoM and UNFPA developed a Youth Friendly Health Service (YFHS) programme with a view of expanding access and availability of contraceptives among the youth. According to the 2010–2016 work plan, UNFPA allocated USD$376,894 towards the YFHS Initiative—a health institution-based programme, designed to increase the demand for reproductive health commodities by the youth, particularly poor and marginalised women and girls (UNFPA-Malawi 2010). With support from UNFPA, health workers, including clinical officers that provide services in the YFHS clinics undergo a special training, which is designed to encourage young people to access family planning services (Ministry of Health (Reproductive Health Unit) 2007).

The UNFPA also assists in the development of manuals to guide the YFHS facilitators. Establishment of these services may partly be attributed to the increase in CPR among

young married women (15–19 years), which doubled from 12.9% in 2004 to 26.4% in 2010 (National Statistical Office (NSO) and ICF Macro 2011). However, the Youth Service Coverage report showed that the majority of these services (54.3%) are located in urban areas (National Youth Council of Malawi 2010). Such a disparity in service provision between urban and rural areas implies that a large proportion of adolescents are not able to fully utilise the services, since the majority of the population (85%) resides in rural areas (National Statistical Office (NSO) and ICF Macro 2011).

United States Agency for International Development (USAID)

The United States Agency for International Development (USAID) is another development partner that provides support to the MoH. Specifically, USAID supports the MoH with the procurement of family planning methods, which are then distributed to health facilities. Besides providing support to the MoH through the SWAp, USAID also assists other agencies, such as BLM, with scaling up family planning services. USAID has also played a leading role in assisting other UN agencies by providing support to UNFPA to procure contraceptives, even though the MoH is responsible for such procurement (The RESPOND Project 2012).

The current programme, which runs from 2011 to 2016, emphasises the improvement of the country's family planning and reproductive health status; financial support towards family planning programme more than doubled from USD$5.3 million in 2011 to USD$11.7 million in 2014 (USAID 2014). Part of the financial support is directed towards reducing family planning commodity stockouts. These are acted upon quickly by delivering family planning commodities directly to affected service delivery points (SDPs) through a process known as the direct top up (DTU) approach, which enables health facilities to cut costs on transport-related expenses, as well as providing a guaranteed supply and direct delivery of contraceptives to the health facilities (The RESPOND Project 2012). Financial support to the MoH has contributed to the reduction in the stockout rates in health facilities from 88% in the financial year 2013 to only 24% in 2014 (USAID 2014).

<u>The United Kingdom Department for International Development (DFID)</u>

The United Kingdom Department for International Development (DFID) is another organisation which facilitates access to and availability of contraceptives in Malawi. DFID provides support to MoH, to enable the Ministry to implement the Health Sector Strategic Plan. As shown in Figure 1.4, health-related programs receive the largest amount of funding, followed by family planning. As noted, the resources allocated to MoH dipped in the 2011/12 financial year because DFID suspended some of the budgetary support to Malawi in July 2011, due to a range of concerns as described in section 1.21 of this thesis.

Figure 1.4 : DFID resource allocation to different programmes in Malawi, 2011–2015 Financial Cycle
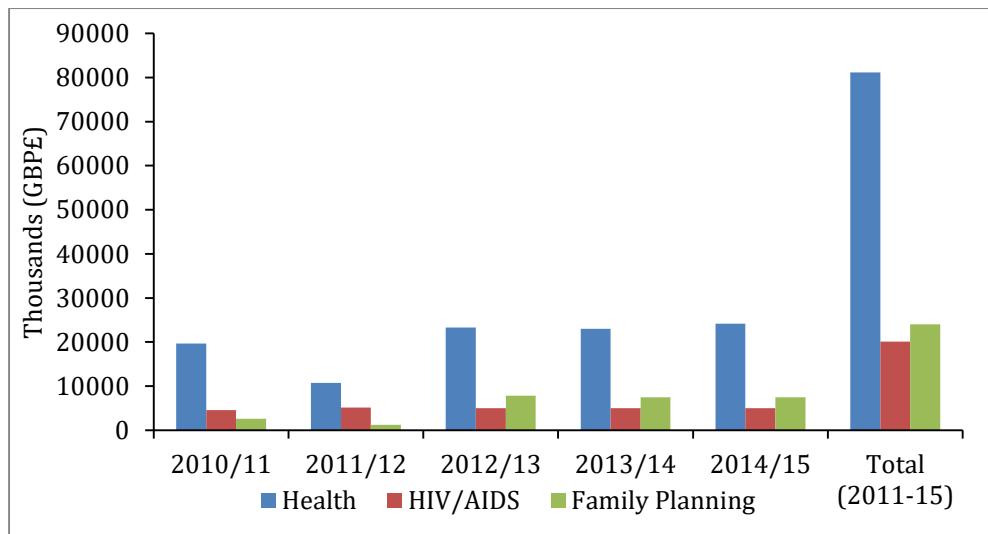
Source: DFID Operation Plan 2011-2015 Report for Malawi

In line with the EHP, DFID subsidises salaries of health personnel who work in CHAM facilities. It has to be noted that while CHAM entered an agreement with the government through SWAP to provide free health services in their facilities, provision of family planning services is only limited in the facilities whose dioceses give free contraceptives. CHAM facilities which fall under the Catholic faith do not provide family planning services, instead, they are limited to providing counselling services (Banja La Mtsogolo 2009). For access to contraceptives, clients are referred to the nearest health facilities that provide such services.

1.4 The Role of Banja la Mtsogolo in Family Planning Provision

One of these private organisation is Banja la Mtsogolo (BLM), a Malawian reproductive health care, which is a Marie Stopes International affiliate. BLM is the most important non-governmental organisation providing reproductive health care in Malawi. Most recently, CHAM facilities under SWAp governance are entering into service agreements with the MOH through the District Health Offices (DHOs) to provide free health care services, with the cost to be borne by the respective DHOs. BLM employs two approaches in the provision of family planning services: static and outreach clinic. These services differ in that in the former, clients have to pay user services fees to access contraceptives, while in the latter, there are no provider fees.

The second approach involves outreach clinics, which are designed in such a way that they not only reach people in the remote areas but also that they provide family planning services free to the people who cannot access the static clinic services, thereby bringing equality in terms of access to family planning services (Banja La Mtsogolo 2009). The third approach uses the tent outreach clinic initiatives (TOCIs) which are designed to reach people in great need of services, in rural areas with severely limited access to health facilities and where there is no physical health structure. A team of service providers from BLM erects tents from which services are provided. The final method involves ferrying clients from areas of need to a BLM static clinic (Banja La Mtsogolo 2009).. Ferrying clients to the clinics not only offsets the transport costs, but also is an efficient way of offering the service to clients from the community.

1.4.1 Support for a Social Franchise Programme

The static and outreach approaches outlined above do not guarantee that all the people are reached and served. To broaden the sphere of family planning services, a BlueStar network bridges this gap. A BlueStar network is a social franchise of BLM that offers all the family planning services. The launch of the BlueStar social franchising network in 2008 has enabled BLM to extend service provision beyond its own catchments areas (Banja La Mtsogolo 2009). Its services target low-income women. The network offers a wide range of contraceptives including implants (Implanon,

Zarin, Jadelle[4]) and IUDs (intrauterine devices) (Banja La Mtsogolo 2009). However, only a few facilities under BlueStar perform sterilisation surgical procedures. To maintain standards of service, BLM provides technical support to BlueStar network staff, monitors the quality of services, and moderates the prices of family planning methods in these facilities (Banja La Mtsogolo 2009).

The above section has highlighted that the varied approaches of BLM in the distribution of contraceptive methods complement one another. The effect of these approaches has been to make contraceptives widely available to people, especially those living in rural areas.

1.4.2 Reproductive Health Service Provision in Malawi

High fertility predisposes women to the risk of high maternal mortality, especially at high parity, and the risk of maternal mortality increases the more women are exposed to the risk of pregnancy and childbirth. In recent times, there have been improvements in maternal mortality ratios, declining from 1120 per 100,000 live births in 2000, to 473 in 2010 (National Statistical Office (NSO) and ICF Macro 2011). Similarly, the 2014 Malawi MDG Endline Survey states that the proportion of births attended by a skilled worker was 96.1%, implying that Malawi narrowly missed the 100% 2015 MDG target (NSO, 2014). The urban and rural areas show large variations in terms of access to qualified health services; a skilled birth attendant delivered 82% of births in urban areas compared to 50% in rural areas (National Statistical Office (NSO) and ICF Macro 2011).

Traditionally, women have preferred to give birth with the assistance of traditional birth attendants (TBAs) because of short supply of trained (Montagu, Yamey et al. 2011, Kavinya 2012, Ryan, Tang et al. 2014). However, TBAs are not trained to handle birth complications, which put the mother and child at higher risk of death. The Government of Malawi banned TBAs in 2012, encouraging women to deliver at

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[4] Implanon, Zarin and Jadelle are forms of hormonal, long-acting and reversible contraceptives which last for up to five years' usage with one single administration.

facilities staffed by skilled providers. GoM attributed the high MMR to low skilled TBAs and their inability to detect obstetric emergency cases early enough. Hence the ban would compel women to access qualified birth attendants from public health facilities. Nonetheless, the shortage of health service providers that already existed increased demand for the services. According to Okeke and Godlonton (2015), while the ban reduced the cases of life-threating complications, the TBA did not stop operating, instead operating in secrecy. Nonetheless, the Government provides communities with bicycle ambulances to aid timely delivery at health facilities (Kumwanje-Sibande and Hutter 2012). However, the lack of health facilities and skilled birth attendants mean that service providers are overburdened, and as a result there is overcrowding in health facilities, especially in the rural areas (Colbourn, Lewycka et al. 2013).

Another element in the provision of family planning services focuses on the prevention and reduction of HIV and AIDS in Malawi. Women who are pregnant or breastfeeding and are living with HIV are enrolled on antiretroviral treatment (ART) to reduce the risk of transmitting the virus to their children (PMTCT). Until 2011, Malawi's efforts to reduce PMTCT relied on the World Health Organisation's (WHO) guidelines, which required laboratory tests to determine the viral load known as CD4 cell count,[5] and prescribe the appropriate ART regime (World Health Organisation (WHO) 2010). Malawi faces acute shortage in laboratory equipment, and this created the biggest barrier to ART enrolment. In the third quarter of 2011, the MoH implemented an innovative approach (called "Option B+") in which all HIV-infected pregnant and breastfeeding women became eligible for lifelong ART regardless of CD4 falling between <250 cells/μl and <350 cells/μl (Lumala, van den Akker et al. 2012).

Despite substantial progress in increasing CPR, the use of modern contraceptives among women remains low (throughout this thesis modern contraception refers to injectables, implants, condoms, male and female condoms, and male and female sterilisations). This is worrying considering that 54% of pregnancies that occurred in 2014 were unintended pregnancies (calculated as the proportion of women who

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[5] A CD4 count is a lab test that measures the immunity to ascertain when HIV positive persons should begin treatment. It is an important indicator of how well the immune system is working.

wanted to plan the timing and spacing of their childbearing) (Vlassoff and Tsoka 2014). Women who are unable to access contraceptives are more likely to experience negative outcomes, such as unprotected sexual activity, unintended pregnancies and unsafe abortion. This may result in women and their children face avoidable and potentially severe risks to their health and quality of life.

1.4.3 Situation of Abortion in Malawi

While the 1994 ICPD in Cairo highlights that unsafe and illegal abortion was a leading cause of deaths among women, abortion was restricted in Malawi until 2015. Despite abortion contributing to high maternal mortality in Malawi, and the reasons for induced abortion being well documented the literature (Bearinger, Sieving et al. 2007, Laski and Wong 2010, Mbizvo and Zaidi 2010), abortion in Malawi receives little support from donors, in particular USAID. The USAID policy follows the Helms Amendment, which prohibits foreign assistance being directed towards performance of abortion as a method of family planning, or to motivate or encourage any person to practise abortion (IPAS 2009, Barot 2013).

Following IPAS lobbying efforts to review the laws regarding abortion in Malawi, a Special Law Commission on Abortion Law reviewed the laws regarding abortion. The new recommendations were passed in July 2015, and subject to the Parliament's approval, they currently include situations where the pregnancy is as a result of rape, incest or defilement. Previously abortion could only be permitted to save the life of the pregnant woman, or if there was a malformation of the foetus which would affect its viability or compatibility with life. Although the current SRHR policy seeks to promote women's rights of access to contraception, it explicitly fails to recognise abortion as one of them. In the absence of facilities offering safe abortion services, women are likely go to go to the extreme measures of terminating pregnancy in unsafe ways that result in negative health outcomes.

The above discussion shows that Malawi faces challenges to adequately delivering services that are capable of combating the high levels of infant and child mortality and other morbidity conditions. In the absence of appropriate human resources and effective governance structures, as well as significant increase in health finance and family planning, the prevailing high fertility levels present challenges in attaining the

Sustainable Development Goals (SDGs). Investing in family planning falls within the framework Sustainable Development Goals, especially Target 3.7 which ensures universal access to sexual and reproductive health –care services including for family planning.

Family planning can help adolescent girls marry later, while reducing birth complications among the youth who become pregnant early (Mensch, Singh et al. 2005). This is similarly true among women aged 35 years and over who, because of their older age, are at higher risk of developing birth complications (Loaiza and Liang 2013). Reducing high fertility levels may help the country realise the benefits of investing in family planning: the window of opportunity in its development when the population of working age (15–59 years) exceeds the number of youths (0–14 years) and retirees (over 60 years) (Ross 2004, Gribble and Bremner 2012). Family planning also ensures that births are well-spaced, and allows for a longer breastfeeding period, which is beneficial for the child and the mother's health (WHO and UNICEF 2012). This can positively contribute to the nutrition status of children, including improved infant and young child feeding practices, and reduced likelihood of stunting (Chikhungu, Madise et al. 2014).

1.5　　Significance of the Study

Although data are available for comparing levels and trends fertility levels at several time points, research that utilises demographic and health surveys to examine the role of proximate determinants of fertility in Malawi, and their relative contribution to overall fertility, is scarce. While the major sources of data in Malawi are reports, mostly covering trends and levels without detailed analysis of the factors influencing fertility, only a handful of studies have attempted to tackle certain aspects of fertility in Malawi, such as religion and fertility (Yeatman and Trinitapoli 2011), access to family planning (Cohen 2000, Hennink and Madise 2005, Solo, Jacobstein et al. 2005, Richardson, Chirwa et al. 2009), and mean age at marriage (Cohen 1998, Harwood-Lejeune 2000, Kazembe 2007). Yet, overall, little research has directly addressed the problem of high fertility alongside of high contraceptive use in Malawi.

Early work on contraceptive use in Malawi has focused on understanding the barriers to use among adolescents (Chimbwete 2001) and on the impact that user fees would

have on access to and utilisation of family planning and reproductive health services, if they were introduced (Hennink and Madise 2005). To the researcher's knowledge, only one study, by Palamuleni (2008), examined the influence of proximate determinants of fertility in Malawi; however, the author restricted the analysis to the early surveys: from 1992 to 2004.

The findings from this research will make a unique and strong contribution to our understanding of fertility in Malawi, because the research draws from data sources, such as the 2010 Malawi Demographic and Health Survey, which was not readily available in the past. The study is timely as it allows us to know whether there has been change (if any) in factors affecting fertility level. This information is important for informing policy and family planning programming. It is also important to know which subgroups of women and which geographical areas continue to have high numbers of children, and should therefore be targeted with what fertility reduction programmes.

1.6   Research Questions and Objectives

The objective of the study is to gain a detailed understanding of socio-economic and cultural factors affecting fertility and explore the reasons for the little change in total fertility rate. With this view in mind, the research seeks to address the following questions:

1. *What are the factors associated with fertility decline in Malawi?* The aim of this question is to estimate levels, differentials, and magnitude of change in fertility, and compare over time the demographic, socio-economic and cultural factors related to fertility level.

2. *What are the relative contributions of the individual proximate determinants to the observed fertility levels in Malawi between 2000 and 2010?* This question aims to examine the change over time (if any) in the proximate determinants of fertility, and compare demographic, socio-economic and cultural factors affecting the proximate determinants of fertility.

24

3. *What are the factors are associated with the rapid rise in contraceptive use observed between 2000 and 2010?* The question seeks to examine the changes in contraceptive use across subpopulation groups, to explore the factors associated with the increase in contraceptive use, and to explore how family planning attitudes and practices spread among community members.

4. W*hat are the sociocultural factors that affect desired family size and how do these factors affect contraceptives use?* The objective is to explore the norms regarding family size and fertility preference, and understand the contexts women use to achieve desired fertility.

1.7   Structure of the Thesis

The thesis is divided into nine chapters: after this introduction, Chapter 2 reviews the literature; in particular, it covers the current knowledge around fertility decline in sub-Saharan Africa and contraceptive use. The methods used in this research and their descriptions are introduced in Chapter 3. The chapter also justifies the choices and use of methodology and supports the credibility of the research, including reference to the researcher's positionality. Chapter 4 analyses changes in the levels and trends of the total fertility rates over time. The most important issue addressed in this chapter is the evidence for fertility change among population subgroups. Chapter 5 considers whether there is any evidence of change in the proximate determinants of fertility. The chapter will also examine the impact of each determinant to the overall fertility level.

Following this, Chapter 6 examines factors associated with modern contraceptive use. Chapter 7 provides qualitative findings on norms and perceptions towards family size, and the contexts women use to achieve desired fertility. Finally, Chapter 8 concludes with a discussion, policy implications of the findings, and brings forth recommendations and policy suggestions various key bodies should undertake in order to enhance fertility decline in Malawi.

1.8   The conceptual framework

To improve our understanding of the factors affecting fertility change, this study uses a framework on the causes of fertility change known as the proximate determinants of fertility proposed by Bongaarts (1978). As the conceptual framework in Figure 1.6 shows, the transition from high to low fertility level is determined by changes in the proximate determinants or direct determinants through which all other social, economic and cultural factors operate to affect fertility change. Thus, any changes in proximate determinants would result in a change in overall fertility levels, all else being equal.

Figure 1.5: Conceptual framework explaining determinants of fertility level in Malawi
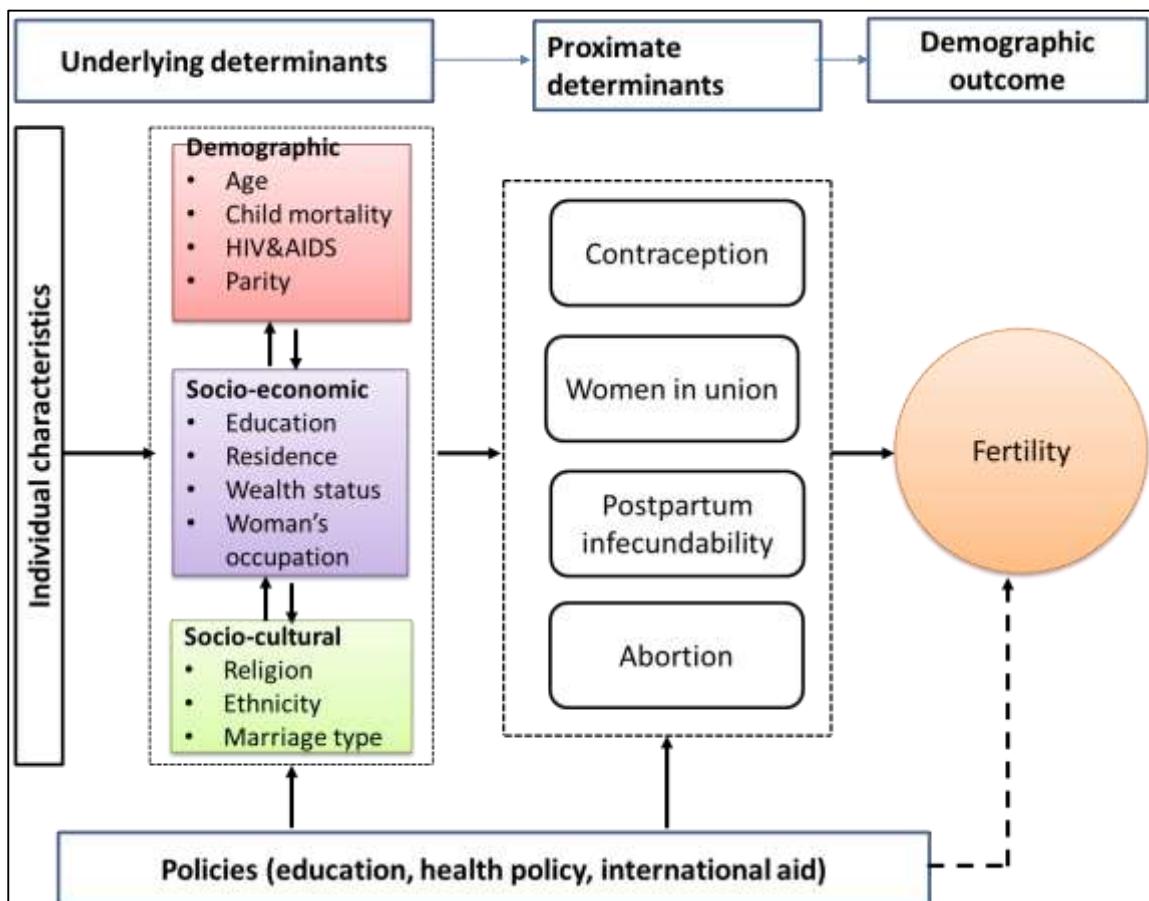
Source: Adapted from Bongaarts and Porter (1983).

Bongaarts (1978) further developed Davis and Blake (1956) framework, and isolated a set of proximate determinants of fertility into a powerful model for analysing how fertility changes over time or variations in fertility from one group to another. An empirical study of 23 developing countries, eight from developed countries and ten from historical populations showed that the proportion of women married, prevalence

of induced abortion, contraceptive use and effectiveness and duration of postpartum infecundability were by far the strongest causes, and accounted for 90% of variation in levels and differentials of fertility (Bongaarts 1982).

In addition to proximate determinants, background or indirect determinants are those factors that influence the direct determinants and thereby influence fertility. The effect of the variables is to influence fertility from its hypothetical level, which might be achieved in their absence. The hypothetical level according to Bongaarts and Potter (1983) is defined as the average number of children which each woman in a population would have if it occurred that all women were married, of childbearing age, did not breastfeed and abstain from sexual intercourse during postpartum amenorrhea, and did not practise contraception and abortion. The mathematical relationship between the proximate determinants and fertility is discussed in detail in Chapter 5 of this thesis.

1.8.1 Influence of Individual Level Factors on Fertility Level

Bongaarts and Potter (1983) classified two levels of factors: the first consists of biological and behavioural variables, namely nuptiality, postpartum infecundability, infertility, contraception and induced abortion, which are known as the proximate determinants. The proximate determinants affect fertility directly. The second level, which includes socioeconomic, cultural, and demographic variables, operates through the proximate determinants to influence variations in fertility.

In many societies marriage usually marks the beginning of family formation and represents the institution within which childbearing should occur. However, in reality, and especially in sub-Saharan Africa where the incidence of premarital childbearing is high (Gage and Meekers 1994, MacQuarrie 2014), a significant proportion of births occur outside marriage. While young women may delay marriage, studies show that they are resuming sex outside marriage early and subsequently start childbearing early (Addai 1999, United Nations Department of Economic and Social Affairs 2013, MacQuarrie 2014, Bongaarts 2015). In the absence of contraception, a longer window may entail a larger completed family size, which may work to sustain high fertility levels (Mensch, Singh et al. 2005).

In urban areas, access to all forms of media, health facilities, and education opportunities may influence an individual's behaviour in a way that promotes a small family size. Access to certain health facilities improves the health of children thereby improving each child's survival; with more children surviving, women may not need to give birth more times. On the other hand, given that women in rural areas typically have limited access to these facilities, they are less likely to adopt ideas that favour small family size, and it may take a while for them to rationalise the importance of reduced fertility. Alternatively, they may choose to have high fertility.

Socioeconomic and cultural factors collectively play an important role in shaping the logic of an individual's response to fertility (Johnson-Hanks 2007). The adoption of fertility control may vary according to religion, education, ethnicity or marriage type, whether polygynous or monogamous (Yeatman and Trinitapoli 2011). Women who are educated are less likely to enter polygamous unions than uneducated women (Gage and Bledsoe, 1994). Educated women are also likely to have lower childbearing aspirations than uneducated ones (Hollos and Larsen 2004), and are likely to participate in labour outside home and away from the traditional roles of giving birth, exposing them to different family planning messages (Westoff and Koffman 2011, Westoff 2013). Figure 1.5 also shows that infant mortality may indirectly affect subsequent fertility level through shortening the breastfeeding period, even if there is not any deliberate intention to replace a child who dies (Bongaarts and Potter 1983).

In much of Africa, postpartum abstinence is a common practice, and influences fertility through breastfeeding duration (Schoenmaeckers, Shah et al. 1981, Lesthaeghe 1989). If the period of breastfeeding and abstinence is shortened without being replaced by contraception, it may lead to increase levels of fertility (Stecklov, 1999). This may be the case for mothers who are infected by the HIV virus who are encouraged to breastfeed exclusively for 3 – 6 months, followed by weaning (Homsy, Moore et al. 2010, Sinunu, Schouten et al. 2014). Indirectly, in generalised epidemic, HIV and AIDS can influence fertility through shortening of postpartum abstinence in order to discourage some men from having extra martial affairs. HIV seropositive may also influence fertility intentions and reproductive behaviour (Taulo, Berry et al. 2009, Dube, Baschieri et al. 2012, Machiyama, Baschieri et al. 2015).

In polygamous marriages, women have less coital frequency, and hence they may be less exposed to the risk of becoming pregnant than in monogamous relationships (Lesthaeghe 1989). Furthermore, depending on the conjugal relations, the stability of the marriage is likely to influence use of contraception and also may lead an individual or a couple to revise their fertility preferences, which ultimately will affect their fertility behaviour (Johnson-Hanks 2007, Moultrie, Sayi et al. 2012). Differentials in fertility levels may also be affected by religion (Heaton 2011): for example, while Christianity, especially Catholicism, is not tolerant of polygyny, Islam allows polygyny up to a maximum of four wives (Lesthaeghe 1989).

Depending on the lineage type, certain types of marriages may give the woman reduced rights in practice, as she may be compelled to have children due to societal pressure. A woman may not be motivated to use contraceptives because she is expected to prove her fertility. For instance, a woman or a couple actively seeking to limit the number of children may succumb to the societal pressure that supports large family sizes. This may have an effect on whether the couple considers limiting childbearing, or on what method of contraception they use. Similarly, institutions may play on some individuals to believe that their pregnancy is a gift from God (Bledsoe, Hill et al. 1994).

The postpartum period varies widely from one society to another. This depends on the frequency and intensity of breastfeeding (Ross and Winfrey 2001). The period is also determined by the social and cultural values. For instance in the sub-Saharan region, women observe long periods of sexual abstinence as they breastfeed their babies, as there are cultural values that influence the observance of this period (Schoenmaeckers, Shah et al. 1981). As breastfeeding offers natural protection from pregnancy, some women may not use contraception, which could lead to unintended pregnancy. Similarly, being postpartum may also affect effectiveness of contraception; use of contraceptives during this period may be redundant as women may already be protected due to the effect of breastfeeding (Bongaarts 2015).

1.8.2 Influence of Factors at Macro Level

Government formulated policies may influence the level of fertility. The government may implement campaigns on the need for reduced fertility. Policies aimed at reducing

infant mortality may induce fertility reduction (May 2012). This is because, with improving child survival, couples may limit the number of children born when they see that many are surviving.

The government may influence directly or indirectly the proximate determinants. Directly, it may pass legislation which makes it illegal for girls to marry early (May 2012), or with regards to women having full access to fertility control methods including abortion, and accord them full legal rights to self-determination over reproductive choice (Tsui 2001, Cleland, Bernstein et al. 2006). These government policies may create a favourable climate for different family planning programmes to promote methods of fertility control, such as policies that increase access and availability of family planning methods (Stephenson and Hennink 2004, Ross and Smith 2011, The RESPOND Project 2012, Halperin 2013), as well as to implement changes to the health service delivery system by employing lower cadres to promote fertility control method at community level (Kok and Muula 2013). These changes are likely to increase contraceptive uptake which can lead to fertility reduction (Krueger, Akol et al. 2011, Prata, Weidert et al. 2013).

Institutions may also play a role in restricting access to contraceptives, especially the youth. However, the legal structures affect access to abortion by establishing a series of regulatory steps designed to prevent people from terminating unwanted pregnancies (Jackson, Johnson et al. 2011, Sedgh, Singh et al. 2012). Where the government has restrictive policies on abortion, people tend to terminate pregnancy through unsafe abortion (Coast 2014).

Chapter 2.   Literature Review

2.1   Introduction

This chapter presents the key theories that help to understand factors contributing to fertility transition. This chapter builds a picture of fertility levels in sub-Saharan Africa and incorporates demographic and sociological theories of fertility change, which were hypothesised to explain how fertility in Western Europe declined. Through the use of these theories, the chapter attempts to link the behavioural pathways that sustain high fertility in the in sub-Saharan region and Malawi in particular. Understanding of these pathways will allow us gain insights for the reasons of high fertility in Malawi.

The chapter begins by presenting a review of the theories relevant to the subject. This is followed by knowledge of levels of fertility and factors associated with contraceptive use, before identifying the knowledge gap. Finally, a summary of the chapter is provided.

2.2   The Demographic Transition

Classical demographic transition theory explains the mechanism surrounding the rapid population growth and is based on the historical experiences of Western Europe and North America (Hirschman 1994). According to the demographic transition theory, rapid population growth was related to a fall in mortality from high levels, typical of countries in pre-industrial societies, to low levels following the industrial revolution (Thompson 1929, Notestein 1945, Notestein 1953). Notestein (1953) outlined how mortality decline was caused by agricultural, and industrial revolutions which led to better food supplies, while advancements in sanitary conditions led to improvements in public health. These changes, in turn, improved child survival rates. With death rates declining faster than birth rates, the excess number of children created economic strain on couples. As children contributed less to their parents' households, motivation to restrict marital fertility by the use of contraception increased.

Another line of argument extends the classic theory by stating that the rise of secularism due to modernisation resulted in the breakdown in traditional values which had previously promoted large family size (Lesthaeghe 1983). According to Lesthaeghe (1983), large segments of the population were less aligned to community integration, as well as religious participation. He further observed that in areas where these traditional values were strong, marital fertility decline tended to be slower as did marital divorce (Lesthaeghe 1983). By contrast, Hirschman (1994) noted that where secularism had become legitimate, the pace of fertility decline was faster. In these areas, the individuals achieved the desired fertility by marrying later and practising contraception, so as to provide their small families with the necessary education and other social and economic needs (Caldwell 2006). Among the motivating factors were the changes in family size norms, the weakening of traditional values, increased costs of child-rearing, and reduced economic contribution by children (Hirschman 1994).

While the theory of demographic transition is widely accepted as a useful aid to describing transition to lower fertility in Europe, various authors have argued that it has limited application in the African context (Coale and Watkins 1986, Bongaarts and Watkins 1996). The Princeton's European Fertility Project, which offered an explanation of global fertility decline and was summarized by Coale and Watkins (1986), was able to validate the transition to lower fertility due to availability of data, which was not the case in less developed countries (Mason 1997). The transition in Europe occurred in the 18th and 19th centuries, but occurred approximately one century later in parts of Asia and Latin America. This was analysed in and summarized by Coale and Watkins (1986) (Mason 1997).

Another criticism of the theory relates to the economic perspectives that facilitated the demographic transition, which are difficult to justify in settings such as sub-Saharan Africa. It is argued that changes attributed to modernization fit well for Europe but not as well in less-developed countries, where fertility decline has been witnessed despite little change in traditional values (Kessides 2005, Dyson 2011). Supporting this line of argument, a committee of experts of the National Academy of Science (1993) reasoned that high fertility is being sustained by the high value attached to extending lineage; the importance of children as a means of gaining access to resources, particularly land;

the use of kinship networks to share the costs and benefits of children, primary through child fostering; and weak conjugal bonds.

2.2.1   Theory of Intergenerational Wealth Flow

Caldwell's intergenerational wealth flow theory attributes fertility decline to changes in economic and cultural forces, as well as a decreasing role of family structures. The transition from high to low fertility in Western Europe was a result of the reduced need for a large family size, principally caused by rising levels of urbanization and education. Caldwell (1982) identified two elements of fertility regimes; first, the pre-modern societies in which fertility rates are high, largely because the net flow of wealth is from the children to the parents. In this regime, as Caldwell (1982) argues, it costs little to raise a child. Thus, children in such societies become economically useful to the parents because each surviving child contributes to the parents' wealth, as they help through supplying labour, while the grownup children provide security in old age. In addition, the parents enjoy the social status derived from having children and parenting (Caldwell 1982). This makes African children to be considered as economic assets to their parents and, naturally, more children mean more wealth, leading to high fertility (Caldwell 1982).

In contrast, the second regime was attributed to the enactment of new child labour laws, making education compulsory for children and decreasing the role of extended family structures in providing security in old age (Caldwell and Caldwell 1987). Having a high number of children has socioeconomic consequences. DeLancey (1990) argues that when a woman or a couple has a large family, the amount as well as the quality of education that children receive puts economic pressure on the family. It may also pose economic conflict between raising children and the role of the mother as an income earner. This implies that children became more of a burden than a benefit to parents. These factors in turn shifted the economic benefits of family life from the parents to the offspring (Caldwell 1982, Lesthaeghe 1989).

Besides economic factors playing an important role in determining the demand for children, religion, culture and tradition also influence the number of children a woman or couple can have (Bongaarts, Frank et al. 1990, The RESPOND Project 2012). Culturally, a woman without a child is considered not to be fully adult and is often seen

to be of minimal economic and social value in terms of household wealth or lineage continuity (Caldwell and Caldwell, 1990).

Children may also provide emotional support to the parents' relief from the work load, and may provide certain economic and related social security measures, especially in old age (Lesthaeghe 1989, Bigombe and Khadiagala 2003). In regions like those of sub-Saharan Africa, where the costs of children are seen as small compared to the expected benefits of labour and future support, children's labour and earnings constitute a net gain. Hence, it becomes economically rational, notably after weighing the costs and benefits of children, to limit childbearing. This position appears to resonate well and has received support from other authors (Becker 1960, Becker and Lewis 1974, DeLancey 1990) as the likely cause for the transition to lower fertility in Europe, since in most western societies parents are expected to provide for children's economic well-being, and while they support the children economically, they do not expect the children to reciprocate this (Frejka 2001).

Caldwell's theory works well in some countries in SSA, but less well in others where fertility has declined with little change in extended family structures, or in European settings where family nucleation existed for centuries before fertility declined. In most African societies, there have been improvements in the economic situation, meaning that there is no need to have many children to support the agrarian economy, as was the case in the past (Frejka 2001, Bongaarts 2006). In many respects, the conservative attitudes that have sustained high fertility have been eroded by the rise of formal education, and that education is increasingly attributed to the onset of the fertility transitions in many sub-Saharan settings (Bongaarts 2010, Canning 2011). Bongaarts (2010) argues that, in many developing countries, change has already started and the two aspects of modernization, namely, mass education and mass communication, account for the observed changes.

Drawing evidence from multiple countries in SSA, DeLancey (1990) argues that, due to ethnic differences in the region, it is difficult to estimate the net benefit resulting from high fertility. While Makinwa-Adebusoye (2001) contends that actual upward flow of wealth was non-existent; instead there was a widely held belief that parents expect that wealth should flow from their children to them. This finding was also similar to an

earlier study conducted by Kaplan (1994) which had a sample size of 605 in three South American communities. The high fertility-populations had an average number of 8.1 children born per woman. Kaplan (1994) measured age-specific consumption patterns derived from the children and their parents from the communities that practised agriculture, hunting, fishing and gathering. This was aimed at measuring the direction of net economic value of children through measuring food consumption patterns. The study found that children were consuming more than they contributed to their extended families. Also, although the children contributed to chores such as cleaning, bringing water to the households, caring for their siblings or other children, these activities were done more by adult men and women than the children. Reacting to Caldwell's theory, which mostly concerns net economic value of children as determining the number of children, Kaplan (1994) proposes to not reduce children to a cost benefit analysis—goods that will increase their fertility when children positively affect wealth.

While acknowledging that fertility has substantially declined in most African countries, in other countries fertility remains high. High fertility, therefore, which makes the theory relevant to some SSA countries, might be attributed to the fact that the norms regarding large family size have not sufficiently changed enough to favour low fertility (Bongaarts 2006).

2.2.2 The Fertility Supply-demand Framework

Another perspective of fertility transition seeks to explain fertility behaviour that is triggered by a couple's rational decision-making with regard to the desired number of children (Becker and Lewis 1974). According to the theory, children are analogous to the demand for goods and services. The authors suggest that, in the way that the demand for certain commodities will depend on a couple's income, the costs of children and the parents' tastes or preferences for children are comparable to other goods and services that give the couple satisfaction (Becker 1960, Becker and Barro 1988). Where couples face financial constraints, they are likely to substitute children for valuable goods (Becker and Lewis 1974).

The theory that integrates an account of the demographic transition with theories of supply and demand is not without criticism; it fails to consider the context within

which individuals make rational decisions (Hirschman 1994). It is likely that an individual's decision making process is influenced by the social, cultural and political environment (de Bruijn 1999). Caldwell and Caldwell (1987) find fault with the theory for assuming that couples always agree about the desired number of children, arguing that this may not always be the case, because there may be variations in power and distribution of wealth between the couple. Van de Walle & Foster (1990) point out that the economic theory is ill-suited for developing countries since it ignores that, non-orphaned children may be sent to live temporarily with relatives, which is common in most parts of Africa. For example, in Malawi, 14 % of children below the age of 15 are not coresident with their living mother, and 31 % are not coresident with their living father (National Statistical Office (NSO) and ICF Macro 2011). In a longitudinal study in rural Malawi, (Grant and Yeatman 2014) found that between 7 % and 15 % of children aged 3–14 were out-fostered, precipitated by divorce and maternal remarriage. Given this practice, there is the potential to offset the costs of raising children, since in many parts of SSA society is organised around the extended family (Bledsoe and Gage 1987, Wusu 2006, Akresh 2009).

Some authors argue that the value of children is complex, and may vary under different social and economic conditions (Kaplan 1994), hence the need to have different perspectives in order to understand the satisfaction that comes with having children (Arnold and Fawcett 1975, Aghajanian 1979). How children are valued is subject to individual or couple decisions (Arnold and Fawcett 1975). Children may be seen as valuable beings that might provide emotional satisfaction to parents (Bulatao 1982), or as a means to meeting certain economic goals (Caldwell 1982). One assumption to explain high-fertility regions is that children are considered members of a family, and they provide support to their parents (Fawcett 1988).

Coale and Watkins (1986) argue that sustained fertility decline from high to low levels will only occur if the three conditions are met , and as (Cleland, Ndugwa et al. 2011) propose, these elements tend to interact to in the process of fertility decline: (1) the acceptance of calculated choice as a valid element in fertility, (2) the perception of advantages from reduced fertility, and (3) knowledge and mastery of effective techniques of control. The first of these requires that people see the value and benefits of having fewer children. When people are aware, they are free from societal or

cultural forces regarding their reproductive choices. The second element relates to the motivations for having smaller families. The third one refers to when people have easy access to birth control methods (Haines 1989, Lesthaeghe and Vanderhoeft 2001, Cleland, Ndugwa et al. 2011).

While access and availability may be seen as factors determining use of family planning methods, women should also be in control of the method, as some women may need the cooperation and permission from their spouses, mothers-in-law, or uncles (Bledsoe, Hill et al. 1994, Kadir, Fikree et al. 2003). Thus, this may put the woman in a situation where it is easier to get pregnant than negotiate the barriers (Ratcliffe, Hill et al. 2001). Similarly, certain religious beliefs may prohibit certain means of controlling fertility, for example abortion (Yeatman and Trinitapoli 2011). Policies and awareness promoted by government may assist to remove the physical, psychological and financial costs associated with accessing and availability of the methods (Weeks 1990, May 2012, Hindin, McGough et al. 2014). One way of motivating people is to bring the methods to the people's doors, using community cadres to provide the methods as opposed to having people walk long distances to the nearest service provider (Halperin 2013). Providers can also make available a wide choice of methods of fertility control including abortion for those who wish to delay pregnancy, while legalising abortion if pregnancy is unwanted (Jacobstein, Curtis et al. 2013). However, this may not necessarily lead to fertility reduction, since, as Coale and Watkins (1986) argue, reducing fertility depends also on the willingness of an individual or a couple to limit family size.

To improve Becker's theory, which puts economic consideration as the primary motive for people to adopt a certain fertility behaviour, Eaterlin and Crimmins (1985) extend the neoclassical model by adding the "supply of children" and emphasizing more sociological interpretations. They call for an investigation of the present theories that relate fertility decline to three aspects of child-rearing. Firstly, the demand for children implies the number of surviving children a couple would want if fertility regulation were costless. These costs are not only limited to the economic costs, but also to the societal norms associated with raising a child. Secondly, the supply of children, which is the number of surviving children a couple would have when there is no attempt to control fertility and, thirdly, the costs of fertility regulation, which is

seen as the effects of couples' attitudes regarding the use of contraceptive methods (Eaterlin and Crimmins 1985). Thus a couple's support for fertility control can only occur if the number of children they already have exceeds the desired number of children. When the current supply matches or exceeds the demand for children, the couple or and individual may be motivated to regulate further births. The extent to which fertility control is adopted depends largely on the social and psychological costs associated with the various types of birth control (Eaterlin and Crimmins 1985). In this regard, in countries where fertility decline has been rapid, largely independent of strides in socioeconomic developments, declines have occurred because family planning programs' efforts increased the demand for birth control by providing easy access to contraception. The authors further argue that family planning programs also help to reduce the associated costs, not only with respect to time and financial costs, but also alter the social environment that acts as a barrier to contraceptive adoption.

The advantage of the supply and demand theory is that it improves the understanding of how the decision is made to affect fertility decline. It also serves to understand how determinants of fertility, in this case supply and demand for children and the costs of fertility regulation, may operate to affect the onset of fertility transition (Hirschman 1994, Bryant 2007, Johnson-Hanks 2007). This is important for understanding the reasons for the slow fertility decline over time in SSA and, more especially, to the current study.

2.2.3 The Innovation-Diffusion Framework

The failure of a clear link between declines in fertility rates witnessed in Western Europe and changes in socio-economic factors has led other researchers to argue that fertility decline was the consequence of innovation diffusion (Cleland and Wilson 1987). Diffusion of innovation is a process by which the spread of ideas from one locale of social group, or an individual to another, may induce a change to new behaviour (contraception, for example) or changes in culture or attitudes that make fertility control acceptable on social grounds (Rogers 2003).

The central tenant of the innovation diffusion hypothesis is strengthened by the view point whereby there was a close association of declines in fertility rates along linguistic and cultural boundaries in some 19th century European countries

(Hirschman 1994, Montgomery, Casterline et al. 2001). Fertility decline appeared to be faster in the areas that were stratified along the same language and cultural strata, although the areas had similar level of socioeconomic development. This provides partial evidence that fertility decline was associated with cultural boundaries rather than with any socio-economic factors (Bryant 2007).

Within the innovation-diffusion framework, there are pathways in which the idea is transmitted by an individual to affect others. The transmission of ideas does not occur in a vacuum; it is affected by the socio-cultural forces, such as language, ethnicity, neighbourhood and workplace, or channels of communication (Cleland and Wilson 1987). Channels of communication, such as mass media, expose viewers to other ideals external to their world (Jensen and Oster 2009). In turn, this information may promote modern ideas of fertility regulation that can be instrumental for other ends, such as socio-economic goals, family size, the health of mothers and the desired number of children (Westoff and Koffman 2011, Westoff 2013).

A study in Rwanda showed that women who listened to family planning messages had increased odds of using modern contraceptive methods (Westoff 2013). Similarly, Westoff and Koffman (2011) found that in 30 out of 48 countries, exposure to media influenced positive reproductive behaviour and that the greatest effect was observed among women who were exposed to television. Basten (2009) found that television programs and soaps influenced the fertility behaviour of people in Brazil, and Jensen and Oster (2009) reached similar conclusions for India.

Similarly, an illustration that diffusion can facilitate fertility decline without major socioeconomic development is afforded by an example of West Bengal in India (McNay, Arokiasamy et al. 2003). In this region, fertility declined without major social economic development changes; women's socioeconomic status was low and the region had not experienced major mortality decline, yet the proportion of women using temporary methods of contraception was high (Basu and Amin 2000).

2.2.4 Social Networks: Social Learning and Influence

The assumption that the diffusion of ideas was responsible for fertility decline has some conceptual and methodological challenges. The theory fails to define what is

diffused and the processes involved. To clarify this aspect, Bongaarts and Watkins (1996) expand the social interaction process by identifying two principal mechanisms through which ideas are spread, known as "social learning" and "social influence".

Social learning refers to the exchange of information that occurs within a social network. Thus, the degree to which social interactions, such as peer effects or social diffusion, may explain changes in fertility behaviour. People learn from the individuals within their community. When people see the benefits of adopting the new idea, the diffusion is then spread to other areas. However, the pace of the diffusion will depend on the size of the population of the 'pace-setters' (Hoffmann 2011) and the density of the network in which the people interact (Kohler, Behrman et al. 2007). Where this group is small, the diffusion ideas are likely to be contained. However, if this is large, the wave of new ideas will quickly spread to other groups. Changes in behaviour takes place when, following discussion, the perception of risk and uncertainty related to the change for an individual are reduced to the extent that he or she adopts the new ideas (Bongaarts and Watkins 1996) .

With respect to social influence, there are a number of dimensions through which people learn, which include people's observation of perceptions of other people's attitudes toward or use of the method, and peer-to-peer conversation (Paz Soldan 2004). Learning perceptions of other and peer networks are important in breaking the barriers and speeding up the process of adopting new methods. Thus, people are likely to adopt a new method from people they know and trust and with whom they can identify (Rogers 2003).

It is also important to note that prior experience and familiarity with an innovation help reduce anxiety and provide confidence to an individual who intends to use an innovation. For example, new contraceptive users are likely to seek advice or learn from peers who are knowledgeable about the innovation. For any innovation, peers are the first people to whom first time users are likely to go and ask about an innovation. Where the prior experience of peers is positive, the new adopters are likely to be more comfortable about the innovation. The people who have not yet adopted the innovations observe those who have so and, depending on the outcomes, their resistance is diminished as the information about the potential risks and benefits

is enriched (Palloni 2001). Social learning can also take place impersonally when information is gained through mass media (Montgomery, Casterline et al. 2001, Westoff and Koffman 2011).

Another important element that determines the pace at which the innovation spreads is the simplicity of the innovation itself (Rogers 2003). For example, use of the male condom requires male cooperation while insertion of an IUD requires expertise which is not readily available in rural settings. Awareness of such aspects may help to understand the different levels of fertility and contraceptive levels prevailing in Africa.

Social influence refers to winning approval from, and avoiding conflict with the group's commonly held norms. Thus, broader cultural norms relating to gender roles, power structures, and social organization as a whole may influence an individual's fertility behaviour (Bongaarts and Watkins 1996). For a change to occur, an individual has to be exposed to an innovation and gain some understanding of how it works. An individual makes a choice to adopt an innovation if they form a favourable opinion or they may reject it if they do not form such an opinion. Before adopting a new contraceptive method, an individual considers the likelihood of whether the adoption will affect their self-respect and social standing in the community and, more importantly, whether they will be in control of the method (Cleland 2001).

In line with the process of diffusion, several authors have documented that fertility transition in sub-Saharan Africa was first manifested in urban places, prior to the emergence of fertility decline in rural areas (Jolly and Gribble 1993, Cohen 1998, Garenne and Joseph 2002, Shapiro, Kreider et al. 2010). This is because urban places offer greater opportunities to facilitate the spread of innovation. By contrast, fertility decline in the rural areas is slower than in the urban areas. The slow decline in the rural areas is attributed to the strong traditional values such that the process of diffusion of ideas has been slow to bring meaningful fertility decline (Palloni 2001, Bongaarts 2006). In this context, fertility levels may remain stable even if the level of development of a country increases and there are changes in the demand for large family size (Bongaarts 2010). This finding agrees with that of Palloni (2001), who suggests that it should not be taken for granted that the ideas of diffusion will influence others and would always lead to acceptance behaviour. Often, there may be a

possibility of rejection, which ought to be taken into account as part of the decision making process.

The process of social learning and influence improves our understanding of decision making by adding the sociological process that affects individuals or couples undertaking fertility related behaviour. The theory is relevant to the present study in that schooling levels of men and women, residing in urban and affluent areas (factors which are associated with adoption of innovation such as birth control), cannot alone influence fertility change. The knowledge about the need to have smaller family sizes is yet to be diffused in much of the rural areas in sub-Saharan Africa, where a preference for large family size may be one of the moderating factors that is contributing to slow fertility change and contraceptive use (Bongaarts 2006, Bongaarts and Casterline 2013).

2.2.5 The Institutional Approach to Fertility

Societal structure, cultural and social organisations together are often considered as an institution which has a role in influencing fertility level. Although institutional theories do not form a coherent body, they enrich or modify the existing theories of the demographic transition (de Bruijn 1999). The role of culture is centered on the transference of knowledge and values within a group (Lesthaeghe 1983). Culture as an institutional practice may be particularly important in shaping responses and providing meaning to marriage systems, inter-generational and gender relations, and social relationships. The importance of culture is articulated by Caldwell and Caldwell (1987):

> "Sub-Saharan Africa may well offer greater resistance to fertility decline
> than any other world region. The reasons are cultural and have much to do
> with a religious belief system that operates directly to sustain high fertility
> but that also has molded a society in such a way as to bring rewards for
> high fertility (Caldwell and Caldwell, 1987: 409)".

In support of this, Bigombe and Khadiagala (2003) opine that the reason for highly sustained levels of fertility in SSA is because socio-cultural practices, such as early childbearing, as well as childbearing within much of the reproductive life span and placing high social value on childbearing, remain strong in the region.

Different authors have identified socio-cultural factors as being responsible for high fertility in the region. As in many African traditions, marriage has a high value. With exception of It is universal and starts at an early age, usually before 18 years of age for women(Garenne and Joseph 2002). Marriage is not only seen as a social conformity, but it may also reward young women financially while removing the financial burden from the parents (Bigombe and Khadiagala 2003, Garenne 2008). With respect to fertility, marriage at an early age means that the duration of time that women are exposed to the risk of pregnancy is longer, hence there is a greater likelihood of pregnancy in the absence of effective contraception.

Thus far, different theories have been used to explain how fertility changes over time. In what follows, a review of fertility levels and contraceptive prevalence rate is assessed.

2.3 Overview of Fertility Levels in Sub-Saharan Africa: Total Fertility Rate (TFR) and Contraceptive Use

2.3.1 Regional Fertility Trends

World fertility rates have declined since the 1950s. However, there are still wide variations in the levels and an understanding of the causes of high fertility. For example, while world TFR is estimated at 2.5, it is 4.6 children per woman in Africa, with 5.1 children per woman in the sub-Saharan region alone (United Nations Department of Economic and Social Affairs 2013). Elsewhere, fertility is fewer than three children. In order of increasing magnitude, total fertility rates are as follows; Europe (1.5), North America (2.0), Asia (2.3), Latin America and the Caribbean (2.3) (United Nations Department of Economic and Social Affairs 2013). Fertility remains high in countries predominantly located in SSA (Casterline 2010). High fertility is defined as a TFR of 5.0 children or more (Bongaarts 2006).

More recently, fertility trends in SSA have been subjected to a lot of debate. Examining the levels and patterns of fertility decline, Guengant and May (2011) identify four typologies of fertility transitions in the region. Firstly, countries that experienced early fertility transition and have a TFR of fewer than 3.0 children per woman. Secondly, where fertility transition is recent and the TFR is estimated to be between 3.0 and 5.0

children per woman. The third group consists of countries where the estimated TFR is at 5.0 children per woman, while the fourth category consists of countries whose fertility rate ranges from 6.0 to 7.2 children per woman.

Although SSA has the highest average fertility rate in the world, the use of contraception in the region is low. On average, the contraceptive prevalence rate (23%) is less than half that of South Asia (53%) and that of East Asia (67%) (United Nations Department of Economic and Social Affairs 2013). As a result of these patterns, the region is growing at a faster rate (2.3%) than other regions of the developing world, including both Asia and Latin America (1.1% each) (United Nations 2014).

2.3.2 The Impact of Contraceptive Use on Fertility Level in Sub-Saharan Africa (SSA)

A number of studies have documented the varying reasons for high fertility in SSA. Moultrie, Hosegood et al. (2008) compared retrospective and prospective data over a period of 10 years to examine the factors responsible for the slow decline in rural parts of South Africa. The study found that that shifts in method mix to less effective methods of contraception partly attributed for the slow decline. This finding corroborates with Casterline (2001) who, using 1996 United Nations estimates and projections which were recent at the time, examined trends in the total fertility rate (TFR) since 1950 in countries from Asia, Africa, and Latin America, with a view to determining the pace of fertility transition. The study found that contraceptive use in sub-Saharan Africa is largely used to achieve adequate spacing between, rather than limiting, births. Thus, in the sub-Saharan region, existing increases in contraceptive use are unlikely to translate into substantial fertility decline.

Elsewhere, the rise in contraceptive use has resulted in substantial fertility decline. Westoff and Bankole (2001) used disaggregated data from 59 Demographic and Health Surveys of 451 regions of these countries, 200 of which were from sub-Saharan Africa, while 251 were drawn from other developing countries. When plotted in a regression, the study found that the correlation between contraceptive prevalence and the fertility rate was much lower in SSA than in other parts of the developing world.

According to the study, low correlation sets the pattern of African transition apart from that of other regions.

In a study of 49 sub-Sahara African countries, Guengant and May (2011) examined the role of modern contraception and postpartum insusceptibility in affecting fertility level. The study concluded that only 14% of the countries' fertility rates were significantly declining, while in the majority of the countries the pattern of fertility decline was characterised as rather slow and irregular. In almost half of the countries in the SSA region, fertility rates were more than five children. The study also concluded that, due to different socio-economic levels, such as levels of education and the urbanisation achieved, it is difficult to predict the fertility transition in sub-Saharan Africa. Thus, the major problem in interpreting and comparing the different studies, as Guengant and May (2011) conclude, is the lack of uniformity in the role of socio-economic factors.

The relationship between socio-economic variables and fertility is not a direct one. Shapiro and Gebreselassie (2008) examined the relationship between the TFR and socio-economic variables, which included: the prevalence of modern contraception, the percentage of women in union, and the infant and child mortality rate. However, the relationship was not significant. It was only after the inclusion of correlated educational explanatory variables that the relationship became significant. The explanation is that greater percentages of women who attained at least secondary education are associated with greater contraceptive use and with lower percentages in union. This finding has an important implication for future trends of African fertility transition, namely that emphasis on increasing education, particularly secondary and higher among women, is a key factor in promoting fertility decline, similar to the arguments put forward by Caldwell and Caldwell (1990).

Besides demonstrating that understanding of change in fertility levels over time requires multiple investigations of the proximate determinants, Guengant and May (2011) and Shapiro, Kreider et al. (2010) show that the inclusion of many countries certainly gains in representativeness. However, a common weakness to both studies is that the authors have lumped the countries together with diverse socio-cultural settings, and countries that vary in political and institutional arrangements, thereby

making very questionable the application of such findings to an individual study, such as that of Malawi.

Bongaarts (2006) examines in detail the influence of the proximate determinants and the causes of lack of change in fertility decline in seven out of 38 countries: Bangladesh, Colombia, Dominican Republic, Ghana, Kenya, Peru, and Turkey. However, his evidence was inconclusive. While Bongaarts appears to have an explanation for each of the proximate determinants, the findings were not common to all cases; the explanations were partial, as well as different from one country to the next. By partial, it means that the results can give a very good possibly incomplete account of what was happening to the proximate determinants, but fail to provide an account of the factors that were driving the change in each of the proximate determinants. For example, the study showed that in some cases, the median age at marriage had increased between the first and the last survey. Similarly, the contraceptive prevalence rate had not declined in countries that had experienced a marginal increase in TFR.

Another study by Garenne (2008) that used sub-national level data (rural-urban) came to the same conclusion; it found no common pattern, although it gave an explanation about why this is happening in each country. Although Bongaarts (2006) study has been criticised by Shapiro and Gebreselassie (2008) for being generous in his definition of what constituted the levelling-off of fertility rate by only considering the stall in two successive surveys, as opposed to Garenne (2008) approach which considered three surveys, these two studies reached similar conclusions.

However, in another attempt to explain why contraceptive prevalence rate (CPR) was not having an impact on TFR, Bongaarts (2011) investigated the relationship between TFR and CPR by including many more countries. However, even with the inclusion of more countries, he fails to achieve an explanation. Consequently the study concluded that the impact of HIV mortality, poor performance of school indicators (measured as the proportion of women who attained higher education), and the low priority given by some governments to family planning programs, were the likely reasons for the this, although he does not attempt to argue for them in detail.

Studies of Shapiro and Gebreselassie (2008), Bongaarts (2006), Garenne (2008) and Shapiro, Kreider et al. (2010) have important policy implications in that the governments that concern themselves with increasing contraceptive use alone may not succeed in reducing fertility rates. This is because there may be other strong cultural forces that may be obstructing efforts towards fertility reduction. Such forces may include the high and nearly stable desired family size in SSA, which remains an obstacle to further fertility decline (Bongaarts 2011). These findings are important for Malawi, where fertility has remained high despite increasing CPR levels. The findings underscore the need to get a deeper understanding of the norms and attitudes towards family size.

2.4   Other Proximate Determinants

2.4.1   Proportion Married

A population which has more married women in the central childbearing ages contributes towards a higher total fertility in this category than in the younger and the older ones (Bongaarts and Potter 1983). In many African countries childbearing starts when women are younger and then spans throughout the reproductive period. In most cases, a substantial proportion of women continue to bear children even into their late 40s (Figure 2.1).

Figure 2.1: Age specific fertility rates (ASFR) for selected countries in sub-Saharan Africa
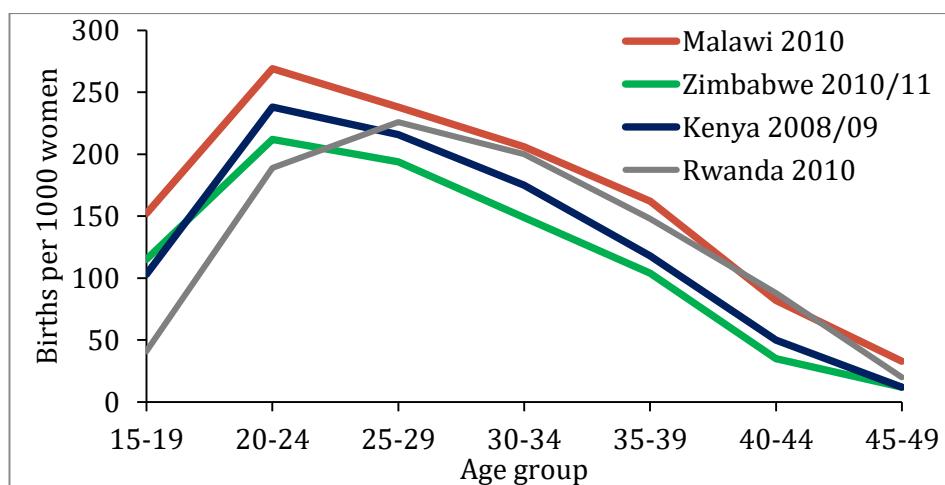
Source: Respective years of Demographic and Health Surveys Country Reports

While studies have focused on contraceptive use as a precursor to fertility decline, there is overwhelming evidence that fertility can decline even in the absence of high

levels of contraceptive use in some countries. In Ethiopia, for example, the TFR declined from 6.4 to 5.9 children per woman between 1990 and 2000, and in the capital city from 3.1 to below the replacement level (1.9 children per woman) (Sibanda, Woubalem et al. 2003). Sibanda, Woubalem et al. (2003) attributed marriage at a later age and a decline in the composition of the age-specific proportions of women as the most important mechanisms behind fertility decline in Addis Ababa. Considering that the age of marriage is a component closely linked to high levels of education and urbanisation, it was expected that the decline should accompany the increase in levels of education among women. However, it was found that the decline was not associated with educational factors alone; rather, poor employment prospects and rising housing costs were likely factors that caused changes in nuptiality patterns (Sibanda, Woubalem et al. 2003, Weeks, Getis et al. 2010). More importantly, the decline occurred in the absence of a strong national family planning program.

An earlier study by Lindstrom and Woubalem (2000) covering the same period, used a decomposition analysis to examine inter-censal change in three components of fertility in Addis Ababa, namely, marital fertility, proportion married and non-marital fertility. The study found that the change in fertility in Ethiopia was characterised by an increased occurrence of the proportion of non-married women, primarily caused by delayed marriage and an increase in the proportion of women who never married, as opposed to increases in marital separation or widowhood. However, the single most important determinant was a decline in marital fertility, which accounted for 41%, followed by non-marital fertility (33.2%) and proportion married (26.7%).

Studies such as those by Lindstrom and Woubalem (2000), Sibanda, Woubalem et al. (2003) and Weeks, Getis et al. (2010) successfully demonstrate that changes in nuptiality patterns, more than contraceptive use, can influence fertility decline. In addition, changes in socio-economic factors partly contributed to the alteration in the number of married women. This supports the micro-economic perspective which posits that fertility behavior can be modified by constraints caused by costs and the time needed to raise children (Becker and Lewis 1974). However, Garenne and Joseph (2002) argue that the roles of a shortage of jobs and lower incomes in facilitating fertility decline in urban areas fail to explain the situation prevailing in rural areas,

which experience more hardship, but no apparent fertility decline of a similar magnitude.

2.4.2   Age at Marriage

The age at first marital union marks the beginning of a sexual relationship and entails exposure to the risk of childbearing (Westoff, Blanc et al. 1994, Bongaarts and Cohen 1999, Westoff 2003). Increased age at marriage is considered to be one of the major factors underlying fertility decline in the southern and eastern countries of sub-Saharan Africa. In a study of nine countries, Harwood-Lejeune (2000) showed that the age at marriage and the proportion married were the reasons for the varying fertility levels in southern and eastern sub-Saharan Africa. According to the study, rising age at marriage alone accounted for up to one third of the fertility decline among women aged 15-39 in seven of the nine countries. With the exception of Tanzania, the conclusion for the other seven countries was reached by reconstructing the period rates fifteen years prior to the survey. Using one dataset to capture retrospective trends in median age at marriage can be problematic, in that it makes issues of comparability difficult. For Malawi, which was part of the multi-country study, the focus was on trends rather than on detailed analysis. Nonetheless, a study by Manda and Meyer (2005) analysed the timing of marriage by using data from the 2000 Malawi DHS and arrived at a similar conclusion; there was a gradual shift toward marriage at later ages among younger cohorts. However, Ueyama and Yamauchi (2009) found no differences in the age at marriage when analyses by other socioeconomic and cultural groups were considered. Furthermore, comparing over time the median age at first marriage for women in Malawi, the age group 20-49 has remained constant since 1992 at just under 18.0 years, and slightly declined from17.9 in 2000 to 17.8 years in 2010 (National Statistical Office (NSO) and ICF Macro 2011).

While age at marriage has been increasing in some countries, evidence paints a different picture for Malawi. Using 1992, 2000 and 2004 Malawi Demographic and Health Surveys, Palamuleni (2011) found the results for age at marriage in Malawi to be inconclusive; the results from a logistic regression to examine the likelihood of getting married before 20 were as expected, but the mean age at marriage and the proportion married increased at two time points. Elsewhere, Bongaarts (2006) compared the level of contraceptive use, age at marriage, demand for contraception,

49

and wanted fertility, and how each of the factors were related to the observed TFR. In countries where the fertility level was more than five children per woman, contraceptive use had levelled off and the median age at marriage had declined. This may suggest that median age at marriage alone cannot be used as a proxy to understand the prospects of fertility decline in a country.

Marriage in most SSA countries is universal and it is an institution which is strongly linked to tradition and the "pride" of both the bride's and groom's families (Mensch, Singh et al. 2005, Gebreselassie 2011). Consequently, more girls than boys enter marriage without any chance of exercising their right to choose their partner (UNICEF 2005). This occurs even there are laws regarding early marriage entails removing the girl from the educational process to assuming a wife's responsibilities. Early marriage also contributes to women's lack of rights and can lead to larger families (Fatusi and Hindin 2010). In addition, young women have less knowledge about contraception and family planning than older women, thereby increasing early childbearing health risks for both the mother and the child (Prata, Weidert et al. 2013).

Despite some countries in the SSA region experiencing a rise in the age at marriage, Harwood-Lejeune (2000), Garenne and Joseph (2002) found that increasing age at marriage is compensated for by rising proportions of premarital births in many sub-Saharan African countries. In a comparative study of 13 SSA countries which examined changes in the proximate determinants of fertility, (Johnson, Noureddine Abderrahim et al. 2011) note that the pace of decline has been sluggish or has even stalled. The study found that the gains made in age at marriage and contraceptive use were gradual and limited, but were accompanied by a shortening of the time that women breastfeed. Lack of change in contraceptive use and age at marriage implies that women rely on prolonged breastfeeding as a form of contraception, but are more at risk of becoming pregnant if the duration of breastfeeding is short. When maternal and child health were examined as indicators of socio-economic development levels, they showed a declining trend, even though the fertility level had levelled off. This points to the need to examine a number of determinants of fertility. In support, Bongaarts (2006) states that although there may be a high correlation between fertility decline and socioeconomic indicators, the indicators poorly predict the transition and the pace

of fertility decline, given that the countries under study are in their early stages of fertility transition.

2.4.3   Practices Regarding Lactational Infecundability

Prolonged breastfeeding greatly decreases the likelihood of a woman conceiving following birth (Bongaarts 1978). This is because the suckling of a child stimulates hormones, thereby suppressing the early return of ovulation. The effect of duration and intensity of breastfeeding is to lengthen the interval between births (Bongaarts and Potter 1983). The period following birth, during which a woman does not have sex, postpartum abstinence, is long in the developing countries (Schoenmaeckers, Shah et al. 1981, Lockwood 1995)}. In many African countries, some traditions discourage couples from sexual intercourse and have extended breastfeeding durations following birth (Zulu 2001). For such women, usually the motivation for an extended period of breastfeeding is to provide an adequate birth interval before the succeeding birth, and not for limiting childbearing (de Bruijn 1999). Using data from 37 developing countries, Guengant and May (2011) found that the breastfeeding period for women in sub-Saharan Africa was quite long when compared to the developing countries of Asia and Latin America.

2.4.4   Induced Abortion

Induced abortion is one of the most important proximate determinants that affects the fertility level of a country. In Bongaarts' model, the index of abortion averts less than one birth , but is nevertheless important because it shortens the intervals between potential pregnancies (Bongaarts and Potter 1983). Data pertaining to the estimation of abortion incidences in sub-Saharan Africa is scarce. It is estimated that 44 million abortions occur every year and half of these are terminated by people lacking the necessary skills, or with minimal medical expertise, and are performed in unsafe environment (World Health Organization 2011, Sedgh, Singh et al. 2012, Coast 2014).

Although abortion has the potential to control fertility, women might face formidable barriers to accessing abortion. Policies or laws prohibit the practice, or restrict it to circumstances where abortion is necessitated by the need to preserve the life of the pregnant woman. Usually, this entails cumbersome approval processes by a hospital

committee which does not meet often, or does not exist at all in most hospitals (May 2012). In Malawi, abortion is authorised only if the woman's life is at serious risk and requires two independent obstetricians to endorse the procedure (Jackson, Johnson et al. 2011). However, there is growing evidence that women turn to unsafe abortion to manage unwanted pregnancy, with growing numbers of women seeking assistance for post-abortion care from the hospitals (Jackson, Johnson et al. 2011). For example, in Malawi, Munthali, Zulu et al. (2006) found that close to two thirds of adolescents aged 15-19 knew of a close friend or friends who had ever tried to terminate a pregnancy, compared to a quarter of adolescents aged 12-14 years in 2004.

The available information about abortion in Malawi comes from studies that use indirect measures by estimating the morbidity of women presenting for post-abortion care (PAC), and the Abortion Incidence Complications Methodology (AICM), which estimates the incidence of abortion. Both of these methods do not measure the full rates of abortion because many more women go unreported (Ministry of Health Malawi 2011). A recent study found that the abortion rate in 2009 was 24.4 per 1000 live births and the induced abortion ratio found in Malawi was estimated at 11.3 per 100 live births women (15-44). The majority of women (81.1%) presenting for post abortion care were married, while 49.9% were under 25 years. The findings suggest that women who seek abortion come from all backgrounds, further supporting the idea that it is prevalent in Malawi. Further, this may suggest that the public perception that abortion is common among teenage women on the less frequent reasons, which are rape and incest or teens who may simply be not ready to have children, is incorrect. It is likely that married women who may consider making this choice are already contending with some combination of low income, unemployment, and a lack of health insurance, or are struggling to raise kids on their own, or may be in troubled marital relationships.

2.5   Other Indirect Determinants of Fertility

Thus far, the literature review focus has been on the proximate determinants of fertility. Distinguishing the background characteristics from the direct proximate determinants enables the study to shed more light on the role of being a mediating influence the context has on influencing the individual or a couple to adopt certain

fertility behaviour. The elements of institution and context which are discussed in this section comprise the urbanisation, culture, ethnicity, religion and population policy.

2.5.1 Influence of Urbanisation on Fertility

Fertility rates are known to be lower in urban areas. One interpretation of this is that the urban environment itself influences the behaviour of individuals by changing their values and norms. Urban women are more likely to act on their desire to have a small family because of better access to means of birth control (Dyson 2011). An alternative view is the composition of the urban population itself (Caselli, Vallin et al. 2005, White, Muhidin et al. 2008). Due to the availability of health facilities which are conducive to the survival of children, urban areas may precipitate mortality decline, especially infant mortality, which plays a pivotal role in fertility decline (Kravdal 2002).

Garenne and Joseph (2002) compared the pace at which fertility started to decline between the urban and rural areas in 30 sub-Saharan countries. The study aimed to establish the timing of fertility transition between the urban and rural areas. In all the countries which were studied, and in Kenya, which was particularly used as a case study, fertility decline in the rural areas lagged 10 years behind that of the urban areas. In establishing the causes of the variation in fertility level at the country level, the study found that there was no correlation between the rate of fertility decline and income level. Most importantly, Kenya's income per capita increased by 50%, whereas that of other countries, for example, Madagascar, declined by the same portion, yet the countries experienced early and steady fertility decline in the urban areas. Shapiro and Gebreselassie (2008), in a study of 12 countries, found a strong association between urbanization and fertility, which was attributed to the population composition and the availability of services in the urban areas, but the study was inconclusive regarding the principal mechanism of what caused fertility to decline in urban areas.

2.5.2 Influence of Religion on Fertility

Studies show that religion plays an important role in shaping the perception, attitudes and behaviours of individuals and communities regarding fertility behaviour, through teachings about the use of contraception and abortion (McQuillan 2004, Trinitapoli 2006, Gyimah, Takyi et al. 2008, Yeatman and Trinitapoli 2011). Some religious beliefs

influence fertility in a more direct way through practices and teachings regarding the use of contraception, entry into marriage and out-of-wedlock childbearing, as well as promoting long periods of postpartum abstinence. Indirectly, religious beliefs influence the gender system and the status of women (Yeatman and Trinitapoli 2011). For example, in India, a study reported that the use of IUD was higher among the Hindu compared to the Muslim communities (Jeffery, Jeffery et al. 2008). From an Islamic perspective, the use of IUD may be discouraged because insertion of the device into a woman may involve male medical staff (*ibid*, 2008).

In contrast to preventing use of contraception, the faith community may act as a change agent in modifying behaviour, due to the respect it commands and its privileged position within the society (Yeatman and Trinitapoli 2011). Religion may also affect contraceptive use through education and social organisation, such as a marriage pattern including the practice of polygyny (Heaton 2011). For example, Muslims tend to have earlier marriage and to be more tolerant of polygyny than Catholics. These differences could contribute to fertility differentials between the two groups (Heaton 2011).

However, Iyer (2002), found that there were no significant differences in use of contraceptives between Muslim and Hindu religious groups in India when controlling for all factors and concluded that the socio-economic factors explain the differences between religious groups. Heaton (2011) also reached a similar conclusion when compared the differences in the number of children between Muslims and Christians have.

2.5.3   Role of Culture on Fertility

In seeking an explanation for differentials in the fertility levels across sub-Saharan Africa, the role of culture manifested in kin support and traditional values does not only remain strong, especially in the western and central parts of Africa, but also has an independent and intrinsic influence in sustaining high fertility (Caldwell and Caldwell 1987, Caldwell and Caldwell 1990, Makinwa-Adebusoye 2001). A study in Mozambique by Arnaldo (2004) reported higher fertility rates in the country's southern and central regions, which predominantly practise a patrilineal marriage system, in contrast to their matrilineal northern counterpart. The reason for the

variation was that men were marrying late in the patrilineal lineages. Marrying late would enable men get enough resources to pay for the 'bride wealth', which was used as a prerequisite to a sanctioned marriage. This finding aligns closely with a study conducted in Egypt by Eltigani (2003), who found that there were rising proportions of women, hence increasing the median age at first marriage in Egypt. Interestingly, the women belonged to the lower income households. This, it is argued, might be related to the rising cost of marriage whereby men had to meet the minimum amount of required household items, such as washing machines and television sets before marriage could take place.

2.5.4 Influence of Ethnicity on Fertility

In Malawi, there is not a clear distinction between region and ethnicity. Usually ethnicity follows boundaries of the regions. Therefore, variations in fertility levels due to ethnicity are expected to match closely with those of each region. The type of marriage may influence all the proximate determinants considered in this study. It is generally argued that polygyny enhances child spacing, in that women in polygamous relationships may breastfeed their children and abstain from sexual intercourse after a live birth longer than women in monogamous unions, thus delaying return to the risk of conception. Furthermore, the relationships reduce exposure to risk of pregnancy because the polyganous husbands have other wives for sexual relations, while the monogamists do not (Lesthaeghe 1989). A study in Tanzania showed that pregnancies are more frequent among women living in monogamous unions than those in polygamous unions (Ngalinda 1998). In contrast, it is argued that polygyny is negatively associated with contraception and women married to the same man may compete to bear children, particularly in societies where the status of a woman depends on the number of surviving children (Caldwell 1982). In other words, the effect of polygyny on fertility can be in either direction.

2.5.5 Effects of Education on Fertility

Although there is no common agreement with regard to the ways in which education influences fertility, education is widely held to be a key determinant of fertility and infant health (Basu 2002, Tuman, Ayoub et al. 2007, Bongaarts 2010). Rising levels of education increases a woman's employment opportunities. Improved education levels

expand a woman's labour market opportunities and likewise improve an individual's knowledge of, and ability to process, information regarding fertility options and healthy pregnancy related behaviour (Basu 2002, Basu and de Jong 2010). In addition, the time spent in school shortens the window of potential childbearing, hence, a woman has fewer children. In this regard, an educated woman is likely to be better informed about fertility regulations, such as availability, effectiveness, and side effects, and on the use of specific contraceptive methods. Moreover, educated women are less likely to be influenced by the socially accepted norms regarding the use of specific contraceptive methods (Bongaarts and Bruce 1995). Similarly, in Tanzania, a study found that men who completed at least primary school or secondary education and had wives who had attained primary school, desired fewer children (Hollos and Larsen 2004).

A study of 24 countries, which examined the changes in determinants of fertility between the two most recent DHS surveys, shows that rapid growth in educational attainment, as reflected by changes in the proportion of women who attained secondary and higher education , was significantly associated with large fertility decline, in contrast to the fertility of women with no schooling (Shapiro and Gebreselassie 2008). The effect of these changes translates into men and women wanting fewer children, and with improved child survival, families need fewer births to achieve the desired number of surviving children. These trends, in turn, raise the demand for birth control (i.e., contraception and induced abortion) which, once satisfied, leads to lower fertility rates (Bongaarts 2010). Ross, Stover et al. (2005) reached a similar conclusion in their study of 116 countries, which showed the persistent rise in contraception prevalence was partly due to increasing levels of education.

2.5.6   Influence of Population Policies on Fertility

The strength of family planning programmes has the potential to influence the level and pace of fertility decline (Bongaarts 2014). Effective family planning programmes ensure that public health facilitites provide not only information about family planning methods, but also allow people to have informed choice that permit them to achieve their desired family size. The strength of such programmes, as several studies argue, largely depends on the commitment of the political leadership to support family

planning programmes that cater for all segments of the population (Tsui 2001, Bongaarts 2006, Cleland, Bernstein et al. 2006, Askew, Ezeh et al. 2009). In a comparative study to account for the fertility level and the role of family planning in Kenya and Uganda, Blacker *et al.* (2005) observed that different levels of socio-economic development partially explained higher fertility in Uganda than Kenya. More importantly, the authors attributed the slow decline to lack of an active population policy in Uganda.

There is no doubt that well-designed and clear programmes can change reproductive behaviour. Debpuur, Phillips et al. (2002) note that in a quasi-experimental study in the Matlab area, Bangladesh, there was no difference with respect to fertility preference (desire for children and family size) between the experimental and the control areas. However, following family planning activities which involved mobilising specialised health workers, who visited households as well as involving male participation, fertility declined by one birth in the three years following the introduction of the programme in the treatment cells. Besides the positive demographic outcomes in the Matlab trial, Canning (2011) also showed that investment in family planning led to economic benefits; women in the treatment area reportedly earned 40% higher than in the control area. Canning and Schultz (2012) also noted similar observations for Navrongo, Ghana in 1996, where it was shown that involvement of community outreach programmes resulted in child-to-woman ratios being 16% lower in the intervention communities than in the control areas.

Despite attempts by governments to increase access to contraceptive use, several studies show that government efforts, if not well implemented, might lead to unintended effects. Ke Xua, Evansa et al. (2006) showed that while the government suceeded in increasing access to, and utilisation of, contraceptives among the poor in Uganda by removing user fees, the change resulted in putting huge pressure on the health expenditure budget. This is because the budget had previously depended on the same funds. Consequently, there were drug shortages in publicly provided pharmaceuticals, resulting from the increased demand for contraceptive, hence compromising the quality of service.

In Malawi, Hennink and Madise (2005), exploring the effect of introducing user fees, concluded that if user fees were introduced the perceived benefits of contraceptives outweighed the financial implications. Consequently, the authors proposed a targeted subsidy for the unemployed in urban and rural areas to maintain the quality of service provision. Thus, the study confirms that, in the absence government funding, as the programs in most developing countries are largely donor funded, elimination of user fees is likely to undermine the very same goals they were set out to achieve.

2.5.7 Influence of Child Mortality on Fertility

Various studies have examined the role of child mortality on the level of fertility. For example, it is reported that when levels of mortality are high, women who experience child loss, on average, produce two children more than similar women who have never experienced child loss (Hossain, Phillips et al. 2005, Syamala 2001). This is because there is a tendency for couples to replace a dead child and have more as an insurance against further loss. By looking at a retrospective era, Shapiro and Gebreselassie (2008) argue, it is also expected that child mortality decline could have the lag effect of causing fertility to continue declining, because the couple may not anticipate further child loss. Some studies argue that when there are improvements in the delivery of the healthcare system, and in hygiene and standards of living that guarantee the survival of children, couples do not plan to have more children in order to ensure that some of their children survive (Diamond, Newby et al. 1999, Basu and Stephenson 2005).

2.6 Identification of Research Gaps

Summarily, most of the extant studies of factors contributing to fertility decline either have studied countries as individual entities or as a group, often considering them as regional blocks. This has meant generalising the findings based on averages, thereby losing sight of the region-specific context that can inform policy on fertility reduction. Additionally, the studies have mainly provided the trends in fertility or contraceptive prevalence and examined the key contributing factors responsible for the investigated levels without accompanying further detailed analysis. Lacking in most of the studies is the use of a qualitative approach to gain a deeper understanding of the slow fertility decline.

As already seen from the literature, the explanations of factors contributing to fertility decline differ by theory, concept, context, methodologies, study design, and methods of analysis. Although there have been many studies of the subject, there is a lack of definitive knowledge of the factors contributing to the fertility level and how they have changed over time with respect to Malawi.

Several studies in Malawi have examined fertility preferences with a view to predict reproductive behaviour in Malawi (Taulo, Berry et al. 2009, Dube, Baschieri et al. 2012, Yeatman, Sennott et al. 2013, Machiyama, Baschieri et al. 2015). Taulo, Berry et al. (2009) and Dube, Baschieri et al. (2012) investigated fertility intentions between HIV negative and HIV positive women, and how HIV status is important in predictive contraception use and fertility behaviour. Yeatman, Sennott et al. (2013) examined fertility preferences, focusing on young women from a small growing rural areas in southern Malawi. The study, using eight waves, found that young women frequently changed their reported desired family sizes, partly influenced by the situation in their relationship.

While these studies informed reproductive outcomes, relying on fertility preferences to predict fertility change is problematic (Bongaarts 2006). This is because the very nature of social norms makes it difficult to detect their effects, as norms regarding fertility vary across social groups and fluctuate over time (Kodzi, Casterline et al. 2010). As evidenced by a study by Machiyama, Baschieri et al. (2015) in the northern region, a prospective study in the northern region of Malawi found that, between rounds 1 and 2, with a space of 12 months, 18% of women who wanted to limit the number of children had become pregnant. After three years, 33% had either given birth or were pregnant.

To the best of the researcher's knowledge, only a few studies have investigated fertility in Malawi. For example, (Cohen (2000);1998) investigated levels, trends and differentials in achieved fertility, nuptiality, and contraceptive use in SSA. The focus was limited to the national level. Harwood-Lejeune (2000) details fertility trends in nine SSA countries, including Malawi. The study found that the proportion of 'ever married' people was declining, suggesting that women were delaying marriage. Another finding from that study was that the mean age at marriage was increasing in

all countries, which was a precursor to fertility decline; for Malawi the TFR among women aged less than 40 years was found to be 5.8 in 1992 and the number of women with premarital birth was lowest in Malawi. The study's conclusions were based on observations from only the 1992 dataset.

Manda and Meyer (2005) and Ueyama and Yamauchi (2009) examined changes in age at marriage, although the emphasis of the latter study was on changes in age at marriage in response to HIV and AIDs. The studies found that there were no major structural changes in marriage behaviour; in fact younger cohorts married younger. The studies did not examine age at marriage in the context of fertility.

To date, the study by Palamuleni (2008) is the only study in Malawi to have directly tackled the influence of the proximate determinants of fertility in Malawi. The study found that over time there was an increase in all the proximate determinants of fertility, with contraceptive use being the greatest. The study, used 1992, 2000 and 2004 data, and the 2004 dataset was the most recent survey at the time, also found that postpartum infecundability had the greatest fertility inhibiting influence. However, the study was undertaken when the contraceptive prevalence rate was low (by recent levels). Further, a qualitative study is needed to understand the changes in the proximate determinants of fertility.

Early work by (Chimbwete (2001)) on contraceptive behaviour focused on a segment of population - adolescents. More recently, Hennink and Madise (2005) primarily focused on the impact of fees on access to, and the utilisation of, family planning and reproductive health services. Similarly, Sutherland (Sutherland, Otterness et al. 2011) examined changing patterns of contraceptive use and method mix that emerge after the introduction of a new method. The study extended analysis to only two age groups, young and older women. As is the case with most of the studies, Malawi was considered as part of a multi-country research and the analyses were limited to the national level.

A comprehensive analysis of the proximate determinants of fertility in Malawi has not been undertaken before, especially in the wake of high contraceptive prevalence rate. Hence, the present study fills the gap. To this end, the study uniquely uses nationally

representative quantitative data collected at three specific times to examine the changes (if any) in factors that contribute to fertility levels. The study then makes an original contribution by employing qualitative methods to gain a deeper understanding of the slow fertility decline in Malawi.

2.7   Summary

The review of literature shows that there is no single theory to explain the factors contributing to high fertility in sub-Saharan Africa. An economic interpretation of the theories is inadequate to explain why fertility remains high in most parts of Africa. Although these ideas have been empirically tested in some countries to illustrate high fertility, the approach has only used a quantitative approach.

Chapter 3.   Methods and Data Evaluation

3.1   Introduction

This chapter describes the data sources and techniques used in this study. This is followed by an examination of data quality. The main approaches used in this study are quantitative and qualitative. Both approaches are adopted on the basis that fertility has changed little between 2000 and 2010; hence, a combination of the approaches provides a richer understanding of the reasons for the little change in total fertility rate in Malawi.

3.1.1   Rationale for using mixed method approach

This research employed a mixed-method approach (Frisch 2008, Hesse-Biber 2010, Hesse-Biber and Johnson 2015), incorporating data gathered from quantitative survey and from qualitative instruments. Various authors are in support of combining multiple methods as this allows a researcher to explore a topic in depth, while providing breadth and a complete understanding of the phenomenon (Rossman and Wilson 1985, Fielding and Fielding 1986, deMarrais and Lapan 2004). The quantitative part, which uses Demographic and Health Surveys, does not adequately capture certain aspects of culture (see section 3.2) which are important for understanding people's attitudes to desired family size. Thus one the main aim of using a mixed-method approach compared to over a strict single-method qualitative or quantitative study was a synthesis of the two approaches provided a richer understanding which either could not answer or answered only partially.

A mixed-method approach also allowed us to get a more understanding of the results in the quantitative findings (Pope, Mays et al. 2007). For example, knowing the reasons why so many women use a particular method of family planning—injection— would not be possible to understand if a quantitative approach alone was used. While the quantitative results showed high contraceptive prevalence rates, the contexts in which men and women use these methods could not easily be drawn using a quantitative approach alone (see Chapter 7). In-depth qualitative interviews were used to fill the gap: inferences drawn from quantitative analyses of the factors facilitating and constraining men and women in using the methods required a mixed-

method approach, in order to understand micro-level processes around motivations for, and the context surrounding, contraceptive use.

3.2 Chronology of the study

In terms of incorporating the qualitative and research, high fertility and high contraceptive use in Malawi motivated the author to conduct a qualitative study. This mismatch was first explored using the available quantitative analyses in Malawi. However, after preliminary research, it turned out that some questions could not be answered using a quantitative approach. Consequently, qualitative research was designed to explore the context in which women and men used contraceptives.

Qualitative research was meant to be a small component of the mixed-method research. Qualitative fieldwork was conducted within a period of three months (November 2013 to January 2014). Thus the sample sizes were dictated primarily by constraints on time and funding. This sequential approach provided the researcher the opportunity to explore in qualitative study, but also areas that needed further probing in order to get an in-depth understanding, thereby triangulating the findings from quantitative results. The sequential approach permitted the researcher to adjust the qualitative instruments to gain more relevant contextual information from quantitative data. In addition, it enhanced and clarified some of the areas that were unclear in quantitative analyses. For example, the analysis of contraceptive use (Chapter 6), showed that high proportions of women were using the contraceptive injection across all ages, while sterilisation tended to be used after reaching a high number of children (five children and over).

3.3 Sources of Quantitative Data

Data for the present study comes from three surveys: 2000, 2004 and 2010 Malawi Demographic and Health Surveys (hereafter MDHS), which were downloaded with permission from Measure DHS. DHS surveys are designed to assist developing countries in monitoring indicators for development which include health, nutrition programs, fertility and mortality awareness, as well as behaviour regarding HIV and AIDS and other sexually transmitted infections. In addition, the data allow levels and trends fertility and contraceptive use to be compared since the same information is collected over time (Rutstein and Rojas 2006).

Like many other countries in sub-Saharan Africa (SSA), Malawi lacks a functional vital registration system (VRS) to collect birth, death and migration information. Since 2012, Malawi started collecting information about vital events. However, its VRS is in its early stages and cannot be relied upon as a source of data on fertility. Therefore, the countrty has relied on data collected retrospectively in censuses for fertility and other estimates. Although census data are useful in estimating trends of fertility over a long period of time, shocks in fertility that are limited in time and cause effects (sharp increases or decreases) can easily be missed (Bongaarts and Feeney 1998).

3.4   Sample Design

The MDHS was collected based on cluster sampling survey design such that populations with small numbers were oversampled. Each survey was conducted using a stratified, two-stage cluster design, with the census enumeration areas (EAs) being the sampling units for the first stage. The design takes into account the three regions and the 28 districts which are further subdivided into enumeration areas (EAs), also referred to as clusters, where each EA as a whole was stratified by whether it was urban or rural (Figure 3.1). All households in the selected cluster were listed. Households comprised the second stage of sampling. Figure 3.1 illustrates the hierarchical nature of the DHS dataset; and the number of clusters, households and individual women for respective years are also shown.

Figure 3.1:   Hierarchical structure of 2000–2010 MDHS data
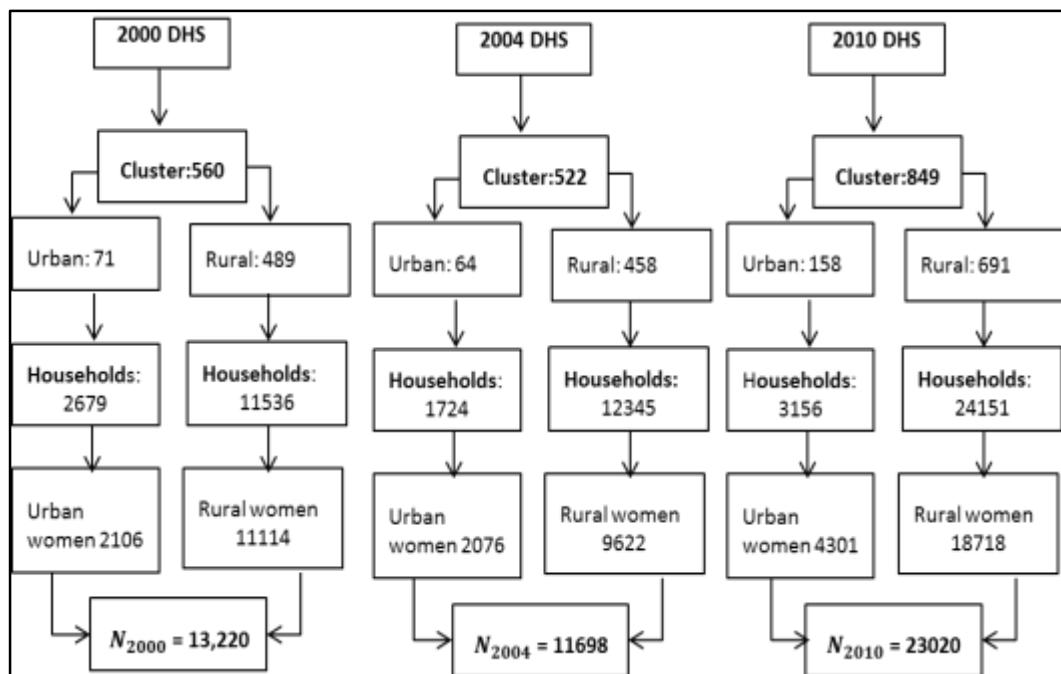
For the 2000 and 2004 MDHS datasets, the clusters were systematically sampled based from a list of enumeration areas from the 1998 Population and Housing Census (PHC) while for 2010, the sampling frame was based on the 2008 PHC.

3.5   Quantitative Methods

There are various techniques that were used to answer the research questions. For objective one which is to examine levels, patterns and trends in fertility, the outcome variable is total fertility rate (TFR). Fertility is measured in three alternative ways: period, cohort, and lifetime fertility. The description of each method is contained in the relevant section. Similarly, appropriate techniques were also used in computation of age at marriage, and postpartum variables (duration of breastfeeding, amenorrhoea and postpartum infecundability). Bongaarts' model of proximate determinants was used to assess the impact of each of the proximate determinants on fertility level.

3.5.1   Use of Multivariate Analysis to Examine Modern Contraceptive Use

For a more precise description of the factors associated with contraceptive use, the study employed bivariate and multivariate analyses. The former included chi-square and Pearson correlation tests to examine the association between the dependent and explanatory variables; while the latter employed logistic regression and its extensions.

Logistic Regression Models

Logistic regression models were used to improve our understanding of women's characteristics that affect use of modern contraceptives. The dependent variable, contraceptive use, was categorised such that "1" signified the respondent's use of contraceptive, and "0" signified that the respondent did not use modern contraception. Respondents who reported not using any method or traditional methods were categorised as "0". Success and failure were represented as (P_i) and ($1 - P_i$), respectively. The relationship is represented as:

$$Pi(y) = \frac{\Pr(contraceptive\ use)}{\Pr(non - use)} = \left(\frac{P_i}{1 - P_i}\right) \qquad \text{3.1}$$

Taking the natural logarithm of both sides in (3.1), this relationship can be expressed as:

$$logit(P_i) = log\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots \beta_k x_{ki} \qquad \text{3.2}$$

The logistic regression equation estimates the effect of one unit change in the independent variables (where x is discrete), on the logarithm of odds (log-odds) that the dependent variable changes, when controlled for other factors.

The preferred approach is to model a transformation of the success probabilities instead of the actual probabilities, such that the equation can be transformed to:

$$p = \frac{\exp(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots \beta_k x_{ki})}{1 + exp(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots \beta_k x_{ki})} \qquad \text{3.3}$$

where β_0 is the constant, β_k are the regression coefficients, and $exp(\beta)$ is the odds ratio of being in a particular group.

Multinomial Logistic Regression

The extension of logistic regression, multinomial logistic regression is used when a dependent variable has more than two categories (Tabachnick and Fidell 2007). Since the study also examines factors associated with contraceptive method choice over time, multinomial logistic regression has been employed to assess the probability of choosing one method of contraception over the others. One of the advantages of

multinomial regression is that it allows simultaneous comparisons of two or more categories of women either among themselves or to the same baseline.

Multinomial logistic regression assumes the independence among the dependent categories, so that the choice or membership of one category is not related to the choice or membership of another category (Hilbe 2009). The way multinomial logistic regression deals with the variables in this case is somewhat similar to the concept of dummy variables, in that it compares the probability of being in each of n–1 categories with a baseline or reference category (Kleinbaum and Klein 2010). The aim is to fit n–1 separate binary logistic models, where one category is compared to the baseline category, then category two to the baseline and so on. Thus, the three categories of modern contraceptive methods can be represented in the formula as:

$$\Pr(y = 1 \mid x) = \frac{1}{1 + \exp(x'\beta_2) + \cdots + \exp(x'\beta_3)} \tag{3.4}$$

$$\Pr(y = 2 \mid x) = \frac{\exp(x'\beta_2)}{1 + \exp(x'\beta_2) + \cdots + \exp(x'\beta_3)} \tag{3.5}$$

$$\Pr(y = 3 \mid x) = \frac{\exp(x'\beta_3)}{1 + \exp(x'\beta_2) + \cdots + \exp(x'\beta_3)} \tag{3.6}$$

where $\Pr(y=1 \mid x)$, $\Pr(y=2 \mid x)$ and $\Pr(y=3 \mid x)$ are the probabilities or risks of an individual with characteristics, x, of using none (reference category), modern methods, and traditional methods, respectively. Exp (βj) are the coefficients relating the explanatory variables, x, to the variables of interest, y, while holding other variables constant. The probabilities can be placed into a generalised form of k level of y:

$$\Pr(y = j \mid x) = \frac{\exp(x'\beta_j)}{\sum_{j=0\ldots k} \exp(x'\beta_j)} \tag{3.7}$$

In practice, software algorithms allow us to model the comparisons of categories to the baseline simultaneously using maximum likelihood estimation—which is better, since doing it sequentially could lead to misestimating of the standard errors (Hilbe 2009).

Model Building

Since the interest of the study is to examine change over time, separate models were built for each year and the independent variables tested to see if they remained significant over time. In other words, for modelling the probability of using contraception, the interest of this study was to explain the effect of a set of independent variables in predicting the likelihood of contraceptive use over time. Variables known to be associated with contraceptive use were tested for statistical significance using bivariate tests.

Detecting Issues of Multicollinearity

Before conducting the regression analysis, it is important to check for possible correlation amongst the independent variables that attempt to predict the dependent variables. This is known as multicollinearity. The presence of multicollinearity can lead to the estimated regression coefficients of the fitted model to be highly unreliable (Rabe-Hesketh and Everitt 2007). An accepted way for detecting multicollinearity is to calculate the tolerance level of each independent variable.

$$VIF(x_i) = \frac{1}{1 - R_i^2} \qquad\qquad (3.8)$$

where $VIF(x_i)$ is a variance inflation factor of a set of the independent variables and R_i^2 is the coefficient of determination. The tolerance level is calculated by regressing the independent variables on each of the other independent variables, one at a time, and subtracting the resulting R^2 value from 1. This value is known as the "tolerance", or the amount of independent variation, of the x variable (see Hamilton 1992: 133–134). So if the R^2 of the x variables regressed on another x variable is 0.75, this means that the x variable has a tolerance of 0.25: that is, that 25 percent of the variation in that particular x variable is independent of the other x variables in the model. The lower the tolerance, the more worried one should be about multicollinearity (Rabe-Hesketh and Everitt 2007). In general, one ought to be worried if any of the tolerances is less than around 0.40. The statistical tolerances of the independent variables in this study are all above 0.44, with a mean tolerance of 0.75. Thus, there is no major problem regarding multicollinearity of the covariates.

<u>Accounting for Survey Design</u>

In a simple random sample, each case has an equal chance of being selected and this chance is independent of whether another case appears (Swanson, Siegel et al. 2004). However, selection of respondents in DHS involves multi stage implying that the respondents have unequal chance of being selected. Because of this feature, there is a need to account for the survey design since disregarding the hierarchical nature of the data might lead to biased estimates, hence making erroneous inference (Hilbe 2009, Pullum 2011, StataCorp. 2011). To account for the survey design, a Stata *svy* command was used that takes into account the clustering and stratification of the survey design (StataCorp. 2011).

Increasingly, because of the hierarchical nature of the DHS data, multilevel modelling techniques have been used to predict the use of contraception. One appeal of this approach is that it is possible to estimate responses at an individual level as well as at cluster level. However, models of this nature become more complicated, especially with each additional level requiring to be estimated. Adopting this approach can be complicated notwithstanding the difficulties that would be encountered in interpreting the estimates. This is because the goal of this study is to discern whether the factors affecting fertility level have changed (if any), and if they have, how quickly or slowly the increase or decrease has occurred over time. Effectively, the *svy* command is appropriate in this study.

3.6   Independent Variables

The choice of the explanatory variables was informed by literature. The independent variables pertain to woman's characteristics and were obtained from the various sections in the woman's questionnaire. Table 3.1 presents the categorisation of the variables.

In the measurement of contraceptive use, the use of age groups is important than using single ages. Combining the ages into groups allows us to understand the needs of a particular group as opposed to focusing on single years. Women who are young are more likely to want more children than they would have had if they were old, and this has a bearing on the use and type of contraception employed (Ross, Stover et al. 2005). The information on age of respondents is collected in single age groups, but for

analytical purposes, single years of age are tabulated into subgroups of the number of women 15–49 years of age at the time of the survey. This is especially important when there are very few cases for each single year, which may be problematic analytically (Swanson, Siegel et al. 2004).

Further, it important to consider women in different categories: unmarried (or living with a partner), currently married, and formerly married. This is because each of the categories, when dealing with the topic of fertility, has different exposure risks (Schoumaker 2013, Bongaarts 2015), and hence might have varying fertility levels.

During preliminary analysis, the proportions of women who were widowed, divorced and separated were too small to be analysed separately without leading to an unstable model; each category comprised less than five percent of respondents in each survey year. Therefore they were coded as formerly married. Thus recoding of these categories was necessary because some variables that were collected in the original questionnaire are in a form convenient for collection but not necessarily convenient for analysis (Measure DHS/ICF International 2013).

While the DHS data is limited in variables that measure lineage, instead this study used ethnicity to identify people's lineage, since according to (Phiri 1983), various ethnic groups follow a particular lineage partner in Malawi. It has to be acknowledged that this may be a biased measure of the true effect of lineage as an institution on fertility levels.

Another variable used in the present study is access to family planning. Women were asked to name their sources of family planning. This is important because family planning programmes need to know the main source of family planning methods so that they can motivate people. As Rutenberg and Watkins (1997) showed in a household survey in South Nyasa district of Kenya, social interactions help to explain contraceptive behaviour among women who had visited family planning clinics in the district. To address the relationship between communication and contraceptive behaviour pattern, this study examines contraceptive behaviour (Chapter 6) by source of media: radio, newspaper and television. Another variable would have been to analyse the information on where women obtain their contraceptive methods. The

variable lists sources by type: whether public, CHAM or private sector. However, the sources varied at each survey point, in order to achieve some level of comparability across the survey years, the variable was dropped from analyses.

Religion is another important background characteristic, as the effect of religion on fertility may also play an important role in the number of children a woman has, and her contraceptive behaviour (Gyimah, Takyi et al. 2008, Heaton 2011). In Malawi, the main denominations are shown in Chapter 1.3; there are four main dominations, while the rest of the groups were grouped into "other". These are groups which are not of dominant Christian or Muslim affiliation.

Figure 3.2: Description of independent variables

Category	Explanatory variable	Description and coding of the variable
Demographic	Age of respondent	Age was regrouped into the standard five year age groups 15–19, 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49
	Type of marriage	Marriage were categorised into two types: (1) monogamous and (2) polygamous marriage
		(1) Never married, (2) currently married and (3) formerly married
	Number of surviving children	Number of surviving children which was originally a continuous variable was categorized into no children, 1–2 children, 3–4 children and 5 or more children.
Socio-cultural	Religion	Religion was grouped into (1) Catholic, (2) CCAP, (3) Pentecost, (4) Muslim and (5) other. A number of new religious affiliation known as Pentecost were grouped together into the "Other" category.
	Ethnicity	The major stratifications of ethnic groups were (1) Chewa, (2) Ngoni, (3) Yao, (4) Lomwe and (5) other.
	Maternal education	The highest educational level attained by an individual: (0) no education, (1) primary (1–4), (2) primary (5–8), (3) secondary and higher
	Wealth Index	An asset based variable to represent woman's economic status. It is coded in quintiles: (1) poorest, (2) poor, (3) middle, (4) rich, and (5) richest.
Geographical variables	Type of place of residence	Place of residence has two categories: (1) urban and (2) rural
	Region	Region had three categories coded as coded as (1) northern, (2) central, and (3) southern
Programmatic variables	Whether or not an individual heard family planning message on radio, television or in newspaper.	Included whether or not an individual had heard family planning messages on the radio, read family planning messages in the newspaper and on television. A "yes" response was coded (1), and (0) otherwise.
Attitudinal factors	Fertility preference	Coded (1) if the respondent wanted more children, (2) if the respondent was undecided and (3) if the respondent wanted no more children.

3.7 Data Quality Assessment

3.7.1 Quality of Age Data

Unfortunately, collection of data through censuses, surveys and vital registration systems is affected by the design of the exercise and the reporting of respondents themselves. These problems often are compounded when the level of education is low. In addition, the interviewers despite receiving extensive training, may record incorrect responses. Various studies have therefore alluded to fertility data discrepancies in sub-Saharan Africa resulting from the biases related to retrospective data and misreporting of age (Sneeringer 2009).

The present study has employed a number of ways to assess the quality of data that include simple graphical inspection of women's ages in single years (Alam and Dinesen 1984), and ways to detect age heaping such as Whipples and Myers Indices (Arriaga, Johnson et al. 1994, Swanson, Siegel et al. 2004). Assessing the quality of data provides reliability for the results and interpretation of the estimates.

3.7.2 Addressing Problems of Data Quality Issues in This Study

The distribution of a population in the absence of significant and sudden change in fertility, mortality and migration has a typical pattern. It should start with a large proportion at the initial age of each sex, and gradually decline with increasing age, until the proportion is negligible at a higher ages. The pattern can be distorted due to reporting errors in the age data (known as age misreporting) and digit preferences. The errors result from a tendency by respondents to report certain ages more at the expense of others. As Figure 3.2 shows, there are fluctuations of population in certain ages which suggest strong preferences, or lack of them, for "0", and some for "1", "2" and "5".

Overall, as expected there is a downward trend with increasing age. The results indicate heaping at digits ending in "0" and "5" and less so for "2", "4" and "8". Notable differences are observed between the 2000 and 2004 surveys; the troughs and peaks run in opposite direction for ages between 21 and 24 years. It would seem that in

2010 the digit preference is minimised in the age ranges 21 to 27 years and from 33 to 39 years.

Figure 3.3:   Population distribution of women aged 15–49 by single years by survey
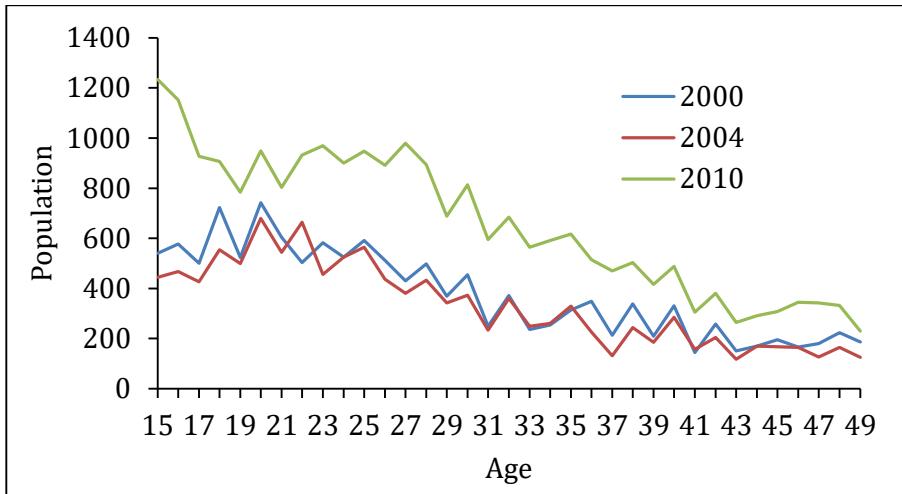
3.7.3   Whipple's Index

The procedure outlined above fails to capture the magnitude of age heaping and digit preference. Whipple's index is another technique which measures the extent of age heaping at digits "0" and "5". The method states that using, either the assumption of rectangularity or linearity in a 5-year age range, heaping on multiples of five in the age range 23 to 62 years may be measured by comparing the sum of the population at the ages in this range ending in "0" and "5" and one fifth of the total population in the range (Arriaga, Johnson et al. 1994, Hobbs 2004). The Whipple's index varies from a value of 100 representing no digit preference "0" and "5", to 500 indicating that only digits "0" and "5" were reported.

Figure 3.4:   Whipple's Index for female population aged 15–49 years
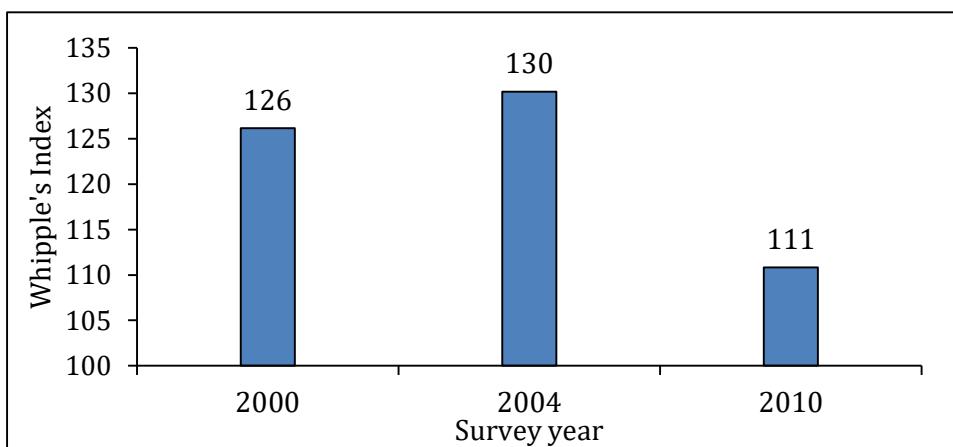
Figure 3.3 shows that digit preference has declined over time reaching the lowest level in 2010. This could suggest that there were improvements in the reporting of ages, which is also attributed to improved probing skills on the part of the interviewers (Pullum 2006). Whipple's Index shows that the 2004 survey fared poorly in terms of digit reporting. One possible reason that the 2010 and 2000 surveys yielded better reporting is that they took place closer to the census years (1998 and 2008), during which it is mandatory to respond.

3.7.4   Myers' Index (MI)

Data on age can also be subjected to the Myers' Index (MI), which examines the preference or avoidance of reporting of ages ending with each of the ten digits "0", "1", "2", "3", "4", "5", "6", "7", "8" and "9" (Figure 3.4). The index measures the weighted population reported on ages ending with each of the ten digits and then expressing the blended population on each digit as a percentage of the total blended population. With no irregularities inherent in the reporting of ages, it is assumed that the sum of the blended population on each digit should equal 10% of the total blended population. A percentage in excess of 10% or less than 10% indicates preference and underselection of ages ending with such digit, respectively (Arriaga, Johnson et al. 1994). The absolute sum of the deviations for each terminal digit represents the index of preference and varies from 0 to 180, representing, respectively, accurate age reporting, and where all ages were reported with the same terminal digit. There is no serious age reporting at three time points and there are improvements over time; the indices were 22.4, 26.0 and 13.3 respectively in 2000, 2004 and 2010. This means that, for example, to get uniform reporting of ages, we would need to reclassify almost 13.3% of the cases in 2010.

Figure 3.5: Myers' preference by digit, MDHS 2000–2010 for female population aged
15–49 years
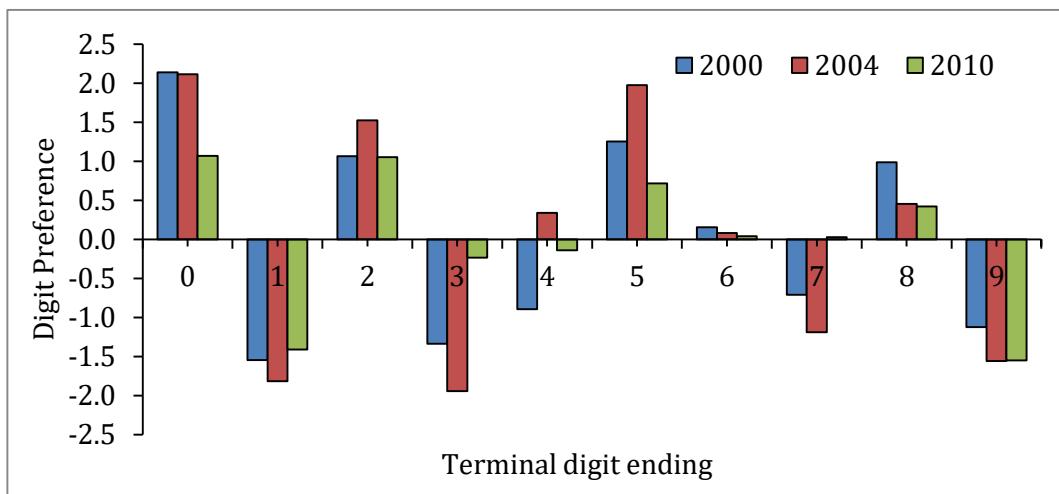
3.7.5 Distribution of Women by Age and Parity

It is also important to assess the reporting of children ever born (CEB) to women, and whether this is consistent with the age of women. Any erratic pattern may suggest age misreporting on the part of the woman or the interviewer (Yusuf, Martins et al. 2014). The assessment of CEB in Table 3.1 appears sensible; the number of children increases with age of a women. Where the parity is over 10 children, the numbers are too small to affect the results. Detailed analysis of children ever born is conducted in chapter 4.

Table 3.1: Distribution of women age and parity 2000, 2004 and 2010 MDHS

2000	Total number of children ever born (CEB)											
Age group	0	1	2	3	4	5	6	7	8	9	10	11	Total
15-19	2140	599	115	10	3	0	0	0	0	0	0	0	2867
20-24	493	986	941	427	95	13	3	0	0	0	0	0	2958
25-29	96	239	458	721	491	276	96	17	3	3	0	0	2400
30-34	48	86	117	180	331	343	247	150	42	13	8	1	1566
35-39	31	62	89	108	147	176	283	222	184	80	27	14	1423
40-44	19	32	40	76	86	80	133	156	157	119	91	65	1054
45-49	19	31	41	54	52	92	115	108	128	114	84	114	952
Total	2846	2035	1801	1576	1205	980	877	653	514	329	210	194	13220

2004	Total number of children ever born (CEB)											
Age group	0	1	2	3	4	5	6	7	8	9	10	11	Total
15-19	1786	509	90	7	0	0	0	0	0	0	0	0	2392
20-24	454	919	946	440	85	23	1	0	0	0	0	0	2868
25-29	106	202	455	632	489	194	62	14	5	1	0	0	2160
30-34	38	75	105	196	354	339	231	93	30	16	1	1	1479
35-39	25	33	56	80	137	177	208	167	125	73	26	9	1116
40-44	12	27	40	59	79	118	132	132	146	94	66	29	934
45-49	16	20	41	40	49	60	104	84	93	91	79	72	749
Total	2437	1785	1733	1454	1193	911	738	490	399	275	172	111	11698

2010	Total number of children ever born (CEB)											
Age group	0	1	2	3	4	5	6	7	8	9	10	11	Total
15-19	4000	879	117	9	0	0	0	0	0	0	0	0	5005
20-24	701	1444	1553	661	164	28	3	0	0	0	0	0	4554
25-29	166	388	993	1344	1020	353	113	19	3	1	0	0	4400
30-34	62	140	273	584	739	739	430	198	62	13	8	0	3248
35-39	53	59	108	186	336	512	499	393	214	105	46	12	2523
40-44	22	41	70	106	157	221	241	373	210	144	76	69	1730
45-49	26	45	56	74	103	144	193	212	215	218	145	129	1560
Total	5030	2996	3170	2964	2519	1997	1479	1195	704	481	275	210	23020

*Parities at 11 children and above were combined

3.7.6 Completeness of Data on Birth Histories

Another way of examining the quality of data is by assessing the level of reporting of information regarding dates of birth and death of a child as reported by a mother. Date of birth of a child is important in this study for calculating the age-specific fertility and fertility rates. According to Rutstein and Rojas (2006), it is a general rule for the DHS processing department to impute a value for dates of birth of the mother and the child for which information is missing or inconsistent. It would seem that a small proportion of mothers could not give the month in which the child was born. Table 3.2 shows that over time, the reporting improved, to where it was less than one percent in 2010—except for imputed information on child birth date, which increased threefold (0.03% to 0.09%). However, in absolute terms, the number of children for which there was no information at all is too small (17 children) to warrant concerns.

Table 3.2: Completeness on reporting ages at birth and death of a child by mother, 2000-2010 MDHS

Completeness of reporting information	2000		2004		2010	
	%	No.	%	No.	%	No.
Child birth date						
Month and year imputed	0.01	1	0.0	0	0.01	1
Year and age missing	1.30	135	1.32	122	0.59	105
Year age missing imputed	2.50	260	1.74	162	0.97	174
Age-year missing imputed	0.03	3	0.00	0	0.04	7
None-all imputed	0.03	3	0.11	10	0.09	17
Child age at death						
Interview	0.0	0	0.12	11	0.08	15
Information outside range	1.42	147	5.21	483	3.35	602
Imputed number units	0.13	14	0.07	7	0.15	26

3.7.7 Examining Birth Displacements

Besides misreporting of age by the respondents, data quality on fertility can be affected by the enumerators. Enumerators may wish to reduce the workload by not administering the whole questionnaire, with the aim of excluding eligibility of some women in the survey (Cetorelli and Leone 2012). Often women who are 15 years old may be recorded as being 14 while women age 49 are shifted up to age 50. By shifting lower and upper boundaries, enumerators avoid administering the questions to women in these boundaries (Pullum 2006, Schoumaker 2011). Changing the ages of women to avoid having to administer lengthy birth histories may underestimate recent fertility changes and, when compared over time, may overestimate the previous level. While this phenomenon has been suspected in several studies in the past (Arnold 1990, Merli and Raftery 2000), in Malawi it seems not to be a problem. Nevertheless, the fact that the fertility rates show a declining trend confirms that the apparent decline is genuine.

Figure 3.7 demonstrates evidence of or lack of displacement of the number of children born prior to each survey. If children were displaced, the data would show a surplus of children in the sixth and seventh year and a deficit in the fifth year, suggesting that children might have been deliberately pushed outside the reference year to avoid the collection of additional data for children aged five years.

Figure 3.6: Number of children born per 1000 women (15–49) years befor the survey
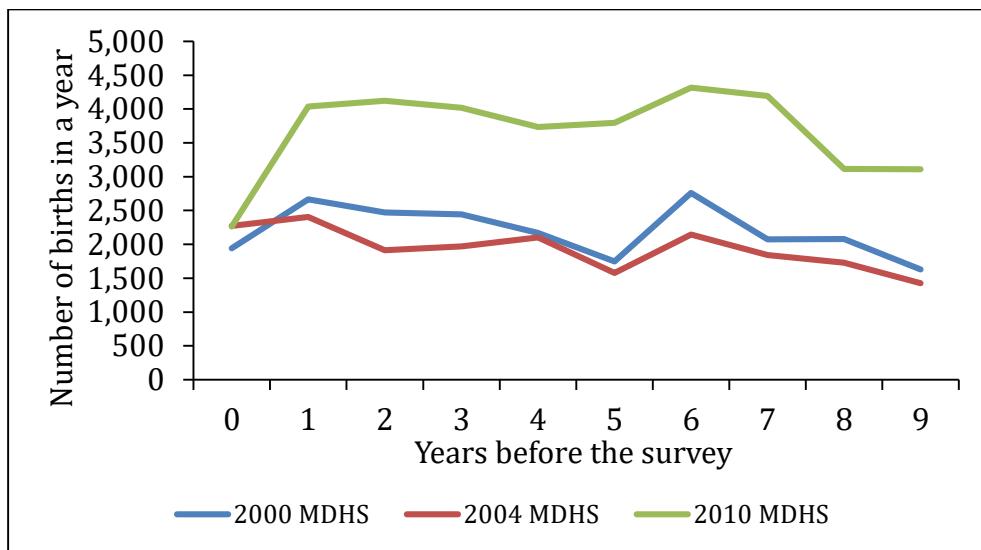
3.8   Qualitative Data

Qualitative approach forms an integral part of the thesis. The qualitative fieldwork was undertaken by the author as part of a mixed method approach (Lapan 2003, Grix 2010) to get a richer understanding of the sociocultural factors affecting family size in Malawi, and of the methods women use to reach their desired fertility.

3.8.1   Rationale for Using Qualitative Approach

Literature suggest that quantitative research allows generalisability of the findings to the target population, while qualitative research explores contextual aspects by using a small sample size, which is usually recruited to confirm findings that are not easily understood in the quantitative research (Miles and Huberman 1994, Finlay and Ballinger 2006). To underscore the relevance of using both methods, Knodel (1998) points out that:

> Neither quantitative nor qualitative data in isolation from each other provide sufficient information for a full understanding of most social demographic phenomena (Knodel, 1998: pp.58).

Qualitative research methods are appropriate when the central objective of an enquiry is to explore behaviour rather than to describe it. The methods are also useful when the subject matter is unfamiliar and can be used in complementing other data in

81

explaining people's actual thoughts, feelings, beliefs, and perceptions obtained from other methods (Ulin, Robinson et al. 2005). Qualitative and quantitative data in different disciplines in different disciplines can jointly be used to confirm or contradict survey results; to enrich the meaning of survey findings; and to contribute to finding an explanation for some of the relationships being studied (Kanbur 2005, Coast, Hampshire et al. 2007, Greene 2008).

Despite increasing appreciation of qualitative research, there are criticisms which suggest that research subjects' judgements are provisional and subject to change; that research subjects' contributions may be superficial; the results from FGDs may not represent the people's voice; and that the group dynamics have the potential to influence the data (Silverman and Marvasti 2008). Other arguments suggest that participants' prior knowledge and the possibility of meeting each other in future make them respond in artificial ways (Morgan and Krueger 1993). However, given the social networks in the rural areas, it is practically impossible to arrange groups of people who do not know each other in advance (Bloor, Frankland et al. 2001). Moreover, people who know each other are likely to create a good debate, as they may quarrel and disagree over shared knowledge regarding their community practices (Hennink 2007).

Qualitative Methods

The qualitative methods used in the present study are focus group discussion (FGDs) and in-depth interviews (IDIs). The rationale for using multiple methods in this study is to access multiple perspectives and dimensions to improve our understanding of fertility transition in Malawi.

Focus Group Discussions (FGDs)

The discussion in FGDs is conducted in a relaxed atmosphere to enable participants to express themselves without any personal inhibitions. Khan and Manderson (1992) stated that the group should be homogeneous with respect to characteristics salient to the discussion. Participants usually share common characteristics such as age, sex, or socio-economic status, which define them as a member of a target subgroup. This encourages a group to speak more freely about the subject without fear of being judged by others thought to be superior. The interactive nature of a group discussion

also largely depends on the skilfulness of the moderator, which thus influences the quality of data (Barbour 2007, Hennink 2007). It is recommended that a minimum of two FGDs should be planned with each target subgroup, though it is suggested that more discussions should be conducted until no new information emerges (Feldman, Bell et al. 2003).

A skilled moderator directs the group to make sure that the discussion does not go outside the limit, but without restricting the free flowing nature of the discussion. Thus, it is important that the moderator stimulates the group in order to reveal underlying opinions, attitudes, and reasons for their behaviour. Each session usually lasts between 60 and 90 minutes.

Conducting In-Depth Interview (IDIs)

The In-Depth interviews are qualitative techniques which are sharply focused and involve a prolonged engagement with a participant (Harper and Thompson 2012). IDIs are more useful to obtain greater depth on an individual or the community's attitudes, norms and behaviours as well as making a comparison of the information that emerged from FGDs (Willig 2013). The information gathered through this way tends to be richer because it allows the participants to expand their thinking on specific topic (Mack, Woodsong et al. 2005).

3.9 Study Setting

Beginning in November 2013 and continuing until January 2014, fieldwork took place in three regions of Malawi which differed from each other in respect of their geographical, socio-economic and demographic conditions (Figure 3.5). Subsistence agriculture characterizes all three regions of Malawi—north, centre and south—but there are differences among them in terms of marriage system (patrilineal or matrilineal), ethnic composition, economic activity, and rural–urban contrast. Three districts were purposively selected from the 28 districts in Malawi. Selection of the districts and Traditional Authorities in the respective districts was influenced by social and economic settings of the study areas which included fertility rate, contraceptive prevalence rate, and literacy levels (Table 3.3). Other factors that were considered to inform the study were marriage type (patrilineal or matrilineal),

ethnicity, kinship system, economic activity, and rural-urban contrast. For example, it was presumed that in the districts which follow kinship systems and have different ethnic groups, those elements may play a role in deciding the number of children that a couple would want. The factors may also favour large families and, depending on religious affiliation, may lead them to oppose certain family planning methods.

Another factor was the heterogeneous form of agriculture farming in Malawi. While Malawi predominantly uses subsistence farming as noted in Section 1.2, some districts grow certain crops for commercial farming, such as tobacco and tea. These crops are labour intensive and may require more family members to cultivate the crops; hence people living in these areas may have favour to have more children to help working at early stages.

Table 3.3: Selected Demographic and Socioeconomic Inidcators in of the Study Area

Distirct	Predominant ethnic group[1]	Literacy[1]		TFR	CPR	Median years completed[1]	
		Male	Female			Male	Female
Machinga	Yao	71.1	55.1	6.9	31.1	5.2	3.7
Lilongwe	Chewa	85.1	66.7	5.4	51.1	6.5	4.5
Urban	Chewa	87.4	86.3	3.9	56.0	4.7	6.1
Rural	Chewa	79.1	79.8	6.0	44.0	3.1	4.3
Nkhata Bay	Tonga/Tumbuka	78.3	76.0	4.9	37.9	7.3	6.7
Malawi		81.3	67.7	5.7	42.2	6.1	4.9

Source: [1]2008 Malawi Population and Housing Census, and [2]2010 Malawi Demographic and Health Surveys

Nkhata Bay and Machinga districts were selected to represent patrilineal and matrilineal marriage systems respectively, while Lilongwe, a patrilineal district, was selected to serve as urban–rural contrast. The literature suggests that, usually, people in urban areas have better access to family planning services and tend to have fewer children than those living in rural areas where children are needed to perform essential tasks. Having a sample from both types of locations allows an understanding of different fertility behaviour living in these environments.

Figure 3.7: Map of Malawi showing the study districts by lineage type
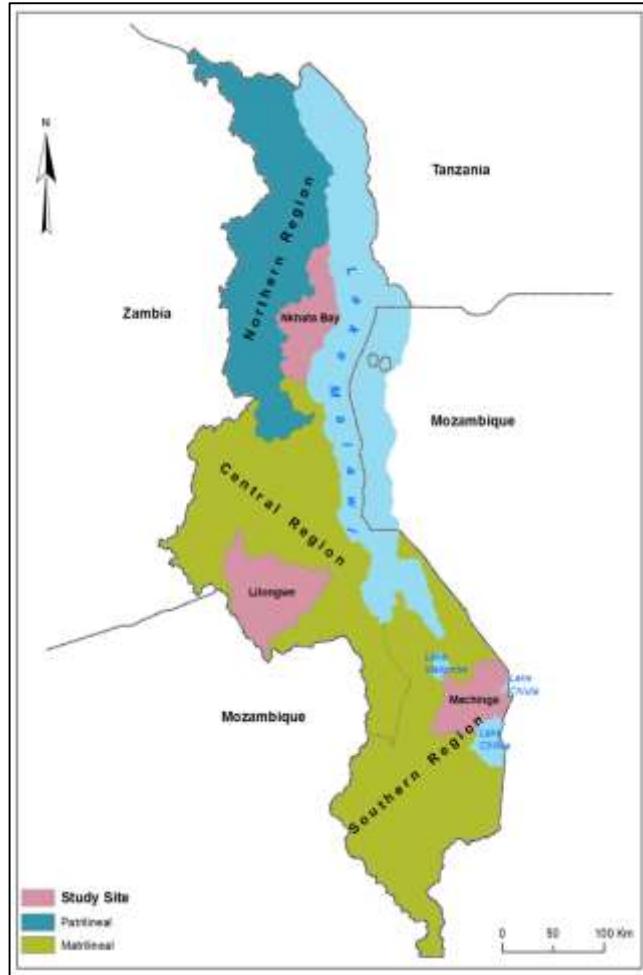
3.9.1 Socio-Cultural Setting of the Study Sites

<u>Machinga District</u>

Machinga is situated in the southern region of Malawi and is about 84km from Blantyre, the commercial city of Malawi. The research work in this district was reduced to two traditional authorities (TAs): Mposa and Sitola. The former is located to the southern part of the district, close to Lake Chilwa, while latter is located in Machinga Southeast (Figure 3.6).

Several tribes live in Machinga district but Yao is the predominant tribe. Lomwe is another tribe that is found in parts of Machinga. Sixty percent of the population in the district practise Islam as their religion (NSO, 2010). The Yao follow a matrilineal marriage system whereby the husband relocates and resides with the woman's relations. Under the matrilineal ceremony, marriage is usually validated by the

meeting of the representatives from the bride and groom's side known as *ankhoswe*, and marriage transactional fees are not very substantial, often characterised by the payment of a chicken. The low value of such payments is said to make marital relationships that do not last long in populations which practise matrilineal descent (Zulu 1996, Reniers 2003). There is often a closer bond between the wife and her maternal relations relative to that between the couple in making reproductive decisions. The wife's elder relations often have a stronger say in decisions, since by means of marriage, families gain control over childbearing and consequently over wealth. Thus, this enables the woman in a matrilineal marriage system to have more sway in reproductive decisions (Dodoo and Tempenis 2002).

Figure 3.8: Map showing the study sites
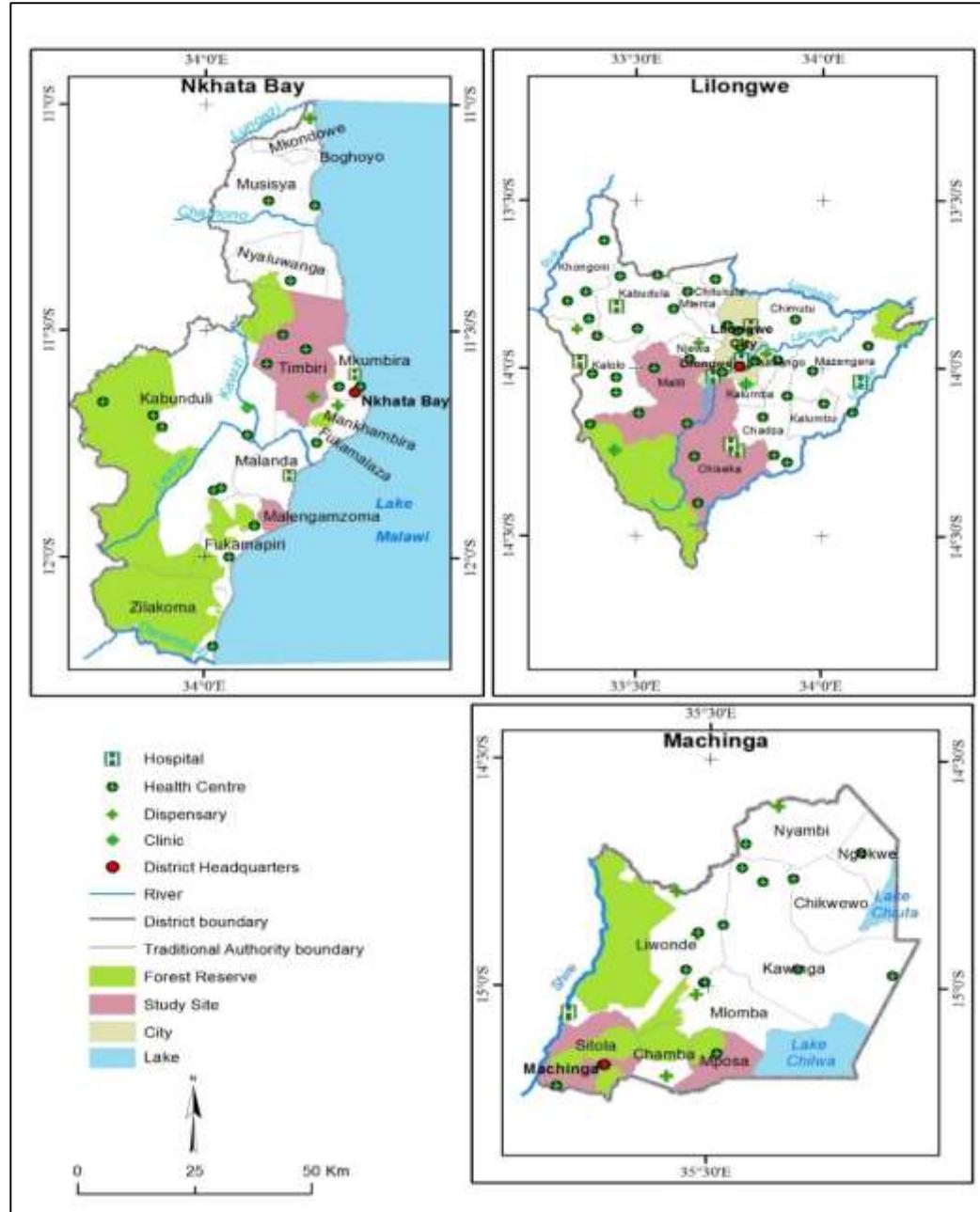
With respect to literacy, the 2010 MDHS showed that Machinga is one of the districts with lowest literacy levels: slightly over half of women (55.1%) and 71.1% of men were able to read and write, compared to the national averages of 67.6% and 81.3% for women and men, respectively. The results from 2010 MDHS also show that on average, a woman has 6.9 children and contraceptive prevalence rate is low (31.1%). Given that its TFR is highest and its CPR is low, Machinga was chosen as an ideal study site to inform the study of the practices regarding contraceptive use and attitudes towards family size.

Lilongwe District

As described above, the study in the central region was restricted to the Lilongwe district, and the study villages were located in two TAs: Malili and Chiseka. The Each village was situated about 40 to 50km away from the capital, so that daily commuting between Lilongwe and the home villages was not practical. Chewa is the predominant ethnic group and showcases its traditional and cultural beliefs through a practice known as *gulewankulu* or *nyau* (Chimbiri 2006, Malawi Human Rights Commission (MHRC) 2006). Boys and girls undergo an initiation ceremony when they reach ages between 10 and 15, as a way to elevate them from childhood to adulthood. This rite of passage helps the traditional Chewa people to find their place in the society (Phiri 1983). The indigenous Chewa people also regard *nyau* as a form of religious belief (Phiri 1983, Doctor 2008).

According to the 2010 MDHS, the literacy level is much higher for men (82.2%) compared to women (66.7%), even at national level. The high rates may not be surprising because Lilongwe is the capital city of Malawi. With respect to TFR, on average women have 5.4 children, and use of modern contraceptives is 51.1%. However, there is variation between urban and rural areas of Lilongwe: in urban areas, TFR is 3.9 children, compared with 6.0 for rural areas; and CPR for the urban is 56% compared with 44% for the rural area.

Contrary to the Yao type of matrilineal system, the Chewa have a strong element of patriarchy embedded in their culture (Mtika and Doctor 2002). Historically, the basis for the Chewa social system has been matrilineal, and the custom is that the groom relocates to the bride's residence upon marriage. In more recent years, Chewa marriage system has undergone transformation and become more flexible because of intermarriages with the Ngoni, where the wife resides with the husband's relations (Mtika and Doctor 2002).

People in Lilongwe commonly grow maize, which is used as a staple food. Some households grow tobacco on small scale as a cash crop. It is worth mentioning that management of these crops is labour intensive, and households engaged in this type of farming often need greater numbers to cultivate such crops. In Lilongwe, none of the men worked outside as a migrant labourer while leaving his family in the village. Some

men in these areas participate in charcoal and cassava trading; purchasing from the nearest production sites and gardens, respectively, which would then be transported on bicycles to the nearest port of entry into an urban centre.

<u>Nkhata Bay District</u>

Nkhata Bay lies along the lakeshore in the Northern region and is 48km from Mzuzu City, which is the major administrative and commercial centre for the northern region. Unlike in the other study sites, Table 3.2 shows that there is only a small difference in literacy levels between men and women in Nkhata Bay (76% and 78.3% respectively). Similarly, the median of years completed in school among women (6.7 years) in Nkhata Bay is higher than the national average (4.9 years). Although use of modern contraceptives (37.9%) is lower than the national average (42.2%), Nkhata Bay has the lowest TFR (4.9 children per woman) in Malawi. This unique position makes Nkhata Bay an important case study district to understand the fertility behaviour.

In Nkhata Bay, the study was conducted in the Timbiri and Malengamzoma TAs which are at least 60km apart. Timbiri is located in the hilly sides of Nkhata Bay. In terms of education facilities, there is a primary school which pupils attend in the area. Residents in this community can either access health services at the district health facility that is located 20km away, or from a small community health post that is manned by a health surveillance assistant (HSA). The main mode of earning a living in this area is through subsistence farming, and the main crop is cassava. We found that many women belonged to village cooperatives that were involved in income generating activities, one of which involved cultivating cassava for the production of starch. The project was financed by USAID, and the organisation was responsible for finding markets the farmers could sell their products.

In the Malengomzoma TA, the research was conducted in the villages which surround the Chintheche area which lies along the lakeshore. Walking is the primary mode of transport in the remote parts of the area. As is the case in most rural areas, the area is connected to other places through a network of dusty road networks; conditions which can make it extremely difficult for women to seek family planning services during the rainy season. People access health services from a health post that is located two kilometres away while the nearest government health centre and a CHAM

health facility are 12km from the village. Besides the local health facilities, the only district hospital is located at the district headquarters, Nkhata Bay *Boma*, about 60km away. However, for people to access the facilities at Chintheche, they have to cross a vast area of dambo land. People from this area use the dambo land for cultivation of rice.

In Nkhata Bay, the situation seems to differ a bit from the other districts as far as the practice of transitional rites is concerned; the Tonga seldom practise initiation ceremonies to mark the transition from childhood to adulthood. However, as it is the custom of the northern region of Malawi, the institution of marriage follows a patrilineal line of descent. This implies that the woman changes her affiliation from her kin to that of the husband (Mtika and Doctor 2002).

As a contrast to the matrilineal marriage, it is an essential requirement for the bridegroom to pay bride wealth known as *lobola* to the bride's guardians. According to one of the key informants, a typical amount would start from £30.00, and increase based on the bride's education level. The exchange of the gifts not only allows the bride to relocate to the husband's side, but it also validates the marriage. Thus, the *lobola* custom might involve a subtle transfer of a woman's decision-making power, because it is the husband's side that plays a major role in making decisions.

3.10 Selection of Respondents

3.10.1 Sampling Procedure

The study uses the 2008 Population and Housing Census (2008 PHC) report which contains a complete population of interest found in all districts that are divided into traditional authorities. Each traditional authority has a list of enumeration areas (EAs). An EA is the smallest unit from which information regarding people is collected. Thus, the 2008 PHC was used to purposively sample the EAs that were demarcated as being located in the rural or urban areas within each district. It is acknowledged that the situation in each EA as listed in 2008 may have considerably changed at the time of conducting this qualitative research in the 2013/2014 period, due to possible deaths or migration of members. Nevertheless, this may not have affected the study

because it was a qualitative study which was not concerned with statistical power or inference. Rather, it aimed to draw on general perspectives about the study topics.

3.10.2   Identification and Approach of Participants: FGDs and IDIs

In rural areas, the research team, comprising the author and four research assistants (two males and two females), contacted the village chief to ask for permission to conduct the study in the community; while in the urban setting, we approached a ward administrator known as *mfumu*, a vernacular term for chief. However, in Lilongwe, one of the urban ward representatives insisted that we interview his daughters and daughters-in-law. This was in anticipation of receiving gifts at the end of the study. We courteously explained to him that we could not, as we needed a community and not a family perspective. We selected another ward where we successfully held the discussions. Of the initially selected respondents, some respondents could not be contacted or declined to participate. Respondents who declined in this study had reasons that they wanted to go and receive free fertility and farm inputs, and could not afford missing the opportunity since the farm inputs and fertiliser distribution occurred on designated days. In all, twelve respondents for FGDs did not take part.

The research team purposefully sampled the houses. For each village, efforts were made to start at the centre of the community. Visiting the centre of the village ensured that we were not only sampling one particular section of the village. Houses were then selected purposefully, starting from the centre of the village. We skipped some of the houses that were adjacent to each other. I expected that, since people live in close proximity, they might know each other, and may share some experiences, particularly given the social networks mentioned in some parts of Africa (Rutenberg and Watkins 1997, Paz Soldan 2004). By selecting respondents from various places within the community, it necessitated examination of data ranging in diversity. In addition, we made an effort not to visit households that were clustered in a particular area, around the health facility or community centre. While selection of potential participants in this way might have introduced selection bias (Pannucci and Wilkins 2010, Willig 2013), which may have affected the results, drawing participants from households which were close together could have resulted in selecting participants who were closely related. Although this was a precondition for selecting the participants, it was not entirely possible to remove such influences. As Channon, Hosegood et al. (2015)

note, defining households by co-residence is complicated in that other members of the household can have relationship with other households who do not necessarily live in that household.

To get the individuals for FGDs and IDIs, the research team visited each house and asked the head of the household about name, gender and age of the usual residents. The author recognises the challenges raised in definition of the concept of the household as noted by (Randall, Coast et al. 2011) which should go beyond co-residence of members and, rather, should include the relationships based on usual resident is a member of the household who is acknowledged by the other members as belonging to the household (Hosegood and Timaeus 2006). A household in this study was defined in a manner created by the United Nations (UNDESA 2010), but the definition was localised to identify households as per the local National Statistical Office as a person or a group of persons, related or unrelated, who live together and share common cooking and eating arrangements (NSO, 2008). While the head of household is defined as a usual resident member of the household who is acknowledged by the other members of the household as the household head. The concept of a "household" can vary widely among countries and even among researchers within a country (Randall, Coast et al. 2011). The author encouraged the research assistants to probe further to list household members who could have been excluded, but who did in fact belong to the household.

Identification of respondents to take part in FGDs involved two stages. First, a research assistant approached the head of household and asked him or her for information about the members who usually resided in his or her household—their ages, number of children, marital status, and sex—using a household roster. The information was recoded on a household roster. The second stage involved selecting the potential participants who would then be screened.

The research assistants briefed the participants about the aims of the study, using the participants' information sheet presented in Appendix 3A. Once we identified the persons who met the required characteristics, they were then invited for a screening questionnaire (Appendix 3B). The characteristics of the individuals being sought were men and women aged 18 to 49 who had ever a child and were users or non-users of

contraceptives, while for men only, whether they had ever married was one of the inclusion criteria. A screening questionnaire was important to identify users from non-users of modern contraceptives. The research assistants verbally briefed the potential participants of the aims of the study.

A double consent was adopted to ensure that the participants fully consented to providing personal information. The first consent was administered before asking the participant's personal details (which is contained in the screening questionnaire), while the second one was read out verbally before commencing each FGD and IDI (Appendix 3C).

We recruited the participants into FGDs first. When we reached a quota for each focus group discussion, we then recruited participants for the IDIs. We ensured that the composition of participants selected for FGDs was as homogenous as possible in terms of number of the children and ages.

Consideration was given to further stratify the participants into two distinct groups, younger and older ones (35–49 years), to prevent the possibility that the latter would feel uncomfortable in the presence of the former. However, our fears were allayed during fieldwork. This was manifested in two ways: participants mentioned that age did not matter and used local idioms in vernacular "*ntchembere*", suggesting that although they were younger, they had two or three children, hence should be considered as an "old" woman. In other words, the woman should be considered mature enough to take part in discussion like any other older women. Secondly, during the FGDs, for women who were quiet, one way of encouraging them to contribute was to ask them if they were becoming uncomfortable with the topic—to which they responded, amidst laughter, that they were "*ntchemebere*" and old enough to know the topic of family planning. It turned out that age was not an important factor with regard to the issues raised in the discussion.

It is likely that the tradition respects men and women based on the number of children they have and not on their age of the woman. Moreover, childbearing starts early in the rural areas; hence young mothers are accorded equal respect to older mothers. Hennink and Madise (2005) conducted a qualitative study of 16 FGDs among poor

communities in urban and rural areas in Malawi. The study aimed to explore the influence that the introduction of user fees would have on utilisation of family planning services. The study found that there was little variation in the issues raised by discussants when participants were stratified by age.

Selection of Participants for Focus Group Discussions (FGDs)

To meet the objectives of the study, two TAs were selected from the rural areas of Machinga, Lilongwe and Nkhata Bay districts. In each TA, two FGDs were conducted comprising each sex. The desired number of FGDs was two in each TA, as it was felt that conducting one focus group each sex would represent the views of the village without. To stay on budget and time, one group from each sex ensured that the study did not place undue burden on budget and timeliness while also not sacrificing the accuracy of the findings. A village was selected from each TA, in which two FGDs were conducted separately for each sex. In addition, four FGDs were conducted in the urban wards of Lilongwe City. Thus, a total of 16 FGDs of men and women aged 18 to 49 years were successfully conducted, with the help of local research assistants (Figure 3.7). The figure illustrates the locations of the study areas and the number of FGDs conducted at each study site.

Figure 3.9:   Distribution of Focus Group Discussions (FGDs)
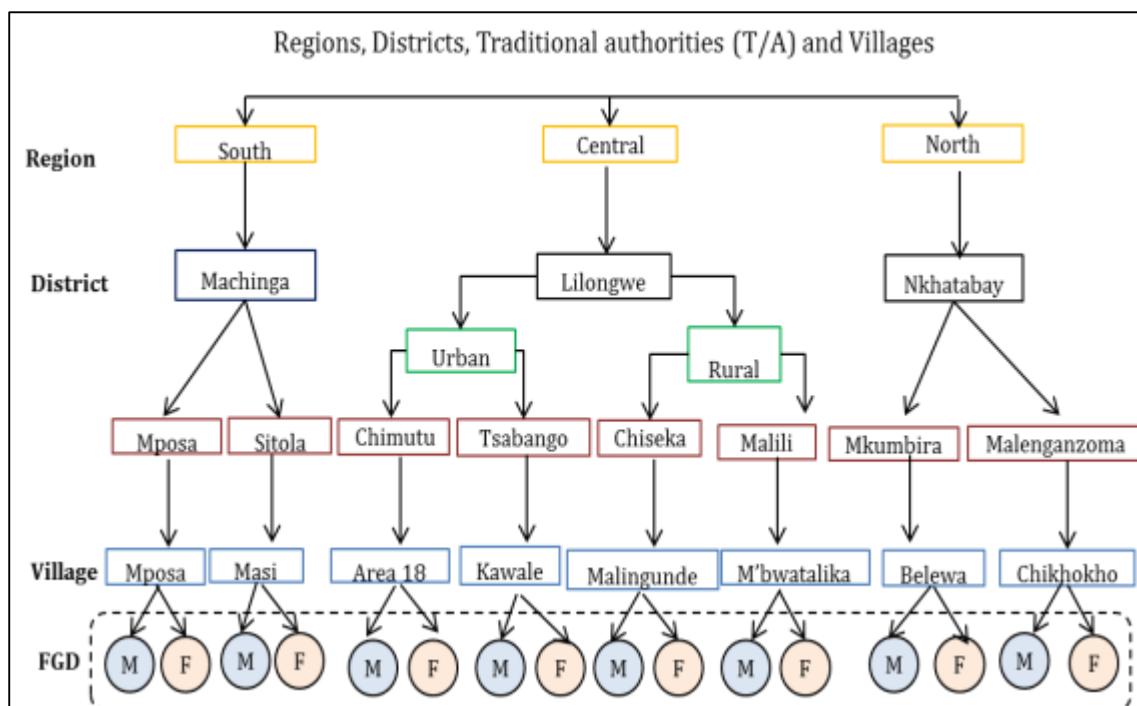
Source: Author's illustration of the study areas.

94

Selection of Participants for In-Depth Interviews

We concurrently selected participants for in-depth interviews, noting their current contraceptive use status during administration of a screening questionnaire. Similarly, a screening questionnaire was used to assist in identifying participants for IDIs into distinct groups: users and non-users of modern contraception. Participants were then invited to take part in an interview at the time and place of their choice. In in-depth interviews, all members participated in the study. This was achieved through three call-backs to the participants who could not be reached during the first visit.

Pilot Testing

A one-day pilot test was conducted outside Zomba to simulate the study. A one-day pilot study was sufficient because, prior to the day, the research assistants and the author had undergone extensive training, usually involving asking one another in turn to simulate the fieldwork environment. Further, the research assistant (as shown in section), had prior knowledge of conducting research using qualitative approach. This was one of the criteria that were used during the recruitment process. Despite a holding pilot study for only one day, the research assistants captured the required elements of conducting a qualitative research through FGDs and IDIs.
It was anticipated that the tool would be refined with new issues emerging. For example, the author routinely used the intervals between interviews from one district to another to reflect on data that was collected and further refine the discussion guide. The author conducted one of each of male and female FGDs and two IDIs. The pilot testing resulted in the final validation of the study tools for data collection. Although the results from the pilot study did not form part of the analysis, the pilot study was important in that it assisted in translating some of the words which were ambiguous during the pilot survey and needed to be refined (see Section 3.12).

3.10.3 Facilitation of Interviews

A research assistant from the team moderated each focus group discussion and a note taker jotted notes and ensured that the audio recording was working while the interview was in progress. Notes were taken to capture non-language signs and the general atmosphere of the group. The data from piloting would be used in the construction of themes during analyses, and for beginning to build an understanding of salient issues. For example, one of the issues that repeatedly emerged during field

work was that women did not opt for sterilisation; rather, they left their options of reproduction open for future partnering. Such information was also useful in selecting the best quotations to fit the recurrent themes that appeared over the course of discussion.

The start and finish times of each discussion, as well as date and general description of the location for each interview, were noted. The research assistants were of the same sex as the discussants in each FGD and IDI. This is because the nature of the study touched on masculine or feminine aspects of sexual behaviour, which had the potential to make the participants reluctant to speak if the moderators were of a different sex. The researcher sat in on three FGDs. This allowed him to know the questions which generated the most debate, and the associated gestures which were then discussed in depth during daily feedback meetings held between the researcher and the facilitators.

The FGDs and IDIs were conducted in local languages and translated in English. This had two important advantages: it allowed the researcher to detect and incorporate emergent themes that needed more probing in the next sessions; it also allowed the researcher to identify the possible moderating and interviewing errors that needed to be corrected for the next session. There are arguments in the literature which suggest that participants who are likely to meet each other in future may not be forthcoming in their contributions. Hennink (2007) and Frisch (2008), for example, contended that familiarity of participants has an added advantage in that it can lead to clarifying the inconsistencies between members' contributions and the actual practice due to shared experience. Our experience confirmed these authors' findings, in that it was practically impossible to recruit participants who had never met before; women in our sample were involved in village banking groups and saving clubs, notwithstanding other social gatherings such as weddings, initiation ceremonies and adult literacy programmes.

All participants were at the end of the sessions presented with K300.00 (about £0.50) as a token of appreciation for taking part in the study. This was significant because they only needed K200.00 (£0.30) to top up to buy a bag of subsidised fertilizer.

3.10.4 Topic of Discussion

FGD discussion guides presented in Appendix 3F addressed women's perception of fertility and contraception, and the contexts women use to achieve desired fertility. Concepts identified in the pilot session as unique to the study were probed in FGDs. Contraceptive use and factors affecting method choice were also assessed, including perceptions of method efficacy, side effects, and desired features. The attitudes of the male partner were specifically queried. For in-depth interviews, the topics asked to users and non-users of contraception were standard, but the latter were complemented with additional questions that had a special focus on reasons for non-use of contraception (Appendix 3G). The discussions in IDIs lasted about 60 minutes each, while the discussions in KIIs presented in appendices 3H and 3I, took approximately 45 minutes.

3.10.5 Recruitment of Research Assistants

The researcher sent an advertisement for research assistants, which was placed on the notice boards of research institutions in Zomba, notably Chancellor College, the National Statistical Office (NSO) and the Centre for Social Research (CSR). It was hoped to vet the applicants and shortlist only those who had interviewing and language communication skills, some knowledge of group dynamics and relevant research experience as assessed according to their curriculum vitae. The team was composed of four research assistants; two had bachelor's degrees in sociology, while the remainder had completed MSCE, the equivalent of GCSEs but also had sufficient knowledge of group dynamics, relevant qualitative research experience, and the ability to speak the language in the study areas. The researcher initially recruited four research assistants. However, both female research assistants withdrew two days into training: the mother of one had passed away, while the other had found another work which was paying her more than she would have received from participating in this research. Research assistants who were on standby subsequently replaced them. Although the resignation of two research assistants delayed the commencement of data collection, one advantage which resulted from it was that the research assistants who had sat in the training longer than their counterparts performed exceptionally well and were a resource to the others.

3.10.6 Training of Research Assistants

Prior to fieldwork, research assistants underwent training, where FGDs and IDIs question guides were rehearsed and interview techniques revisited. A thorough training was provided to research assistants to ensure that the data collection exercise was done ethically, and that the social distance and power imbalance between the research team and the respondents was minimised . The need for prior research experience and knowledge in the local area were sufficient to bridge power imbalance that might arise because of familiarity with life, culture and expected norms of behaviour in the study areas. The RAs led the conversation in the native languages of the study areas, often discussing local events before commencing the actual discussion, to establish a rapport. I also stressed during the training on the procedures to enhance the anonymity and confidentiality of the participants and their right to withdraw from the study.

During the interviews, the moderator would welcome the participants to the discussions and encourage them to be free to express their opinions. The moderators also assured participants that their responses were important and that there were no right or wrong answers. Besides sharing local knowledge of the research areas, I asked the research assistants to dress appropriately, wearing clothes that would not offend the participants' local customs. During the period of study, the female interviewers wore long cloth wrap *chitenje* covering their knees. Male research assistants wore clothes which did not project images of the interviewers' education and affluence, hence increasing social distance. A training manual was provided as a reference.

3.11 The Role of a Researcher: Positionality and Reflexivity

As the researcher was born and raised in the country of the research, during the research process, interactions with the research participants might have introduced personal and ethical dynamics into the research process. Knowing the researcher's place and position within the study, as several studies have noted, helps identify or define a clear view point in drawing conclusions and implications from the results of the inquiry (Darlington and Scott 2003, Mertens 2014, Hesse-Biber and Johnson 2015). The next sections detail the researcher's background and experiences: how the researcher's presence may have impacted on the researched participants.

3.11.1   Positionality

"Positionality" is when researchers need to take into account of their position in relation to their participants and the research setting (McDowell, 1992). The researcher's gender, race, education level, class, culture, and other factors may assist to understand the dynamics of researching within and across one's culture (Denzin and Lincoln 2011). Understanding and mobilising positionality is crucial to effective data collection and analysis as it is important to ensure objectivity of perspectives (Darlington and Scott 2003). In addition, positionality allows subjectivity whereby the investigator found themselves in. Positionality may be perceived as sex or education, but also in terms of interpretation of the data (Frisch 2008).

The researcher has been working as demographer lecturer since 2004 at the University of Malawi. As a lecturer teaching demography and fertility as one of the courses, and being in a familiar environment (native country), there is a possibility that that there may be a bias toward the subject and interpretation of the findings from the research: who "am I" interact and influence constrain my interpretation of the phenomenon (Creswell 2013). For example, the author grew up in the research area (native), and has an understanding of some cultural aspects, and has participated in some reproduction-related ceremonies such as the marriage processes of relatives, including the negotiation and payment of bride wealth. It is likely that these perspectives helped the researcher identify with the research participants in multiple ways: historical position, class, education, race, gender, religious affiliation—all of these might have influenced the interpretation of the results (Hesse-Biber 2010, Mertens 2014). The importance of positionality was emphasised during the research process to avoid biases the "insider" positionality could bring to the study. Throughout the study, to reduce bias in data collection and analysis, the author reminded the researchers to be to be cautious of research participants' cultural and value differences, and the fact that they would be talking to women who were married and had children, and who were older than the female research assistants.

In gathering the data, the approach needed to be considered as "an outsider" to avoid the effect of biases on the study (Hesse-Biber 2010). This may have been reflected in the researcher having education from University of Southampton - a western university, his beliefs about research, the methodology he chose, and questions he

used to investigate or probe more into the subject. Although the researcher attempted to bracket out himself from the research, as Creswell (2013) acknowledges, qualitative research is not an objective process even after attempting to eliminate the researcher's experience. The elements that helped the author identify with the research participants during the research allowed him to collect the data effectively. The author's language, nationality, and familiarity with the research environment enabled him to participate in regular conversation in the local dialect (language) (Guba and Lincoln 1994).

3.11.2 Reflexivity

Another way in which potential bias could have affected the quality of qualitative data comes from the researcher's knowledge of the study areas. Willig (2013) pp.169) calls for the researchers to reflect upon their own standpoint in relationship to the phenomenon they are studying and to attempt to identify the ways in which such a standpoint has shaped the research process and findings (Nightingale and Cromby 1999, Roelen and Camfield 2015). Reflexivity requires an awareness of the researcher's contribution to the construction of the meanings throughout the research process, and the acknowledgment of the impossibility of remaining "outside" of one's subject matter while conducting research (Guba and Lincoln 1994).
Besides conducting public lectures sensitising the communities in the native country about the effects of rapid population growth on socioeconomic development of a country, the investigator had contributed a number of population-related issues to national newspapers[6] on various population issues including family planning. This also helped him to become conscious and aware of the potential bias of his constructions of the meanings of the collected data/observations. An important element of applying reflexivity in the research process led to the researcher's in not having critical reflections of the actions and behaviours of some men who were opposed to the use of contraceptives (see Chapter 7).

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[6] http://mwnation.com/stakeholders-back-calls-to-invest-in-family-planning/
http://mwnation.com/population-rise-a-ticking-bomb/

As Nightingale and Cromby (1999) note, there is a need to explore the ways in which the researcher's involvement with a particular study influences how these potential biases were tackled in the study. Reflexivity implies scrutinizing the whole process, allowing or discouraging imposition of meaning by the researcher and thus promoting validity (Guba and Lincoln 1989). Reflexivity, however, means more than acknowledging 'persona; 'biases; it invites us to consider think about how our own realities to the research context and the data actually make possible certain insights and understandings (Dowling 2010).

3.12 Ethics Consideration

Before any primary data was collected, applications were sent for review to the University of Southampton Ethics Research Governing Office and the Chancellor College Research and Ethics Committee, in the United Kingdom and Malawi respectively. Both committees approved the study protocol (Appendices 3J and 3H). Prior to their involvement, the participants in FGDs and IDIs were verbally briefed about the description and objectives of the study, while for KIIs, a written participant information sheet was provided (Appendix 3K). The researchers informed the participants about voluntary participation, confidentiality and anonymity of the responses they provided, as well as the right to withdraw at any time without any repercussions.

3.13 Challenges and Fieldwork Reflections

It was proposed to recruit respondents using community development leaders, who kept databases of the households from which respondents could be selected at random. Community developers hold and routinely update databases which governments use when distributing yearly free input subsidies such as fertilisers and farm seedlings (Chintsanya, Chiwona-Karltun et al. 2010, Chirwa, Kazanga et al. 2013). This could have facilitated timely data collection and meant that we stayed on budget, because the community leaders have correct and updated household databases (Holden and Lunduka 2010). However, this was decided against because in doing so, the participants might have associated the study objectives with the exercise of fertilizer distribution and might have thought that we had access to resources that would come their way if they cooperated. The significance of the fertiliser distribution

exercise was noted in one of the villages; participants who had gathered for a discussion decided to leave the meeting once they heard that a truck of fertiliser had arrived at the fertilizer distribution centre. We rescheduled the interview and held it the following day.

In Malawi, it is customary to walk a visitor out of the village, which is symbolic of being welcomed into their community. Sometimes, this could involve a distance of over a mile. We noted this good gesture, since some of the participants walked with us for distances of up to one mile to where we parked the car (to avoid attracting attention), and some of them took us to see their economic activities. There was a lot of enthusiasm about the topic such that more issues emerged from the casual conversations we held. These conversations influenced my personal knowledge as a researcher and aided my interpretation of the results.

3.14   Generalisability and Limitation of the Study

Qualitative research has been criticised for its use of small samples to represent the findings of the larger population, among other things (Morgan and Krueger 1993, Attree and Milton 2006), which has led to issues of generalisability. However, as Bloor, Frankland et al. (2001) argued, qualitative research findings need not to be generalizable but to ensure that the different groups, when taken together, should cover as much information regarding the study population as possible. This is because the circumstances that surround data collection using qualitative approaches are fluid in nature, and there is less consistency in participants' responses to semi-structured interviews. Thus, the reality is that even after repeating the same study, it would be impossible to get the same responses but just factual information. This may be the case in Malawi since different ethnic groups observe different customs and practices in daily life.

Obviously, this study serves as a case study. As such, the results cannot be evaluated in a statistical sense because the districts were not selected at random, and conditions under which the interviews were held could not satisfy the demand of being representative. The participants interviewed in the groups were from multiple ethnic groups, which permitted an understanding of multiple perspectives, attitudes and perceptions regarding contraceptive use. Moreover, the physical constraints people

face in accessing health facilities provide a feeling for what would have been obtained elsewhere in the rural communities, where services are less accessible and low literacy rates prevail.

3.15 Quality Control Measures for Translation and Transcription

In order to ensure reliability of the information collected from field work, a number of measures were included in this study. First, three scripts (two FGDs and one IDI) were sent to a peer researcher with the aim of producing an account of the major themes from the focus group discussions, and isolating the major themes in order of importance. Although the results showed quite a close agreement, the researchers ranked the themes differently. For example, the themes differed rather widely on reasons for not having more children and not adopting sterilisation: among high parity women, a main reason was that they wanted to partner. The peer researcher, however, ranked child mortality and untrustworthy of men as the main reasons (see chapter 7).

Each transcript contained details of the respondents, such as number of children, age, and occupation, method of contraception and education level. In addition, the research assistants made notes of any events before the interview started and while the interview was in progress. For example, in one FGD a woman was excused to give the keys to her house to her daughter who had found the house locked upon returning from school. Detailing of notes was important to the author because it helped to know whether the interruptions might have influenced her subsequent contribution in the FGDs, and affected data quality.

To ensure the credibility of the results, eight researchers from different disciplinary backgrounds (sociology, educational foundations, political science, and philosophy) reviewed the study protocol and instruments before fieldwork commenced. The proposal was then revised to incorporate the suggested comments. For example, it was felt that the since the screening questionnaire contained questions about contraceptive use, the respondents might feel uncomfortable answering them. The study design thus adopted a double consent when identifying users and non-users of contraceptives before consent to participate was secured.

With regards to language, two language experts checked the translation to ensure that the translation of discussion guides was accurate, logical, and expressed what was being asked. The experts, each of whom was a native speaker of the languages that were used in interviews, were satisfied overall with the translation, and made suggestions so that the guides had an appropriate tone and level of language (such as level of formality and technicality). However, during training, the research assistants noted that the suggested Chichewa translation of the family planning and reproductive health discussion guide was too formal and difficult to understand. As Randall, Coast et al. (2013) notes, given the multilingual environment inherent in many African countries, the use of concepts and definitions brings issues of ambiguity; in the same country, there may be close meanings, whereas in other areas, further explanation may be needed. As they did not have suitable and corresponding terms in other local languages, for example, family planning was translated as "*kulera*" or "*uchembere wabwino*", and the latter is closely associated with maternal health, the research assistants, based on their personal judgment and experience, and provided sufficiently close alternative translations. For example "*njira zoletse kutenga pakati*" literally suggests the ways people use to prevent pregnancy. In agreement with (Randall, Coast et al. 2015), failure to take into account local translation and explanation of concepts could have resulted in ambiguity, an element that might have influenced validity and reliability of the research findings.

Relatedly, language differences are by no means the only obstacle to ensure validity of results. There is also the context in which they are used (Smith 2003). Thus, given the contextual differences of the study areas, the meaning of the word and how one asks vary across the societies. For example, in Chichewa, "*mimba*" (literal translation "stomach") usually refers to an unmarried woman or a pregnancy resulting from adultery. The appropriate language for married women would be "*pakati*" or "*pathupi*", literally translated as "the middle part" of a woman. The latter has an element of courtesy. It would be deemed culturally disrespectful to use "*mimba*" to refer to a married woman as opposed to "*pakati*" or "*pathupi*". Therefore, we exercised caution in the use of the terms for fear of offending the participants.

<u>Limitation of the Study</u>

Although interviewing couples could have solicited rich information in that they would provide a common ground regarding their reproductive behaviour, the presence of the husband might have created discomfort for the wife, hence curtailing the ability of the woman to contribute to the discussion freely. As it is in most African cultures, women are expected to submit to and respect their husbands (Bawah, Akweongo et al. 1999, Greene, Mehta et al. 2006). In Malawi, culture prescribes gender roles between men and women (Munthali, Chimbiri et al. 2004, Chimbiri 2007). Thus, the husbands in this study are not necessarily the husbands of the women whom we interviewed.

In as much we tried to maintain homogeneity, there is a possibility that data might have been affected by some respondents who did not give true responses, or in some cases exaggerated as well as invented the responses so as to fit with the group responses. This may be the case considering that the research topic concerns inquiring sexual behaviour of the researched participants, which could have led to social desirability bias (Pannucci and Wilkins 2010).

Work by dealing with lying participants in Ghana, helped me to reflect upon the possibility that participants may become unwilling and uninterested in contributing to the discussion if the topic is more intimate. While it was made clear to the RAs not to press for responses and feel compelled to finish the interviews at the expense of common sense, which might lead a respondent to provide false account (Bleek 1987), it is difficult to entirely eliminate this phenomenon. As already mentioned, research assistants may not know that they were making respondents uncomfortable, an element which may be difficult to discover by the research assistants (Parker 2005). Bleek (1987) notes that in anthropological studies, topics of interests are often inaccessible and may be difficult to observe; the knowledge is thus mainly based on what people say they do, and not what researchers see them doing, suggesting that what people say is often second had information (Bleek 1987).

Further, although the researcher speaks English and Chichewa well, some important nuances in meaning may have been lost when translating into English; hence, it must be acknowledged that there is a possibility that precision was lost. However, the

answers provided by participants represent the views held by many Malawians, since we obtained very similar opinions from the different study sites. The study presents a strong case which is sufficient to illustrate the views and perceptions of rural and urban participants in Malawi.

3.16 Data Processing

Data analysis began during the moment of the data collection exercise and continued during transcription. These preliminary analytical stages enabled the researcher to have a proper feel of the emerging issues. A Computer-Assisted Qualitative Data Analysis Software (CAQDAS) package, NVivo Version 10 (QSR International Pty Ltd. 2012), was used for data management and analysis. The translated transcriptions of the audio recordings from the FGDs and IDIs were then entered by the author into QACDAS for coding, annotating and further interrogation. One other advantage of using NVivo is that it permits quantification of words or phrases which may be used to identify dominant speakers; how many times has the idea been mentioned in the source or transcript; and identification of the common cited phrases (Gibbs, Friese et al. 2002). As part of exploring the data, keywords such as "injection", and "sterilisation", and phrases such as "abdominal pains" and "husband approval", and certain character strings were inputted to examine their frequencies or occurrences or just to check how many times the phrases were mentioned.

The transcripts were read several times to allow familiarisation with the text, while making brief notes to document the major issues that were emerging. The iterative process, as Lewins and Silver (2007) suggested, forms part of a closer analytical reading which can help to give a different meaning from different perspectives. Each transcript was read vertically to see how many times an idea was referred in a single transcript, or horizontally—that is, across different sources. Reading across the different transcripts allowed the researcher to identify any similarities or discrepancies across the lineage systems in the study districts, and salient issues that emerged between male and female FGDs. For example, do men and women understand ideal family size differently across the lineage type? In identifying the themes, a deductive approach was used whereby information was organised around the themes that developed from the research questions. However, it also became inductive as new themes emerged from the data.

The ideas were indexed into one category if they satisfied the theme; otherwise a new node was created. This permitted a better understanding of the issues when all ideas were retrieved. When there are too many codes, or too similar themes, Silver and Lewins (2010) recommended narrowing broader themes into new groups that have a similar meaning to the combined grouping. During analysis, some of the codes could not be merged because the difference between them was significant. Instead, a code hanger was created and the ideas were summarised. This includes codes that the author was not sure about or which needed reviewing again.

<u>Selection and Use of Quotations</u>

In this study, careful selection of quotes is important as it gives the reader information about what the participants said with respect to the issue of the study (Darlington and Scott 2003). I selected quotes that seemed to represent repeating ideas of the research participants' own words. In addition, care was taken not over-represent the quotes of dominant participants. For example, it was noted that in one focus group from Nkhata Bay, there was one dominant female participant, who turned out to be a Village Bank treasurer. The script was further reanalysed to establish whether her presence and contribution in the FGD might have reduced the likelihood of dissenting views being expressed by other members, hence affecting the quality of data. This process was applied to other FGD transcripts before a quote was selected. This because I wanted to be sure that I had actually reached the breadth of the material and I wanted to try to guard against being too selective on the basis of what dominants participants said.

In presenting the results, details that could identify participants in FGDs were removed. For example, only general identifiers such as age, marital status, number of children, and method of contraception (in the case of women) have been used to ensure anonymity of each respondent quoted.

3.17   Characteristics of the Respondents

As can be seen from Table 3.3, 113 participants took part in the FGDs, of which 45.1% and 54.9% were men and women respectively. The ages ranged from 20 to 47 years for men and 18 to 45 years for women, and 53.1% were under 25 years old. With respect to education attainment, the majority of the participants attained primary education; almost half attained primary education (standard five to eight) followed by

a quarter with lower primary education. As expected, the percentage with at least secondary education was higher among men, suggesting that there is a gender disparity in school enrolment. The table also confirms the results from quantitative analysis, which show that injection is the predominant contraceptive method. Those who reported using other (IUD, female and male condoms methods).

Table 3.4: Sample distribution of the men and women in focus group discussions

	Men	Women	Men and women
Total Number	51	62	113
Mean parity	3.1	3.8	3.4
Median age	29.3	28.1	28.4
Age			
Under 25	19.6	35.5	28.3
25–29	27.5	22.6	24.8
30–34	21.6	25.8	23.9
35–39	15.7	11.3	13.3
40+	15.7	4.8	9.7
Highest education			
None	7.8	9.7	8.9
Lower Primary (1–4)	21.6	27.4	24.8
Upper Primary (5–8)	45.1	51.6	48.7
Secondary and Higher	25.5	11.3	17.7
Marital status			
Monogamous	94.1	91.9	92.9
Polyganous	5.9	8.1	7.1
Ethnicity			
Yao	31.4	27.4	29.2
Chewa	43.1	33.9	38.1
Tonga	21.6	27.4	24.8
Other	3.9	11.3	8.0
Modern contraceptive			
Injection	-	66.1	66.1
Sterilisation	-	8.1	8.1
Implant	-	9.7	9.7
Other	-	16.1	16.1

Participants in In-Depth Interviews

Table 3.4 presents the characteristics of users and non-users of modern contraceptives who were interviewed in IDIs. In terms of use of contraception method and education, women in IDIs share the same characteristics as women in FGDs as shown in Table 3.4. Most women practise farming to earn a living. In terms of

education, most women had attained primary school as their highest education level. Injection was the main method of contraception. It is interesting to note that none of the women in the study used an IUD or the contraceptive pill as their method of contraception.

Table 3.5: In-depth interview women's characteristics, qualitative research

	Contraception status	Age	Education	Occupation	No. of living children	District
A	Injection	30	Primary (1–4)	Businesswoman	3	Nkhata Bay
B	Injection	23	Primary (1–4)	Farmer	2	Machinga
C	Injection	32	Secondary	Primary teacher	3	Nkhata Bay
D	Sterilisation	34	Primary (5–8)	Farmer	2	Lilongwe
E	Norplant	26	Primary (1–4)	Farmer	3	Machinga
F	Non-user	23	Primary (1–4)	Farmer	2	Machinga
G	Non-user	29	Primary (5–8)	Farmer	3	Lilongwe
H	Non-user	43	None	Businesswoman	6	Nkhata Bay
I	Non-user	38	Primary (1–4)	Businesswoman	5	Lilongwe
J	Non-user	33	Primary (5–8)	Farmer	4	Lilongwe

3.18   Summary

This chapter has described the data sources and analytical techniques for the quantitative component of the research, while the qualitative section has explained how the data was collected using the multi-method, namely FGDs and IDIs. The chapter has also documented the challenges faced in collecting data and its limitations. Sharing of field experiences can provide valuable information for other researchers planning to conduct fieldwork in a similar context.

Chapter 4.   Levels and Trends of Fertility in Malawi

4.1   Introduction

This chapter presents the findings from the analysis of levels and trends of fertility in Malawi. Specifically, it addresses the first objective of the study, which is to compare the magnitude of change in trends and patterns of fertility over time. Comparisons are carried out at national and sub-national levels, as well as for population sub-groups. The chapter begins by providing the distribution of women by survey year by selected background characteristics (section 4.2). Section 4.3 deals with period fertility, and section 4.4 examines cohort measures of fertility, which is a useful technique that places the transition of fertility in time as well as confirmating whether transition in Malawi is underway. Section 4.5 presents estimates of completed fertility. Discussion and conclusions come last.

4.2   Distribution of Women by Survey Year

Table 4.1 presents percentage distributions of three broad groups of women aged 15–24, 25–39 and 40–49 years, respectively representing early, middle and late reproductive stages by selected background characteristics. The motivation to present this distribution as categories, is to assess how the pattern of distribution of women in Malawi compares with the description of Brass and Jolly (1993), and how this may help to explain stages of fertility transition in Malawi. Brass and Jolly (1993) re-grouped the standard seven age groups (15-19, 20-24, 24-29, 30-34, 35-39, 40-44, 45-49) were regrouped into three categories namely 15-24, 25-39, and 40-49. These three groups represent three stages of fertility transition: early, middle and late (Brass and Jolly, 1993).

Table 4.1 shows that the bulk of women (85%) is concentrated among women aged 15-39, suggesting that fertility transition in Malawi is in early stages. Overall, women aged 15–39 combined comprise about 85% of the interviewed women in the three surveys. This goes to support the importance of knowing the distribution of women aged 15-39 as they are reproductively active, hence contribute to sustaining high levels of fertility (Brass and Jolly, 1993). As expected, the distribution of the

respondents is predominantly rural. However, half of the urban sample comprised young women (15–24 age groups) in the previous two surveys.

Table 4.1: Distribution of women, 2000–2010 MDHS

Selected background characteristics	2000				2004				2010			
	15-24	25-39	40-49	15-49	15-24	25-39	40-49	15-49	15-24	25-39	40-49	15-49
Residence												
Urban	50.0	39.1	11.0	2,106	51.2	37.7	11.1	2,076	43.7	45.2	11.2	4,302
Rural	42.9	41.1	16.0	11,114	43.6	41.3	15.1	9,622	41.0	44.0	15.0	18,718
Region												
North	42.3	42.9	14.8	1,453	47.6	36.2	16.2	1,552	42.3	42.8	15.0	2,677
Central	43.3	42.4	14.3	5,321	45.2	41.0	13.8	4,734	42.0	42.6	15.4	9,857
South	45.1	39.0	15.9	6,446	44.0	41.6	14.4	5,412	40.9	46.0	13.1	10,485
Level of education												
No education	22.3	51.1	26.6	3,737	18.2	54.6	27.2	2,734	14.8	51.6	33.6	3,698
Primary 1-4	47.6	38.3	14.1	3,862	45.1	41.0	14.0	2,998	36.0	48.3	15.7	5,962
Primary 5-8	54.2	36.8	9.0	4,242	54.6	34.8	10.6	4,221	50.7	39.1	10.2	8,946
Seecondary & higher	61.8	31.9	6.3	1,378	63.5	32.2	4.4	1,745	52.7	42.9	4.4	4,413
Total	44.1	40.8	15.2	13,220	45.0	40.6	14.4	11,698	41.5	44.2	14.3	23,020

The age structure for the country dipicted in Table 4.1 resembles that of the 2010 Population and Housing Census, which shows that the composition of women in age group 15-39 is 85.1% (NSO, 2010). According to the projections, this pattern will change little: the distribution of women in the age group 15-39 in 2030 and 2050 will be , 83.1 and 81.1, respectively (NSO, 2010).

4.3 Measures of Fertility

4.3.1 Estimates of Period Fertility

The present section uses total fertility rate (TFR) to examine changes in fertility level over time. TFR is defined as the number of children a woman would have if, hypothetically, she lived through her reproductive years (ages 15–49) experiencing the age-specific fertility rates prevailing in the population during a particular time period (Hinde 1998). The TFR is calculated by summing age-specific fertility rates between ages 15–19 and ages 45–49 for this three-year period and multiplying the sum by five. The estimates of TFR in this study refer to the three years before the survey. Thus, the estimate is also known as period fertility, because it refers to a particular time when the survey was conducted. All bivariate analyses of TFR were

conducted using a Stata program *tfr2* developed by Pullum (2012) and (Schoumaker 2013). A detailed computation procedure of TFRs and ASFRs are presented in Schoumaker (2013).

Ní Bhrolcháin (2008) argues that period measures of fertility are more useful than cohort measures, since they are able to detect little changes in fertility that could be recognised on a year-to-year scale. By picking up the year-to-year changes in fertility, demographers could understand how the population's fertility rates change from year to year. Similarly, year-to-year changes are important to policy makers who wish to make intervention programmes, hence they form the first line of investigation in this study.

4.4   Fertility Levels, Trends and Patterns

In order to understand illustrate the mismatch between Malawi TFR level in relation to its CPR, and also how the country situates itself relative to other countries in the region, a simple regression is plotted. Malawi lies above the line suggesting that it has high level given the level of its contraceptive prevalence rate (CPR). Malawi's TFR is as high as for Burundi, Uganda and Zambia, but it has to be noted that these countries have lower CPR. In contrast to Rwanda which has a lower CPR (39.4%) compared to Malawi's CPR (42.2%), its TFR is less than one birth (4.6) than Malawi's TFR (5.7). Furthermore, Kenya whose TFR is almost at par with Malawi, the average fertility per woman is at least one birth lower.

Figure 4.1 shows the correlation of total fertility rate and contraceptive use for a total of 16 countries, five from the southern and 11 from the eastern regions of Africa, from the most recent Demographic and Health Surveys conducted in the countries. There is a strong negative correlation (*r*= -0.62) which is significant at *p<0.01*. The regression places Malawi above the line, which implies that Malawi's total fertility rate (5.7 children) is higher than expected given the current level of contraceptive prevalence use (42.2%) would indicate according to this regression. Given its CPR, Malawi's TFR ought to be 4.5 children per woman.

Figure 4.1:   Total Fertility Rates and percentage of currently married women (15-49)
or in consensual union using modern contraception in 16 countries from
eastern and southern Africa
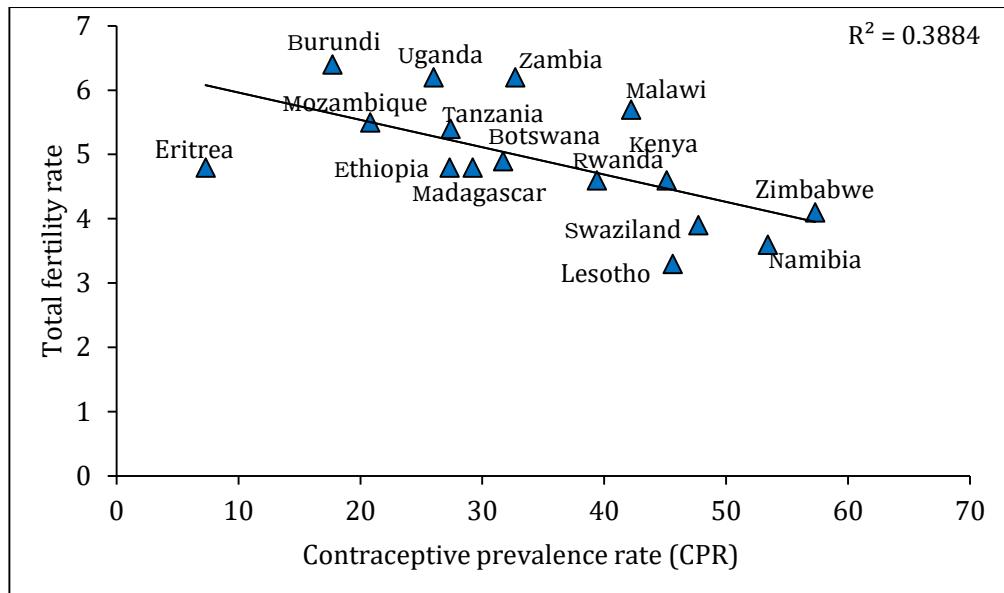
Malawi shows an atypical relationship between contraceptive use and fertility in
comparison to the other case study countries. Kenya, a country that started
implementing family planning programs in the 1970s almost at the same time as
Malawi, currently has a TFR of 3.9, lower than in Malawi by about two children. The
modern contraceptive use among married women was 53.2% in 2014 (KNBS and ICF
Macro 2015). Kenya has an additional unique experience among the case study
countries, which further demonstrates the strong relationship between contraceptive
use and fertility rate. Between 1998 and 2003, modern contraceptive use in Kenya
stagnated at 39% with a corresponding increase in fertility rate from 4.7 children per
woman to 4.9 during that period (KNBS and ICF Macro. 2010). In Zimbabwe, fertility
levels fell from 5.4 to 4.1 (a decline of more than 1 child per woman) with a
corresponding increase in modern contraceptive use from 36.1% in 1988 to 57.3% in
2011 (ZIMSTAT and ICF International 2012). In Rwanda the fertility rate declined
from 6.2 children per woman in 1992 to 5.8 in 2000 and 4.2 in 2014. During the same
period, modern contraceptive use increased from 12.9% to 47.5% (MOH, NISR et al.
2015).

Although the fertility levels in Kenya, Rwanda and Malawi were comparable in 1992
and the current CPR levels are similar, Malawi's fertility level is higher than the three

other countries by more than one child. This implies that there are other factors that strongly influence fertility in Malawi and play a significant role in maintaining a high fertility rate despite the increasing use of contraceptives.

As Figure 4.2 shows, a slow fertility decline began in Malawi in early 1990s; TFR was 7.6 in the late 1970s and by the mid-1980s only a modest decline of around 0.2 births was experienced. Up to the late 1980s, fertility remained well above 7.0 children per woman. Between 1992 and 2008 fertility remained above six children per woman. It has to be noted that TFR estimates for PHC appear to be higher than those from MDHS. This is because the latter takes place during intercensal period, when TFR will have marginally declined. In addition, DHS uses the number of births born in the last three years divided by the number of years of exposure in the last three years.

Figure 4.2:   Trends in total fertility rate (TFR) Malawi, 1970-2010
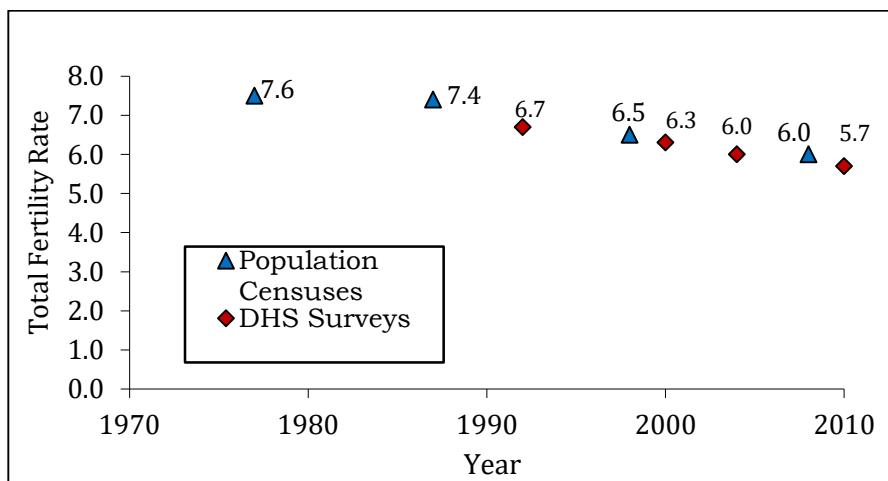
Sources: 1977, 1987, 1998 and 2008 Population and Housing Census, Malawi Demographic and Health Surveys (DHS)

The change in TFR from 7.6 children in 1977 to around six children in 2010 corresponds to 26% reduction in fertility over a 33-year period. Such pace of decline places Malawi in a region of countries described by Guengant and May (2011) as being in "a rather slow and irregular transition," with a fertility decrease of 2.6 to 1.6 children per woman since the end of the 1970s. Nonetheless, Malawi's fertility meets Coale and Treadway (1986) conditions for the onset of fertility transition: a 10% decline from the pre-transitional level.

4.5 Changes in Age-Specific Fertility Rates (ASFRs)

A further investigation of fertility trends is carried out by examining the age-specific fertility rates (ASFR). Figure 4.3 compares the age specific fertility rates of women aged 15–49 years as reported by survey year.

Figure 4.3: Age-specific fertility rates (ASFR) in Malawi, 2000–2010 MDHS
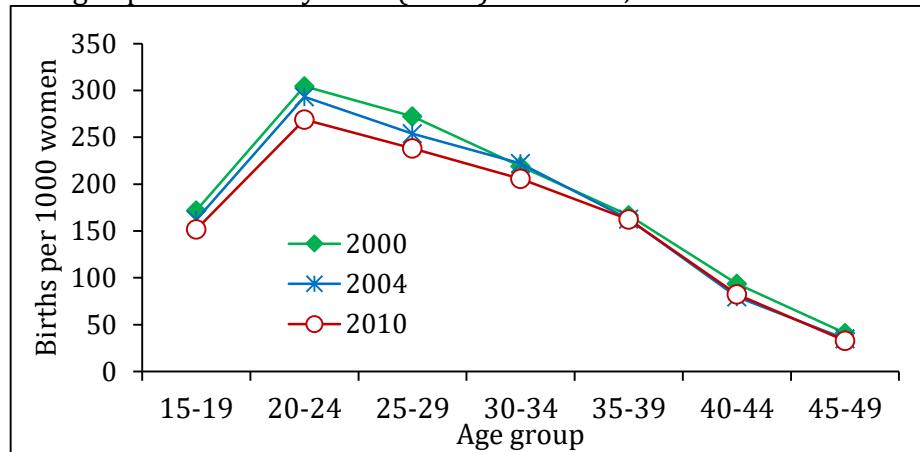
The fertility pattern in Malawi is characterised by childbearing, which starts early during teenage years, peaks around the 20–24 years age group and declines gradually thereafter with women still having births when they are 40 years and above. With the mode in the age group 20–24, the pattern for Malawi is characteristic of ASFRs in developing countries where the fertility transition is still in early stages. For the countries experiencing fertility decline, the peak of childbearing is in the age group 25–29, due to later marriage and higher use of contraception (Sibanda and Zuberi 1999).

Figure 4.3 also shows that over time, there is a decline in births occurring to the 15–19 year age group, which suggests that women in this age group are starting to give birth later compared to the previous cohorts. However, the high levels of ASFRs for ages 30 and over suggest that there are limited attempts to control childbearing.

A detailed pattern of fertility change across the age groups is achieved by converting the absolute change at each age group into percentages (Table 4.2). It can be seen from Table 4.2 that, between the adjacent surveys, the largest change in ASFRs occurred between 2000 and 2004 and were mainly among women aged more than 40 years (15% change). The pattern slowed in the last two time points, when change was also seen in the younger age groups (less than 35 years). However, in the 10-year

period, the largest change was observed among women aged 45–49 years, for whom there was a 20.3% reduction in ASFR.

Table 4.2: Total fertility rates (TFR), age specific fertility rates (ASFR) and percentage change by survey year 2000, 2000 and 2010 MDHS

	TFRs, ASFRs and Percentage Change					
	Age Specific Fertility Rates			Percentage Change (%)		
Age group	2000	2004	2010	2000/04	2004/10	2000/10
15-19	0.172	0.162	0.152	-5.7	-6.2	-11.6
20-24	0.305	0.293	0.269	-3.7	-8.3	-11.7
25-29	0.272	0.254	0.238	-6.8	-6.2	-12.6
30-34	0.219	0.222	0.206	1.5	-7.5	-6.1
35-39	0.167	0.163	0.162	-2.5	-0.2	-2.7
40-44	0.094	0.080	0.082	-15.1	3.6	-12
45-49	0.041	0.035	0.033	-14.8	-6.4	-20.3
TFR	6.4	6.0	5.7	-4.8	-5.5	-10

Source: Computed from 2000, 2004 and 2010 MDHS

To sum up, fertility declined by 10% between 2000 and 2010, and the decline was more pronounced among women aged 45-49 years, with the highest fertility decline registering 20.3%. Given that fertility declined at all ages groups, Malawi can be said to be in fertility transition. This is confirmed by the reduced number of births occurring at each age group. One of the reasons for the slow decline is that the proportion of women in the younger age groups is higher than that of women aged 30 and over, and their contribution to the overall fertility is substantial, as already seen in section 4.2.

4.6   Variation in Fertility by Background Characteristics

Following measures of current fertility level at national level, the next section examines changes over time in fertility by subgroup population. Policy-makers may be interested to know the characteristics of individuals who have experienced change, or lack of it, for intervention purposes.

4.6.1 Urban–Rural Fertility Differential

In the literature of fertility, area of residence is shown to influence people's childbearing behaviour. Generally, urban areas display a relatively lower level of fertility than rural areas; people living in urban areas tend to have fewer children than their rural counterparts. However, as the transition progresses, a decline of fertility in the rural areas leads to the narrowing of the gap between urban and rural fertility; the

rate of rural fertility declines faster and frequently exceeds the corresponding decline in urban fertility (Shapiro, Kreider et al. 2010). This phenomenon is not very obvious, as depicted in Figure 4.4. It could be explained by the fact that fertility in the urban areas was already relatively lower than in the rural areas in the 2000 survey, and continued to decline to 4.0 children per woman in 2010.

To depict change over time, the results are presented graphically in Figures 4.4 and 4.5, for 2000 and 2010 surveys respectively. Three patterns are brought out: first, fertility in rural areas has not changed substantially over time characterised by a nearly monotonous decline. The modest decline observed in the rural areas is concentrated among younger women, and virtually no change is observed as women advance into their forties.

Figure 4.4:   Age-specific fertility rates among women in urban versus rural areas, 2000 MDHS
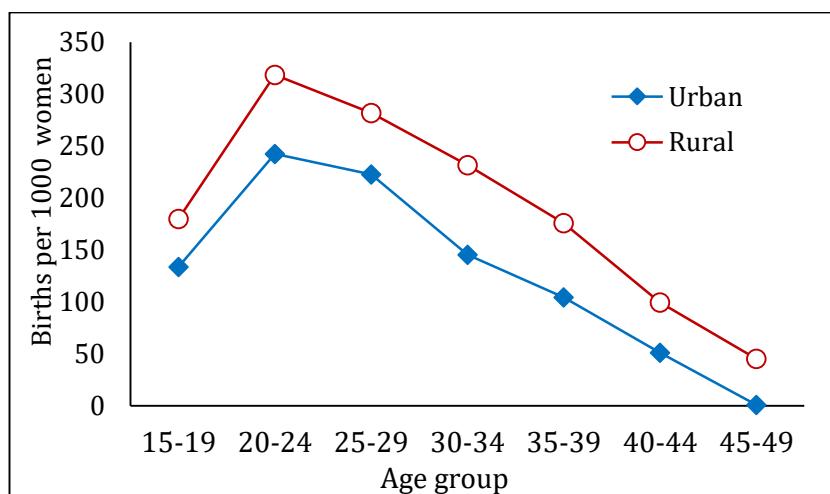
Second, fertility among urban women for the 20–24 year age group declined in 2010 (200 births, compared to 250 births per 1000 women in 2000), an indication of a shift towards later child bearing. Third, the ASFR curve for women in the urban area in 2010 takes an irregular shape; it dips particularly for women aged 30–34 but bulges out for women aged 35–39 years. This pattern can be attributed to greater contraceptive use for the former age group, and a tendency by some women to have children late in their reproductive period in the latter group.

Figure 4.5:   Age-specific fertility rates among women in urban versus rural areas,
2010 MDHS
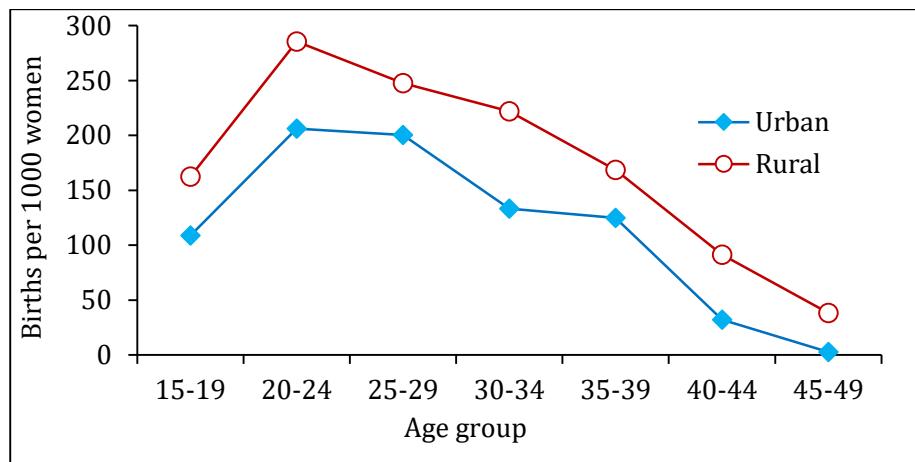
The results in Table 4.3 show that there is a negligible difference in fertility decline between urban and rural areas in Malawi, with urban areas showing a decline of 0.5 children per woman, compared with 0.6 children among rural women. Although fertility decline that occurred in urban areas was smaller than in rural areas, fertility in the rural areas was starting at a much higher level; it was at 6.7 children per woman in 2000 and slightly declined to 6.1 children by 2010. The urban-rural differential has consistently remained stable at about 2.2 births, and shows no sign of converging, suggesting that the country is in early fertility transition.

Table 4.3: TFRs and ASFRs by age group according to place of residence, 2000–2010 MDHS

Age group	Urban				Rural			
	2000	2004	2010	Percentage change 2000-2010	2000	2004	2010	Percentage change 2000-2010
15-19	0.134	0.109	0.109	-18.7	0.180	0.175	0.162	-10.0
20-24	0.243	0.237	0.206	-15.2	0.319	0.308	0.285	-10.7
25-29	0.223	0.195	0.200	-10.3	0.282	0.266	0.248	-12.1
30-34	0.145	0.159	0.133	-8.3	0.232	0.233	0.222	-4.3
35-39	0.104	0.097	0.125	20.2	0.176	0.174	0.169	-4.0
40-44	0.051	0.029	0.032	-37.3	0.100	0.087	0.091	-9.0
45-49	0.001	0.022	0.003	-	0.045	0.037	0.038	-15.6
TFR	4.5	4.2	4.0	-11.1	6.7	6.4	6.1	-9.0

Source: Computed from 2000, 2004 and 2010 MDHS

4.6.2 Regional and District Variations in Total Fertility Rates

The estimates for the 2000–2010 period show considerable regional and district variations. Overall, fertility declined at regional level, with the highest change observed in the central region (14.4%). The situation at district level is different: the analysis of fertility by district reveals a wider variation in TFR than that depicted at regional level (Table 4.4), which ranges from 4.0 to 7.0 children per woman. The majority of districts still have high levels of TFR (more than 5 children per woman). Phalombe, Machinga and Mangochi, which are located in the southern region, are among the districts with the highest TFR, all register 1.4 more children per woman than the regional average of 5.6 children in 2010. Nkhata Bay and Chiradzulu are the only recorded examples of non-urban districts where fertility has fallen to fewer than 5.0 children per woman.

While some districts experienced fertility declines, there were increases in others; all the districts in the central region registered fertility decline from a modest decline of 1.6% (Salima) to 23.2% (Ntchisi). In the south, with the exception of four districts where fertility declined between 10% and 24%, the rest of the declines were minimal—less than 10%—while the fertility rate of Phalombe increased. In the north, Karonga and Chitipa registered fertility increases of 6.3% and 12.3%, respectively. The

increase in Karonga may not be surprising if one looks at the recent economic development taking place in the district; the newly built uranium mines in the district might have attracted couples who migrated to the district along with their children in search of employment.

Figure 4.6 shows great variations in fertility decline among the districts between 2000 and 2010. The districts that experienced fertility decline ranging from 15% to 24% mostly lay along the lake shores of Lake Malawi. Even though there was fertility reduction, fertility was coming from a much higher level than in the other districts, such that fertility is still high in most districts: the TFR in each of the district is over five children per woman.

Figure 4.6:   Percentage change in TFR between 2000 and 2010, Malawi.
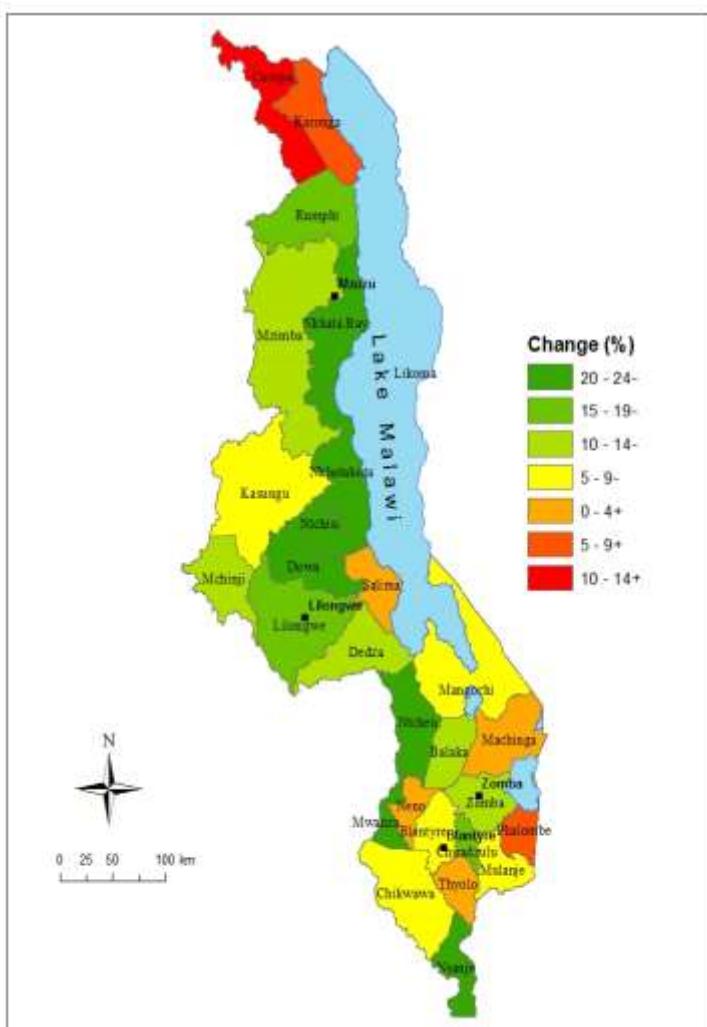
Note: The symbols (+) and (-) indicate percentage increase and decline respectively.

4.6.3 Fertility and Education Attainment

The level of education is considered in many studies as a socioeconomic determinant which is inversely correlated to fertility. Fertility differentials by level of education are therefore expected to be most pronounced than those observed in other subgroups. In Malawi the formal education system follows an eight-four-four structure which consists of eight years for primary education (from standard one to standard eight), four years of secondary education (from form one to form four), and four years of university-level education. Women who go on to complete secondary education will thus have spent 12 years (assuming there is no repetitions) in school. It is therefore expected to see considerably lower fertility levels among women who attained secondary and higher education.

Figure 4.7 presents TFR by the level of education of women. As expected, fertility declines with increasing education level. Differentials by level of education are small between uneducated and women who completed primary education, only registering a third of a child between 2000 and 2010. For example, women with no education had about seven children. There is a slight difference in fertility levels between women who attained basic education (primary 1–4) and elementary (primary 5–8), the former had had more than seven children, while the later had fewer than six children across the survey points. The difference is impressive given that the level of education is mostly basic. This confirms the strong depressing influence of education on fertility (Kravdal 2002).

Figure 4.7:   Total fertility rate by level of education, 2000 to 2010 MDHS
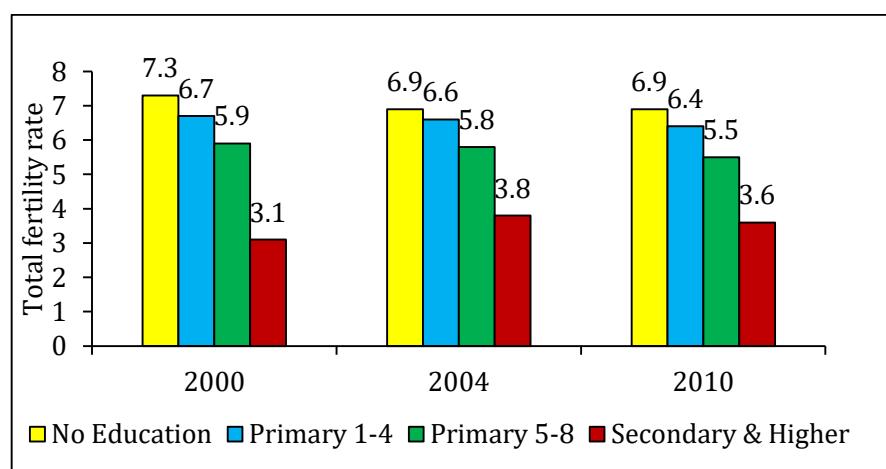
Further analysis of levels and trends in TFR and ASFRs by education attainment is presented in Appendix 4A. Relative to other categories, the largest TFR decline occurred among women who had no education and who attained primary (5–8) education, with a decline of 0.4 of a child apiece between 2000 and 2010. Among women with no education, fertility change is confined to the age group 25–29 years. The other age groups, even by education level, show little or no variation in fertility decline. The table further shows that for all levels of educational attainment childbearing starts early and peaks in the age group of 20–24 years. This may allude to the fact that fertility remains high, which is consistent with earlier findings that the effect of education on fertility is more in changing the level, but leaving the overall pattern unaffected.

On average, women who attained secondary education and higher had at least three children fewer than women with no education at each survey point. This is attributed to the fact that rising levels of education are expected to increase a woman's employment opportunities, resulting in them opting for fewer numbers of children (Tuman, Ayoub et al. 2007). There are two possibilities for the slight increase among women with highest education attainment over time: firstly, this may suggest that given that in Malawi, according to MDHS, women in this category, as observed in Chapter 3: methodology, the category was collapsed owing to the small number, thus the slight change may be due to reporting issues, whether on the part of the respondents or the enumerators. Another explanation may be that in high fertility country people may wish to conform to the accepted mean ideal number of children desired decreases as women's level of education and wealth status increase. According to MDHS, Women with no education want 4.9 children, while those with more than a secondary education want 2.8 children. It is also possible that it is a result of quantum-tempo effect (Bongaarts and Feeney 1998).

4.6.4 Influence of Marriage Type on Total Fertility Rate

The analysis of fertility by marriage type, religion and ethnicity is important in this study, because of the strong religious and cultural beliefs that work to sustain high fertility levels in sub-Saharan African societies (Caldwell and Caldwell 1987). Figures 4.8 and 4.9 show high marital fertility for both types of unions. However, women in monogamous relationships have slightly lower total fertility rates compared to

women in polygamous unions. Figure 4.8 also shows that women in monogamous marriages had a slightly lower number of children than their counterparts in polygamous marriages in 2000. The corresponding age-specific fertility rates by marriage type (Figure 4.9) show that fertility change is confined to the age range 20 to 29 years among women in monogamous relationships in 2010. The same pattern is not obvious among women in polygamous marriages.

Figure 4.8: Age-specific fertility rates among women in monogamous and polygamous marriages, 2000 MDHS
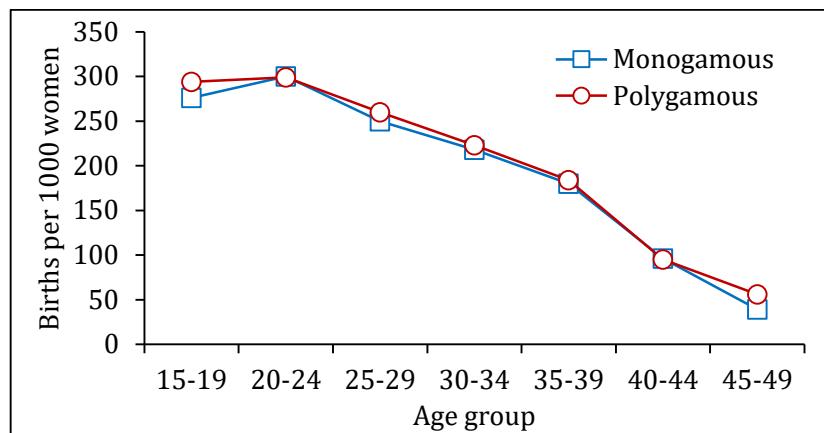
Figure 4.9: Age-specific fertility rates among women in monogamous and polygamous marriages, 2010 MDHS
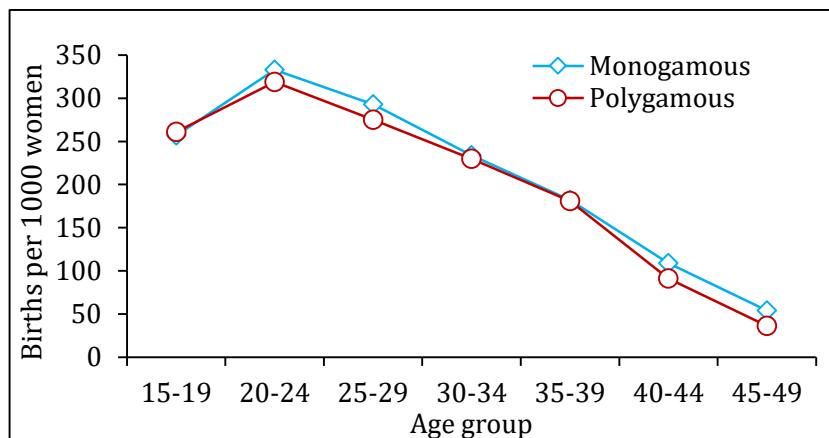
4.6.5 Influence of Religion Affiliation on Total Fertility Rate

Table 4.4 also shows that fertility levels vary with religion affiliation, ranging from 5.4 among women affiliated to the Church of Central African Presbyterian (CCAP) to 7.2 children among Muslim women in 2000. Over time, the pattern continued with CCAP women registering the lowest TFR. Muslim women tend to exhibit slightly different fertility behaviour, registering the highest TFR at all times. It is also is likely that the

fertility pattern among women from different ethnic backgrounds mirrors the changes in the districts.

Table 4.4: Total Fertility Rate Differentials by Religion, 2000-2010 MDHS

Background characteristics	Total Fertility Rates by Survey Year		
	2000	2004	2010
Religion			
Catholic	6.1	5.9	5.3
CCAP (Presbyterian)	5.4	5.2	4.8
Pentecost	6.9	6.4	6.1
Muslim	7.2	6.5	6.8
Other	5.7	5.8	5.3
Malawi	6.3	6.0	5.7

4.6.6 Influence of Ethnicity on Total Fertility Rate

There are also large varitions in TFR by ethnic groups, with the Ngoni and and Lomwe having the lowest TFR (5.0 children per woman) in 2010. The former ethnic group is predominantly found in Mzimba and Ntcheu districts, while the latter mainly resides in the Thyolo, Chiradzulu and Mulanje districts. Women of the Ngoni ethnic group experienced the largest fertility decline (1.2 children) between 2000 and 2010.

Table 4.5: Total Fertility Rate differentials by ethnicity, 2000-2010 MDHS

Background characteristics	Total Fertility Rates by Survey Year		
	2000	2004	2010
Ethnic group			
Chewa (matrilineal)	6.8	6.6	6.1
Tumbuka/Tonga (patrilineal)	6.0	5.4	5.3
Lomwe (matrilineal)	5.6	5.7	5.0
Yao (matrilineal)	6.7	6.4	6.4
Ngoni (matrilineal)	6.2	5.6	5.0
Other (matrilineal)	6.4	5.8	6.0
Malawi	6.3	6.0	5.7

To sum up, the analyses of TFR show a slow fertility decline at national level. However, there is internal diversity with respect to fertility decline over time among women affiliated to different religious groups and ethnicity. Some districts registered fertility decline, while for others fertility increased. More variation in levels of TFR is observed when place of residence and level of education attainment are also considered.

4.6.7   Relationship between Total Fertility Rate and Infant Mortality

This section examines the relationship between infant mortality rate (IMR) and TFR. IMR measures the probability of a child dying before reaching its first birthday. The estimates pertain to all the districts in the country, from 2005 to 2010. The study uses lagged estimates on IMR to take into account that it takes sometime before a couple's reproductive behaviour might respond to the changes in mortality level. Figure 4.10 shows a weak correlation (R^2=0.01), which is not statistically significant.

Figure 4.10: Relationship between TFR and Infant Mortality Rate (2007-2010)
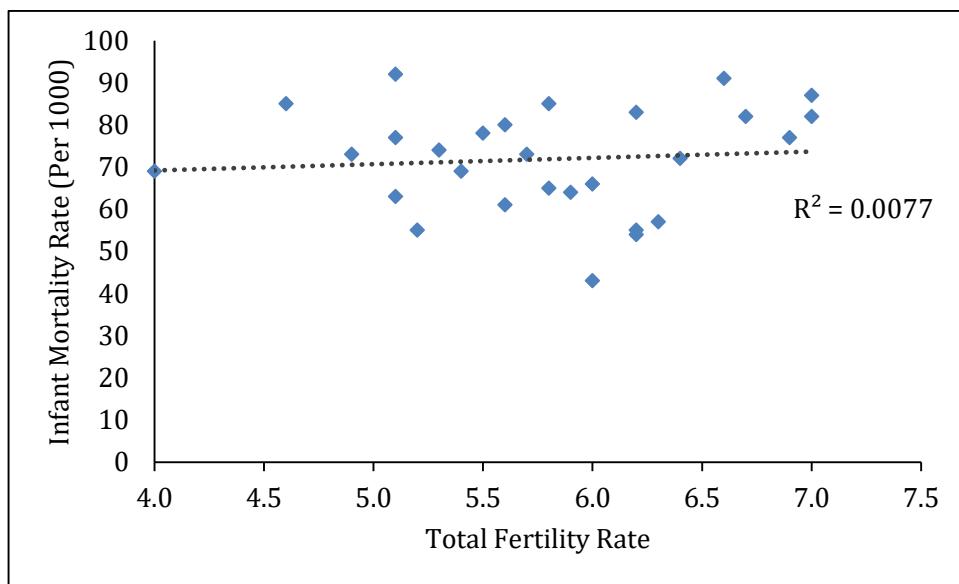
Although under-five mortality is high (66 deaths per 1000 live births) and IMR (deaths per 1000 live births) (National Statistical Office (NSO) and ICF Macro 2011), the results for the relationship between fertility and infant mortality in this analysis seem to fail to confirm the hypothesis which suggests that when infant mortality is high, couples tend to have many children as an insurance to further loss, or to replace the child who has died immediately—both scenarios which lead to high fertility. Infant mortality, though positively related to TFR, is not significant. The lack of relationship between IMR and TFR may reflect the district homogeneity in child mortality levels that is found between and within the districts.

Figure 4.11: Age specific fertility rates (ASFRs) among women aged 15 – 49, Malawi 2010 Demographic Health Survey.
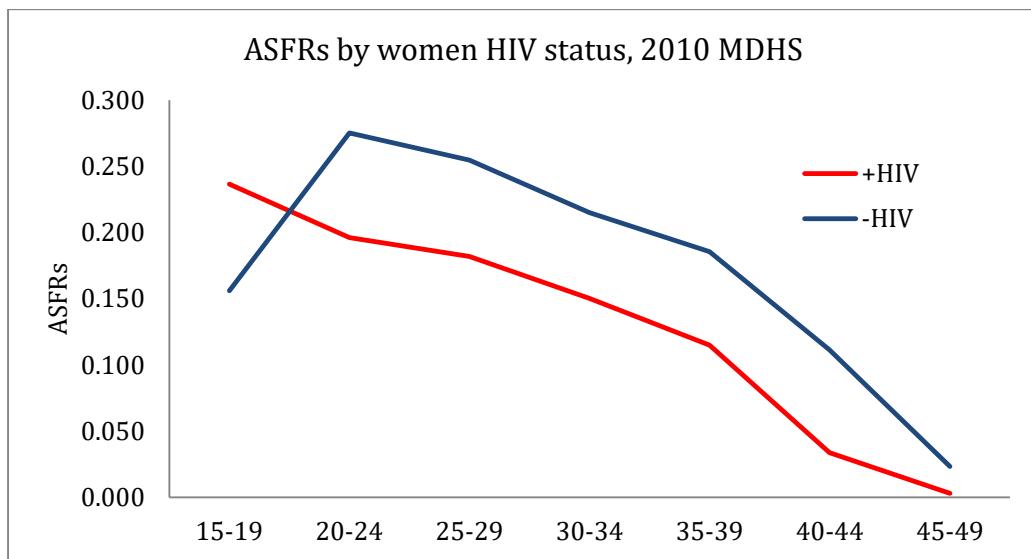
An examination of the relationship between women who were HIV positive and HIV negative presented in Figure 4.11 shows the expected trend. However, the TFR is also high among seropositive women suggesting that the desire to have more children is high. This study took into account the effect of HIV/AIDS on fertility. Malawi's HIV prevalence has stabilised from 13.2% to 10.0% (NAC, 2011). However, this is compared to the neighbouring countries Kenya, Mozambique, Zambia Tanzania. The high TFR level among women who are seropositive may be a response to behavioural changes in response to HIV/AIDS, which can lead to a decline or even an increase in fertility (Rutenberg, Biddlecom et al. 2000, Ntozi, Mulindwa et al. 2001, Ntozi 2002). As HIV advances and progresses to AIDS due to lowered immune system, other opportunistic infection such as gonorrhoea and chlamydia cause pelvic inflammatory disease, which significantly reduce the ability to conceive (Grieser, Gittelsohn et al. 2001). Fertility may be reduced by increases in secondary infertility and foetal loss brought on by the disease and its associated opportunistic infections, delayed onset of sexual relations and marriage, increased divorce and widowhood, reduced remarriage and increased condom use (Grieser, Gittelsohn et al. 2001).

4.7 Cumulative Fertility (Lifetime Fertility)

Another way of assessing changes in fertility level is to examine cumulative fertility, which refers to the number of children, or average number of children, born prior to a certain age. It is expected that the mean number of children ever born (MCEB) should increase with the increasing age of a woman (Swanson, Siegel et al. 2004). A closer inspection of Table 4.6 shows that the decline in MCEB is concentrated more among older than younger women, suggesting a tendency towards limiting births after 30 years of age. However, average parities by birth cohort have remained fairly stable for most of the birth cohorts, in particular the younger cohorts. In almost all age groups where the average parity commences with a decline in 2000, the trend is disrupted in 2004.

Table 4.6: Average parity of children born to women aged 15–49, 2000-2010 MDHS

| | 2000 | | | 2004 | | | 2010 | | |
Age	MCEB	SD	No.	MCEB	SD	No.	MCEB	SD	No.
15-19	0.3	0.6	2867	0.3	0.6	2392	0.2	0.5	5005
20-24	1.6	1.1	2957	1.6	1.1	2870	1.6	1.1	4555
25-29	3.1	1.5	2401	3.0	1.4	2157	3.0	1.3	4400
30-34	4.5	2.0	1566	4.4	1.8	1478	4.2	1.7	3250
35-39	5.6	2.4	1424	5.6	2.3	1117	5.5	2.1	2522
40-44	6.6	2.8	1053	6.3	2.6	935	6.3	2.5	1730
45-49	7.0	3.1	951	6.8	3.0	749	6.9	2.8	1558
TFR	6.4			6.0			5.7		

SD=Standard deviation, MCEB=mean number of children ever born, Source: computed from the 2000-2010 MDHS

Given the timing of the three enquiries, it is expected that the 2010 estimate should be the lowest, but this is not the case. The average parity of women aged 45–49 in 2010 is a little higher (by 0.1 child) than in 2004. Underreporting of births in 2004 might be the attributing factor for this value, and should not raise suspicion of serious irregularities in reporting (see Section 3.33). The gap between 2004 and 2010 is too short to notice substantial changes in lifetime fertility. Nevertheless, this measure shows that fertility is declining in Malawi, as supported by an increasing trend in the cumulative fertility from one cohort to the next.

Reporting of an overall MCEB based on women aged 15–49 suffers serious biases. This is because it is affected by the age distribution. For example, in developing countries, women of childbearing age are concentrated more in their twenties than in thirties,

and more in thirties than in their forties (Swanson, Siegel et al. 2004). The use of average parity for women aged 45–49 is very useful in assessing fertility change, since women in this age group are near their reproductive period. The fertility for women age 45–49 should reflect a completed family size and should be equal to TFR under constant fertility, mortality and migration assumption (Swanson, Siegel et al. 2004).

Further examination of average parities by socioeconomic characteristics is shown in Table 4.7. As expected, place of residence and level of education show great variation in MCEB. Women residing in urban settings have a lower average number of children than their rural counterparts at three time points. Over time, the urban and rural areas registered modest fertility change, with the exception of urban women belonging to the age group 15–24 (2000) and rural women aged 35–49 (2010), where there was no change. This was also true for urban women for both surveys among women aged 35–49. Among women in the age group 35–49, fertility declined from 6.4 (2000) to 6.2 children in 2010. Rural areas had slightly lower fertility than urban areas. The pattern is the same for the age group 25–34.

MCEB decreases with a woman's increasing education level. The difference is obvious within each survey but not so across the surveys: here, the pattern is discernible among women with at least upper primary education. Further, the largest change in MCEB applies to women who attained secondary and higher education, where it declined from 5.2 children in 2000 to 4.2 children in 2010. Also, it is worth mentioning that the completed family size for 2010 (7.4) was higher than that for both 2000 (7.0) and 2000 (6.9) for women with no education, suggesting possible omission of births in the previous surveys. This is not surprising given the level of education.

Table 4.7: Mean number of children ever born for women ages 45–49, according to selected background characteristics, 2000–2010 MDHS

Background characteristics	Survey year								
	2000			2004			2010		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Malawi	7.0	3.1	951	6.8	3.0	749	6.9	2.8	1558
Residence									
Urban	5.7	2.7	105	6.0	2.6	102	6.2	2.8	242
Rural	7.2	3.1	846	7.0	3.0	647	7.1	2.8	1316
Region									
North	6.7	2.7	91	6.8	2.6	98	6.8	2.4	196
Central	7.6	3.1	347	7.2	2.9	291	7.3	2.8	722
South	6.6	3.2	513	6.6	3.1	360	6.5	3.0	640
Education									
No education	7.0	3.1	485	6.9	3.1	375	7.4	2.9	624
Primary (1-4)	7.3	3.2	275	7.0	3.0	177	7.1	2.7	455
Primary (5-8)	6.8	3.2	157	6.8	2.8	165	6.4	2.7	418
Secondary and higher	5.6	2.1	(34)	5.0	2.5	(33)	4.2	2.0	60
Wealth index									
Poorest	7.5	3.0	241	7.0	3.0	177	7.2	2.7	333
Poor	7.3	3.1	232	6.8	2.9	123	7.6	2.8	308
Middle	6.4	3.2	176	7.1	3.1	158	7.2	2.8	291
Rich	6.8	3.4	164	7.1	2.9	164	6.6	2.9	322
Richest	6.5	2.8	138	5.8	2.8	127	6.0	2.6	303
Ethnicity									
Chewa	7.8	3.1	289	7.6	2.8	236	7.3	2.8	541
Tumbuka/Tonga	6.8	3.0	78	7.0	2.5	91	6.7	2.5	175
Lomwe	6.0	3.1	173	6.6	3.4	138	5.8	2.9	227
Yao	7.1	3.2	159	6.2	3.0	95	7.4	2.7	205
Ngoni	7.0	2.7	113	6.1	3.1	85	6.8	2.9	228
Other	6.6	3.2	139	6.6	3.0	104	6.9	2.8	181
Marriage type									
Monogamous	7.2	3.1	559	7.3	2.9	437	7.3	2.8	906
Polygamous	6.7	3.2	180	6.9	3.0	108	7.0	2.7	249
Religion									
Catholic	7.0	3.1	238	6.8	3.0	171	6.6	2.9	358
CCAP	6.9	3.4	155	6.5	2.9	134	6.5	2.8	261
Pentecost	7.1	3.0	354	7.0	3.1	292	7.1	2.7	621
Muslim	6.9	3.3	149	6.4	3.0	90	7.4	2.7	193
Other	6.8	2.9	55	7.6	2.7	62	6.7	3.2	125

Source: Computed from 2000, 2004 and 2010 MDHS

MCEB also varies by quintiles of wealth index, ethnicity, marriage type and religion, although the changes are not substantial compared to level of education. With respect to region, a declining trend over time is observed in the southern and central regions but the change is muted in the northern region.

4.8 Evidence of Fertility Decline in Malawi from a Cohort Analysis

Measuring fertility using the period approach has limitations, in that it does not measure the completed fertility of an entire cohort, and thus it is not possible to follow women from beginning to end of their reproductive life cycle. This is important in a country that is experiencing a slow fertility decline, since it raises suspicion about whether the decline is due to fertility change or because of errors in data such as underreporting of births or birth displacement (Pullum 2006, Schoumaker 2011). To improve on this limitation, cohort measures of fertility are used which utilise birth histories.

4.8.1 Computation Procedure

Birth histories can be used to compute cohort and period fertility rates for successive periods before the survey to obtain recent fertility trends or to get a better consistency check of fertility across the surveys (Hobcraft and Little 1984, Moultrie, Dorrington et al. 2013). Computation of cohort fertility rates involves sequential use of births and number of women. The procedure for the first panel involves generating the weighted number of children born by age group and period before the survey (Tables 4.8-4.10). Similarly, it involves calculation of the number of women by age cohort. The information on weighted number of children and number of women by age cohort is then used to compute the fertility exposure of different cohorts as they pass through different ages of childbearing in Panel A. The next step requires dividing children ever born in each cell in Panel A by the product of average exposure years and population of women exposed to the risk of childbearing. The aim is to generate age-cohort fertility rates. The resulting age-cohort specific fertility rates are then cumulated by cohort P in Panel B and by Period F in Panel C. Panel D is obtained by comparing the cumulated age-specific fertility rate by age P to the coresponding age-specific fertility rate.

Since the cut-off age in DHS surveys is 49 years, some cells have missing information. This is because, going back in time, increasingly there is less information about older women. These should be interpreted to be outside the time and age range of the survey. For example, going back more than five years, there will be no information about women age 45 and over. Similarly, if the period is over 10 years, information about women age 40 and over is non-existent. The estimates that go beyond 20 years

before the survey should be excluded because there are increasing chances of omission, displacement and selectivity, as the information pertains to only surviving women out of the original cohort (Pullum 2006). This tends to increase from the recent to the remote period before the survey.

Table 44.8:   Age-Period-Specific Fertility Rates for women, 2000 MDHS

Age group of cohort at end of period	Year Prior to Survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
A: Cohort-Period Fertility Rates							
15-19	0.164	0.154	0.173	0.186	0.185	0.191	0.139
20-24	0.304	0.309	0.311	0.299	0.325	0.283	
25-29	0.270	0.284	0.303	0.297	0.306		
30-34	0.218	0.255	0.267	0.269			
35-39	0.165	0.192	0.231				
40-44	0.095	0.132					
45-49	0.049						
B: Cumulative Fertility of Cohorts at End of Period (P)							
15-19	0.818	0.771	0.867	0.929	0.925	0.955	0.693
20-24	2.289	2.410	2.484	2.421	2.582	2.105	
25-29	3.761	3.902	3.937	4.068	3.635		
30-34	4.990	5.210	5.402	4.979			
35-39	6.035	6.359	6.134				
40-44	6.834	6.793					
45-49	7.040						
C: Cumulative Fertility Within Periods (F)							
15-19	0.818	0.771	0.867	0.929	0.925	0.955	0.693
20-24	2.336	2.314	2.421	2.425	2.552	2.367	
25-29	3.687	3.732	3.938	3.911	4.082		
30-34	4.775	5.005	5.272	5.255			
35-39	5.600	5.962	6.427				
40-44	6.075	6.621					
45-49	6.322						
D: P / F Ratios							
15-19	1.000	1.000	1.000	1.000	1.000	1.000	1.000
20-24	0.980	1.041	1.026	0.998	1.012	0.889	
25-29	1.020	1.046	1.000	1.040	0.891		
30-34	1.045	1.041	1.025	0.947			
35-39	1.078	1.067	0.954				
40-44	1.125	1.026					
45-49	1.114						

Source: Computed from 2000, 2004 and 2010 MDHS

Table 4.9: Period-Specific Fertility Rates for women, 2004 MDHS

Age group of cohort at end of period	Year Prior to Survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
A: Cohort-Period Fertility Rates							
15-19	0.160	0.165	0.180	0.176	0.186	0.174	0.141
20-24	0.292	0.295	0.322	0.292	0.310	0.311	
25-29	0.253	0.275	0.302	0.295	0.295		
30-34	0.222	0.225	0.276	0.257			
35-39	0.162	0.168	0.237				
40-44	0.088	0.126					
45-49	0.037						
B: Cumulative Fertility of Cohorts at End of Period (P)							
15-19	0.800	0.824	0.900	0.881	0.931	0.871	0.707
20-24	2.285	2.373	2.492	2.393	2.419	2.263	
25-29	3.637	3.865	3.901	3.895	3.737		
30-34	4.975	5.026	5.277	5.021			
35-39	5.837	6.116	6.205				
40-44	6.558	6.835					
45-49	7.022						
C: Cumulative Fertility Within Periods (F)							
15-19	0.800	0.824	0.900	0.881	0.931	0.871	0.707
20-24	2.261	2.297	2.511	2.343	2.479	2.427	
25-29	3.525	3.670	4.019	3.819	3.953		
30-34	4.635	4.795	5.401	5.103			
35-39	5.445	5.635	6.585				
40-44	5.887	6.265					
45-49	6.074						
D: P / F Ratios							
15-19	1.000	1.000	1.000	1.000	1.000	1.000	1.000
20-24	1.011	1.033	0.992	1.022	0.976	0.932	
25-29	1.032	1.053	0.971	1.020	0.945		
30-34	1.073	1.048	0.977	0.984			
35-39	1.072	1.085	0.942				
40-44	1.114	1.091					
45-49	1.156						

Source: Computed from 2000, 2004 and 2010 MDHS

Table 4.10: Age-Period-Specific Fertility Rates for women, 2010 MDHS

Age group of cohort at end of period	Year Prior to Survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
A: Cohort-Period Fertility Rates							
15-19	0.154	0.178	0.176	0.168	0.175	0.192	0.164
20-24	0.270	0.295	0.316	0.304	0.308	0.307	
25-29	0.240	0.276	0.291	0.290	0.296		
30-34	0.208	0.237	0.251	0.291			
35-39	0.158	0.169	0.206				
40-44	0.082	0.112					
45-49	0.034						
B: Cumulative Fertility of Cohorts at End of Period (P)							
15-19	0.771	0.889	0.881	0.842	0.875	0.962	0.819
20-24	2.237	2.354	2.423	2.393	2.502	2.353	
25-29	3.556	3.803	3.848	3.951	3.833		
30-34	4.840	5.032	5.206	5.286			
35-39	5.820	6.049	6.316				
40-44	6.459	6.874					
45-49	7.046						
C: Cumulative Fertility Within Periods (F)							
15-19	0.771	0.889	0.881	0.842	0.875	0.962	0.819
20-24	2.119	2.362	2.462	2.361	2.415	2.497	
25-29	3.320	3.742	3.917	3.809	3.894		
30-34	4.358	4.925	5.172	5.262			
35-39	5.146	5.768	6.203				
40-44	5.557	6.326					
45-49	5.728						
D: P / F Ratios							
15-19	1.000	1.000	1.000	1.000	1.000	1.000	1.000
20-24	1.056	0.997	0.984	1.014	1.036	0.943	
25-29	1.071	1.016	0.982	1.037	0.984		
30-34	1.111	1.022	1.006	1.004			
35-39	1.131	1.049	1.018				
40-44	1.162	1.087					
45-49	1.230						

Source: Computed from 2000, 2004 and 2010 MDHS

It should also be noted that the missing information and reporting of births for certain age groups may appear much inflated. This is because contributions to that rate come from only some of the women in the age group. The TFR and ASFR comparisons are based on a cumulative sum (x5) that describes fertility only up to age 35 in Table 4.11. The panels presented in Table 4.11 are obtained from Panel A of each of the Tables 4.8-4.10, which represent, respectively, changes in cohort period fertility rates over time in 2000, 2004 and 2010.

Evidence from Table 4.11 shows that TFR in Malawi started to decline 10–14 years before the survey. Using 2000 as a benchmark, a consistent but small decline observed over this period may suggest that the onset of fertility transition in Malawi might have begun in mid-1980, later than estimated by previous research (Cohen 1998, Harwood-Lejeune 2000). The decline is more pronounced in the two most recent periods (5–9 and 0–4 years) particularly before the 2010 survey. During this period, the largest fertility decline was recorded among women aged 15–19 years. Though marginal, the decline appears to occur at all ages, which closely matches with what Caldwell, Orubuloye et al. (1992) had predicted about new type of fertility transition in Africa, whereby fertility would decline across all age groups.

Table 4.11: Cohort-Period Age-Specific Fertility Rates and percentage change, 2000–2010 MDHS

Age group of cohort at end of period	Period Prior to Survey				
	0-4	$_{0-4}\Delta_{5-9}$	5-9	$_{5-9}\Delta_{10-14}$	10-14
2000 MDHS					
15-19	0.164	6.10	0.154	-11.1	0.173
20-24	0.304	-1.60	0.309	-0.70	0.311
25-29	0.270	-4.80	0.284	-6.50	0.303
30-34	0.218	-14.5	0.255	-4.60	0.267
35-39	0.165	-13.8	0.192	-17.1	0.231
40-44	0.095	-27.9	0.132		
45-49	0.049				
TFR (<35)	4.8		5.0		5.3
2004 MDHS					
15-19	0.160	-2.90	0.165	-8.40	0.18
20-24	0.292	-0.80	0.295	-8.60	0.322
25-29	0.253	-8.00	0.275	-8.90	0.302
30-34	0.222	-1.40	0.225	-18.6	0.276
35-39	0.162	-3.50	0.168	-29.1	0.237
40-44	0.088	-29.9	0.126		
45-49	0.037				
TFR (<35)	4.6		4.8		5.4
2010 MDHS					
15-19	0.154	-13.3	0.178	0.90	0.176
20-24	0.270	-8.50	0.295	-6.80	0.316
25-29	0.240	-12.9	0.276	-5.20	0.291
30-34	0.208	-12.3	0.237	-5.70	0.251
35-39	0.158	-6.50	0.169	-18.2	0.206
40-44	0.082	-26.4	0.112		
45-49	0.034				
TFR (<35)	4.4		4.9		5.2

$_{0-4}\Delta_{5-9}$ percentage change between 0-4 and 5-9 before the survey
Source: Computed from 2000, 2004, 2010 MDHS.

4.9   Fertility Differentials by Place of Residence

The use of three surveys at different time points provides strong evidence of the onset of fertility decline when rural and urban differentials are considered. The onset of the fertility transition can be dated to either the period when rates in urban and rural areas started to diverge, or to when fertility levels began to decline in urban areas (Garenne 2008). Tables 4.12 and 4.13 show that fertility in the urban areas started to decline five years earlier than in the rural areas; 15–19 years before the 2000 survey in urban areas, compared with 10–14 years earlier in rural areas.

Fertility decline in urban areas is also more pronounced among the younger age groups. It is likely that young women are attending school and use contraception to delay births, while older age groups could instead be using contraceptives for limiting the number of children they have. The group for whom fertility decline has been negligible is the 20–29 year group. This is not surprising because childbearing peaks at this age group, and it is unlikely that women at that age would start limiting yet.

Table 4.12: Age-Period-Specific Fertility Rates for urban women and percentage change, 2000–2010 MDHS

Age group of cohort at end of period	Period Prior to Survey				
	0-4		5-9		10-14
		$_{0-4}\Delta_{5-9}$		$_{5-9}\Delta_{10-14}$	
2000					
15-19	0.124	9.80	0.113	-26.0	0.152
20-24	0.228	-16.1	0.272	-1.70	0.276
25-29	0.236	-9.10	0.260	-10.0	0.289
30-34	0.152	-28.2	0.212	-6.00	0.226
35-39	0.098	-34.3	0.149	0.70	0.148
40-44	0.046	-27.2	0.063		
45-49	0.014				
TFR (<35)	3.7		4.3		4.7
2004					
15-19	0.114	-17.3	0.137	-6.20	0.146
20-24	0.234	-2.60	0.240	-24.5	0.318
25-29	0.177	-20.8	0.224	-22.0	0.287
30-34	0.171	-10.0	0.190	-11.3	0.214
35-39	0.096	-18.8	0.118	-32.5	0.175
40-44	0.037	-48.7	0.072		
45-49	0.018				
TFR (<35)	3.5		4		4.8
2010					
15-19	0.111	-19.5	0.138	7.70	0.129
20-24	0.201	-21.7	0.257	-5.60	0.272
25-29	0.202	-3.00	0.208	-20.0	0.260
30-34	0.142	-34.5	0.217	12.4	0.193
35-39	0.114	12.4	0.101	-25.7	0.136
40-44	0.038	-36.7	0.060		
45-49	0.003				
TFR (<35)	3.3		4.1		4.3

Source: Computed from 2000, 2004 and 2010 MDHS

$_{0-4}\Delta_{5-9}$ percentage change between 0-4 and 5-9 before the survey

Table 4.13 shows that large fertility decline is limited to women aged 40 and over, suggesting limiting of births in rural areas. However, it is likely that the slow fertility decline may be attributed to the fact that women start limiting behaviour very late in their reproductive careers. Even if this is the case, it is unlikely to have an effect on high fertility since the group that has had already a high number of children.

Table 4.13:   Age-Period-Specific Fertility Rates for rural women, 2000–2010 MDHS

Age group of cohort at end of period	Period Prior to Survey				
	0-4		5-9		10-14
		$_{0\text{-}4}\Delta_{5\text{-}9}$		$_{5\text{-}9}\Delta_{10\text{-}14}$	
2000					
15-19	0.173	5.60	0.163	-7.80	0.177
20-24	0.321	1.60	0.316	-0.30	0.317
25-29	0.277	-3.80	0.288	-5.80	0.305
30-34	0.228	-12.4	0.261	-4.40	0.273
35-39	0.175	-11.5	0.197	-17.7	0.240
40-44	0.102	-26.6	0.139		
45-49	0.053				
TFR (<35)	5.0		5.1		5.4
2004					
15-19	0.172	0.00	0.172	-7.80	0.187
20-24	0.308	0.90	0.305	-5.50	0.323
25-29	0.268	-5.60	0.283	-6.80	0.304
30-34	0.231	-0.10	0.231	-19.1	0.286
35-39	0.174	-0.90	0.175	-28.8	0.246
40-44	0.096	-28.4	0.134		
45-49	0.040				
TFR (<35)	4.9		5.0		5.5
2010					
15-19	0.165	-12.4	0.188	0.0	0.188
20-24	0.288	-5.4	0.304	-6.6	0.326
25-29	0.250	-14.0	0.291	-1.9	0.296
30-34	0.222	-7.7	0.240	-8.2	0.262
35-39	0.165	-8.6	0.181	-17.5	0.219
40-44	0.090	-25.5	0.121		
45-49	0.040				
TFR (<35)	4.6		5.1		5.4

Source: Computed from 2000, 2004 and 2010 MDHS

$_{0\text{-}4}\Delta_{5\text{-}9}$ percentage change between 0-4 and 5-9 before the survey

4.10   Application of *P/F* Ratios to Birth Histories

Further insights into trends of fertility transition can be gained by comparing the ratios of the successive birth cohorts known as *P/F* ratios. The technique involves dividing the number of births by the product of the number of women in the cohort and the number of years of exposure.

By applying this procedure to the successive data, not only does the method serve as a diagnostic tool in assessing the quality of data, but it also aids detection if there have been fertility reductions across the age groups (Moultrie, Dorrington et al. 2013).

Table 4.14 compares the reported children ever born (CEB) with current fertility in the year preceding the survey. It is expected that, with the progression of age, the P/F ratio should increase. It has to be noted, however, that the P/F ratios among women aged 15–19 years are disregarded in interpretations, because they have a short reproductive experience and their information becomes problematic in the interpretation of data.

Table 4.14: P/F ratios by survey year, 2000–2010 MDHS

	Period Prior to Survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
P/F Ratios: 2000							
15-19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20-24	0.98	1.04	1.03	1.00	1.01	0.89	
25-29	1.02	1.05	1.00	1.04	0.89		
30-34	1.05	1.04	1.02	0.95			
35-39	1.08	1.07	0.95				
40-44	1.12	1.03					
45-49	1.11						
P/F Ratios: 2004							
15-19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20-24	1.01	1.03	0.99	1.02	0.98	0.93	
25-29	1.03	1.05	0.97	1.02	0.95		
30-34	1.07	1.05	0.98	0.98			
35-39	1.07	1.09	0.94				
40-44	1.11	1.09					
45-49	1.16						
P/F Ratios: 2010							
15-19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20-24	1.06	1.00	0.98	1.01	1.04	0.94	
25-29	1.07	1.02	0.98	1.04	0.98		
30-34	1.11	1.02	1.01	1.00			
35-39	1.13	1.05	1.02				
40-44	1.16	1.09					
45-49	1.23						

Source: Computed from 2000, 2004 and 2010 MDHS

With the exception of women aged 20–24 years 0–4 years before the 2000 survey, Table 4.14 shows that the estimates of P/F ratios are above one, with an increasing trend as the age progresses. Further, the magnitude of the P/F ratios gradually increases from the period 10–14 years before the most recent survey. The change is largest in the most recent survey, which confirms that fertility is declining. When fertility is declining, the values of P/F ratios increase from one (Hobcraft and Little

1984). It is also worth mentioning that the largest increase is observed in the most recent survey among women aged 40 years and over, where the P/F ratios increase from one by 16% (40–44 years) to 23% (40–49 years). This is an indication that the declines were confined to these age groups, a pattern which is consistent with previous analysis in Table 4.3.

4.11   Discussion and Conclusion

The findings from both measures of period and cohort fertility show that Malawi is in a fertility transition, albeit a slow one. Although the transition is underway, the results show that the level of fertility remains high; TFR declined from 7.6 in 1977 to 5.7 children per woman in 2010, representing a 25% decline over 33 years. This is rather slow when compared to previous research in the region (Guengant and May 2011). The slow fertility decline may be attributed to the fact that women start childbearing early—a fact confirmed by the analysis of ASFRs.

The analysis of ASFRs show that the decline has been occurring across all age groups, which is consistent with that observed in other sub-Saharan countries. It is also consistent with (Caldwell, Orubuloye et al. 1992) prediction of an African fertility transition different from that which occurred in Asia and Latin America, where the narrowing of the age pattern accompanied fertility decline.

The findings from the applications of period fertility and the P/F ratio method to estimate fertility levels showed that the reduction in fertility was progressively higher among older women. This might not be surprising considering that women in the rural areas start limiting births when they have reached the desired number of children, which often happens at high parities. In agreement with this, the findings also showed that the gap in TFR between urban and rural areas remains wide, suggesting that fertility in rural areas has not declined faster than in urban areas. Previous work in the region shows that, when fertility is declining fast in the rural areas, the ASFR schedule closes in on that of the urban areas (Shapiro, Kreider et al. 2010). However, this pattern is less obvious for Malawi.

In terms of locating the timing of the transition, the analysis shows that fertility transition started in 1980 in the urban and commenced five years later in the rural

areas. The finding supports earlier studies by (Garenne and Joseph 2002) and (Cohen 1998). The difference in timing of the onset of fertility between the urban and rural areas is because urban residence is significantly associated with greater use of contraceptives, lower proportions of women who are married, and reduced infant and child mortality rates.

The findings show that not all the districts in the country experienced fertility decline. In some instances, districts' fertility increased, while in others, fertility declined. It is not clear the reasons for the increase, because according to the 2008 PHC Karonga, one of the districts which registered an increase in TFR. The most important factor explaining the increase is can be attributed to inter-regional migration in the country resulting from the periodic labour migration. As a consequence of the growing need for labour, it is likely that the migrants from other districts with high fertility have settled in the district. It is also worth noting that Chiradzulu is the only recorded example of non-urban district where fertility declined to fewer than five children per woman. In 2004 the Malawi Government with support from the World Bank launched the Community-Based Rural Land Development Project popularly known as *Kudzigulira Malo*, a vernacular for self-acquisition of land (Chinsinga 2008). The aim of the project was to improve efficiency of land use by bringing idle land into production in the country. Consequently, 14,000 households relocated from the densely populated Thyolo and Mulanje districts to Machinga and Mangochi districts (ibid, 2008). Chiradzulu also shares borders with Blantyre, the main commercial city in Malawi. It seems likely that the conservative cultural norms and practices regarding family planning may have been influenced the district through the spread of modern ideas (Bongaarts and Watkins, 1996; Watkins and Danzi, 1995).

The districts that registered high TFR (above seven children per woman) in the last decade had also greatest fertility declines. Despite reductiona in TFR levels, the majority of districts still register high levels of fertility, of six children per woman in 2010.

Finally, of all the subgroups, the findings indicate that variations were greatest by level of education. Women who are educated are likely to use modern contraceptives to achieve their desired fertility, as well as to have higher socioeconomic status (Tabutin and Schoumaker 2004). The influence of education on fertility can be explained by the

fact that, even for women with incomplete education (primary 1–4), the TFR was lower than for women with no education.

In conclusion, fertility remains high, although it is declining at a slow pace. High fertility particularly observed in the rural areas suggests that traditional pronatalist attitudes remain strong in Malawi. The findings from the chapter confirm that transition to lower fertility is underway in Malawi, but it is in its early stages. With 85% of the population residing in the rural areas, significant change in TFR will depend on the changes that occur in the rural areas where TFR remains five and above children per woman.

Chapter 5.   Changes in the Proximate Determinants of Fertility

5.1   Introduction

The analysis so far has focused on the changes in fertility over time. As shown in the conceptual framework, the principal components affecting fertility change are proportion of women married, contraception, postpartum insusceptibility (breastfeeding and abstinence), infertility and abortion (Bongaarts 1978, Bongaarts and Potter 1983). The previous chapter has shown that there has not been substantial fertility decline, so it may be that the proximate determinants have also not changed. However, we know that contraception has changed substantially, so it would be interesting to see which other changes have happened which may be having a nullifying effect on contraception. Since these proximate determinants are also determined by sociocultural factors, a background to the sociocultural practices regarding some of the proximate determinants is also provided in this chapter, with a view to shedding more light on fertility transition in Malawi.

The chapter is organised as follows. Section 5.2 provides a background to marriage systems in Malawi before examining changes in nuptiality patterns. Section 5.4 to 5.5 provide changes in the postpartum variables (breastfeeding, amenorrhoea and abstinence). Section 5.8 to 5.9 examine the overall impact of the proximate determinants of fertility to the overall fertility.

5.2   Marriage Formation in Malawi

This section presents the various forms of marriage in Malawi. Some of the various cultural practices regarding marriage influence fertility differently, by contributing to early marriages. Thus, understanding different forms of marriage formations may help to understand how they contribute to sustaining high TFR in the country.

5.2.1   Forms of Marriage

Marriage marks the beginning of the time when women are exposed to the greater risk of pregnancy, and it is important for the understanding of fertility levels. In Malawi, marriage is almost universal (Palamuleni 2008) and is governed by social and cultural factors (Zulu 2001). Marriage can be arranged in various ways that include customary,

religious, civil, and mutual consent (Malawi Human Rights Commission (MHRC) 2006). As it will be shown in the following sections, the different forms of marriages allow couples to form partnerships easily and live as husband and wife, as well as to start childbearing early, which has a bearing on the persistence of the high level of fertility in the country.

<u>Customary Marriage</u>

The most common form of marriage in Malawi is customary marriage, and it involves the consent of both the groom and bride. Under customary marriage, a long period of negotiations may elapse before both sides formalise the union (Malawi Human Rights Commission (MHRC) 2006). This duration varies considerably as it largely depends on the ethnic group of the parties, and the observance of other cultural practices (Zulu 2001). The process is characterised by the negotiation from both sides regarding the amount of payment of lobola. It is during this time that each side investigates the character of the bride or the groom. If during this phase the girl becomes pregnant before marriage, which is shameful for both the girl and her family, the process is hastened and the groom, who is seen as the offended party, is fined by the father of the daughter to compensate for the unlawful pregnancy and bringing shame to the family.

In other areas where there is cultural stigma for a girl who becomes pregnant before marriage, she may experience social ostracism (Mturi and Moerane 2001, Mokomane 2006, Obare, van der Kwaak et al. 2012, Rangiah 2012). In Malawi the extent to which pre-marital childbearing is tolerated may be related to social organisation: whether the society is matrilineal or patrilineal (Zulu 1996, Mtika and Doctor 2002).

Premarital births may be more tolerated in matrilineal societies than in patrilineal ones. According to the participants in FGDs, in matrilineal societies if a woman gives birth before marriage, the child will enjoy membership of the mother's lineage, just like children born within marriage. The participants further said that, in patrilineal societies, children generally belong to the lineage of the man who paid bride wealth, and marriage is the most important and best recognised institution for childbearing. The implication of the difference in the lineage systems is that fertility tends to be higher under the matrilineal system than under the patrilineal system (Caldwell, Orubuloye et al. 1992).

143

Religious Marriage

Another form of union is religious marriage. This type of marriage is celebrated with a religious ceremony when one or both of members are affiliates of Christian or Muslim faiths (Malawi Human Rights Commission (MHRC) 2006). The marriages are monogamous as per Christian faith and indissoluble. However, empirical evidence suggests that, while Malawi is predominantly a Christian country (Yeatman 2008, National Statistical Office 2010), polygamy among men and women of Christian faith is common (Anglewicz 2012, Reniers and Tfaily 2012). In Malawi, the proportion of women reporting having ever been in a polygynous union was high at 50% (Boileau, Clark et al. 2009). In addition, although sexual activity was infrequently reported by women, nearly half of women said they knew that at least one of their husbands had had extramarital partners while they were married (Boileau, Clark et al. 2009). Has been the cause of divorce leading Malawi to be one of the countries with the highest divorce rates in sub (Reniers 2003).

Statutory Marriage

Marriage in Malawi can also take the form of statutory marriage and it applies for couples who intend to legitimise their relationship through statutory offices. Before a marriage under this regime can be solemnised, a notice of the couple's intention to marry is served to the registrar of marriages (Malawi Law Commission 2006). One of the requirements is that parties must be at least 21 years old. However, individuals who are below this age, the parents of the couples, a religious leader of the institutions to which the concerned individual is affiliated, or a judge of the High Court can give consent for the marriage to take place (Malawi Law Commission 2006). In essence, the law allows couples to get married before reaching 21 years of age. Just like under the religious marriage regime, statutory marriage is indissoluble unless by the decree of the registrar of marriage or courts (Malawi Human Rights Commission (MHRC) 2006). Because this type of marriage is expensive, it is more common among urban and educated people. It is also worth mentioning that civil marriages often take place after traditional obligations for solemnising marriage have been met, such as exchanges of bride wealth.

<u>Cohabitation</u>

People can form a relationship without going through the formalities that are followed in customary, civil and religious marriage regimes. This type of union is based on mutual consent and it starts with temporary cohabitation (Ntata and Sinoya 1999). The relationship may then transfer into a permanent one, where the man and woman live like husband and wife (Malawi Human Rights Commission (MHRC) 2006). This type of marriage is common in rural communities, and more practised in matrilineal than patrilineal areas, as the former are less affected by the traditional requirement of bride wealth payments (Mtika and Doctor 2002).

In February 2015, the Government of Malawi passed the Marriage, Divorce and Family Relations Bill in February 2015 aimed to address the problem of early marriages created by the different regimes of marriage mentioned above (Malawi Parliament 2015). The law will, among other things, address early marriage practices sanctioned by many ethnic groups, by raising the minimum age of marriage from 14 to 18 years for girls. Nevertheless, there are no punitive measures outlined in the act if minors marry contrary to the stipulations of the law.

5.3   The Process of Patrilineal and Matrilineal Marriages

Marriage in Malawi predominantly falls under patrilineal and matrilineal marriage regimes (Phiri 1983, Chimbiri 2007). In each marriage regime, the formalities and procedural requirements for entering into a marriage vary according to the customs of the various ethnic groups (Mtika and Doctor 2002). The young couple intending to marry inform their respective maternal uncles that they wish to marry. It is the responsibility of the uncles to start the process of negotiation. The negotiations usually start with a meeting between both sides. As mentioned in the FGDs conducted by the author, a day is agreed by both sides for the ceremony marking the marriage of the bride and the groom, known as *chinkhoswe*. Relations and other members of both families attend the ceremony, which signifies the public and social sanctioning of the union. The ceremony of *chinkhoswe* is so significant that the family members then treat the couple as married (Mtika and Doctor 2002).

Under the matrilineal ceremony, marriage is usually validated by the meeting of the representatives from the bride and the groom's side known as a *nkhoswe* (Wanda 1988) Marriage transactions are not very substantial, often characterised by payment of a chicken. Residence is matrilocal, in that the groom relocates to the bride's family (Chimbiri 2007).

As a contrast to the matrilineal marriage, in patrilineal systems it is an essential requirement for the bridegroom to pay bride wealth known as *lobola* to the bride's guardians. In patrilineal marriage, the groom's side approaches the other side to ask for the price of the bride wealth leading to negotiations. During the focus group discussions, it emerged repeatedly that that the negotiations may be prolonged and may sometimes break down if the uncles concerned in the negotiations do not agree on the amount demanded by the bride's side, especially under the patrilineal system. It also echoed that the full amount of the bride wealth may not be demanded or given at once; rather, it can be paid in instalments. The Malawi Human Rights Commission (MHRC) (2006) also notes that bride wealth is paid in in the form of herds of cattle, a hoe, an axe, a woven basket and a sieve. Nevertheless, according to the FGDs, it is increasingly being paid in cash in lieu of cattle, since cattle are becoming scarce in Malawi. There is meaning attached to each of the items, as it transpired during the FGDs: the hoe and axe represent the man's ability to farm and provide for his family. On the other hand, the woven basket represents what the woman requires to prepare food for the family. All these items relate to taking care of the family.

The amount set on *lobola* depends on the girl's level of educational, the affluence of the girl's family, and whether she had either given birth or married before—the more educated and better behaved she is, the higher the bride price (Malawi Human Rights Commission (MHRC) 2006, Siyabu 2011). The payment of *lobola* means compensating the bride's family for the loss of the daughter, and it demonstrates an appreciation for the role her parents played in raising the girl, but it is also symbolic demonstration that the girl is now part of the boy's family and the boy part of the girl's (Malawi Human Rights Commission (MHRC) 2006). As *lobola* in patrilineal marriages involves paying a substantial amount of money, the payments are to contribute to stronger marriage bonds than in matrilineal descent systems (Zulu 1996, Reniers 2003). The participants in Nkhata Bay (as explained in Chapter 3), who practice patrilineal

marriage, explained that if the husband divorces the wife, he would have to raise more money to pay *lobola* in order to marry again, while the woman will be obliged to pay back the bride wealth if she initiated the divorce. The exchange of gifts not only validates the marriage, but also allows the woman to relocate family sides. The bride in a patrilineal line of decent relocates to the husband's side. This implies that the woman changes her affiliation from her kin to that of her husband (Mtika and Doctor 2002). Thus, the *lobola* custom might have a subtle transfer of a woman's decision-making power, since it is the husband's side which plays a major role in making such decisions.

The payments of *lobola* may have a depressing effect on fertility levels in areas where patrilineal marriage is practised and payment of *lobola* is a requirement. This is because men may delay marriages so that they can accumulate enough resources to pay *lobola*. Thus, delaying marriage leads to couples having fewer children.

This section has underlined the present state of marriage and the process under each regime of marriage. The emphasis of patrilineal marriage on bride wealth may require a man to gather enough resources to pay as *lobola*, whereas under the matrilineal regime, it costs little to fulfil the formalities of bride wealth, and in some cases the process is symbolic. The differences in marriage systems have a bearing on the age at which a person gets married, because a young man in the patrilineal system may require a longer time to gather resources to pay for *lobola* than among matrilineal ethnic groups. Similarly, divorce may be more prevalent among the matrilineal ethnic groups, because the value of the bride wealth exchange is not substantial, making it easy for men and women to remarry. The next chapter examines the change over time in age at first marriage and the proportion of women getting married.

5.4   Analyses of Nuptiality Patterns

5.4.1   Proportion of Women in Unions

The trend analysis shows that marriage is universal in Malawi, with virtually all women married when they reach the age group 44–49. As shown in table 5.1 the proportion of women who had never married increased from 63.2% (2000) to 73.8% (2010) among women aged 15–19 years. This proportion steeply declines by the time

women reach age group 20–24. Table 5.1 also shows that the proportion of women that is widowed has stayed stable. It is also interesting to note that the proportion of women aged 40–44 who reported that they were separated is higher increased over time. An increase in rates of separation should contribute to fertility decline, because women who are separated from their husbands are less likely to be exposed to the risk of pregnancy, since separation leads to a reduction in coital frequency. However, as can be seen from the Table 5.1, even though there was an increase in women who were separated, the proportion is too small to have a meaningful effect on fertility levels: it increased from 3.9% in 2000 to 4.6% in 2010.

Table 5.1: Percent distribution of women by marital status and age 2000–2010 MDHS

Age group	Never married	Married[1]	Widowed	Divorced	Separated	Number
			Marital status			
2000						
15–19	63.2	32.6	0.1	1.6	2.5	2,867
20–24	12.3	78.6	1.0	3.9	4.2	2,957
25–29	1.8	87.6	2.3	4.9	3.4	2,401
30–34	0.9	83.8	5.1	5.2	5.0	1,566
35–39	0.3	83.7	6.5	5.9	3.6	1,424
40–44	0.4	80.5	8.9	7.3	2.9	1,053
45–49	0.0	77.7	11.4	7.0	3.9	951
Malawi	17.0	71.5	3.5	4.4	3.6	13,220
2004						
15–19	63.8	33.0	0.2	1.5	1.6	2,392
20–24	12.0	79.6	1.0	4.5	3.0	2,870
25–29	3.4	84.1	2.6	6.1	3.8	2,157
30–34	0.9	82.9	5.1	6.2	4.8	1,478
35–39	0.7	80.8	8.0	6.9	3.6	1,117
40–44	0.4	80.6	8.1	5.9	5.0	935
45–49	0.4	72.8	14.1	9.3	3.4	749
Malawi	16.8	71.1	3.7	5.0	3.3	11,698
2010						
15–19	73.8	23.4	0.2	1.1	1.5	5,005
20–24	14.2	76.2	0.7	4.3	4.6	4,555
25–29	3.1	84.5	1.5	5.8	5.1	4,400
30–34	1.3	81.1	4.4	7.3	5.9	3,250
35–39	0.7	80.9	7.0	6.5	4.9	2,522
40–44	0.1	77.4	10.4	5.7	6.5	1,730
45–49	0.1	74.1	13.5	7.7	4.6	1,558
Malawi	19.7	67.5	3.6	4.9	4.4	23,020

[1] Includes women living together with spouse as if married (cohabiting)
Source: Own computation, 2000–2010 MDHS

5.4.2   Female Singulate Mean Age at Marriage (SMAM)

Singulate mean age at marriage (SMAM) is another way of assessing changes in marriage patterns. Information on the computation of SMAM makes use of the proportion of women who remain unmarried, a technique first used by Hajnal (1953). SMAM assumes unchanging marriage patterns, but SMAM is overestimated when age at marriage has been increasing (see Booth, 2001) .

The results in Table 5.2 show a rising trend in SMAM at national level; however, the increase is marginal, only by 0.5 years. Comparing over time, SMAM in urban areas was greater than in the rural areas, while at regional level the biggest rise in SMAM occurred in the southern region (0.7 years). These changes are not substantial, considering that they are all under one year.

Concerning changes in SMAM by lineage systems, the table also shows that women in ethnic groups that practise patrilineal marriage (such as Tumbuka) marry later than women in matrilineal ethnic groups. This is also true for the Tonga ethnic group which practises patrlineal marriage system and predominatly resides in Nkhata Bay district. Lilongwe and Blantyre are exceptional in this regard because they are the capital and commercial cities of Malawi, respectively. In terms of religion, Muslim women consistently have the shortest duration before marriage. The pattern for women who are affiliated to other religions is less obvious, suggesting that there are reasons other than religion itself that influence marriage patterns.

Table 5.2: Changes in Female Singulate Mean Age at First Marriage (SMAM) over time, 2000–2010 MDHS

Background characteristics	2000	2004	2010
Malawi	18.9	18.8	19.6
Place of Residence			
Urban	20.2	20.5	21.0
Rural	18.4	19.4	19.1
Region			
North	18.4	19.4	19.1
Central	19.1	19.3	19.8
South	18.8	18.5	19.6
Education attainment			
No education	16.8	16.6	17.7
Primary (1–4)	18.2	17.9	17.7
Primary (5–8)	18.9	18.5	19.1
Secondary & higher	22.0	21.7	22.0
Religion			
Catholic	19.3	19.3	20.2
CCAP (Presbyterian)	19.9	20.3	20.8
Pentecost	18.2	18.2	20.8
Muslim	18.3	17.8	18.8
Other	18.3	19.3	19.9
Ethnic group			
Chewa	19.2	19.1	19.7
Tumbuka/Tonga	19.2	19.7	19.8
Lomwe	18.4	18.5	19.6
Yao	18.6	18.3	19.0
Ngoni	19.3	19.5	20.4
Other	18.3	18.5	19.3
Wealth index			
Poorest	18.2	18.2	18.9
Poor	18.8	17.6	18.6
Middle	18.8	18.4	18.8
Rich	18.6	19.1	19.5
Richest	19.7	20.9	21.8
District			
Karonga	18.4	18.8	18.3
Nkhata Bay	17.6	18.9	20.0
Mzimba	18.6	19.2	18.9
Dowa	19.9	19.1	19.6
Lilongwe	19.3	20.0	20.3
Dedza	18.9	18.6	19.5
Machinga	17.9	18.1	18.7
Blantyre	20.3	19.0	20.9
Thyolo	18.2	18.3	19.4

Source: Own computation, 2000–2010 MDHS

5.4.3   Median Age at First Marriage

Timing of first marriage is considered an important factor in determining the level of fertility. Where marriage occurs early, it implies that the duration over which a woman is exposed to the risk of childbearing is long and childbearing takes place within marriage; hence she is likely to have more children during her reproductive period (Mensch, Singh et al. 2005). Conversely, late marriage has been linked to lower fertility levels as this reduces the exposure period (*ibid*, 2005). Figure 5.1 presents results of bivariate analysis of age of a woman at first marriage.

Figure 5.1:   Median age at first marriage among women aged 20–49, 2000–2010 MDHS
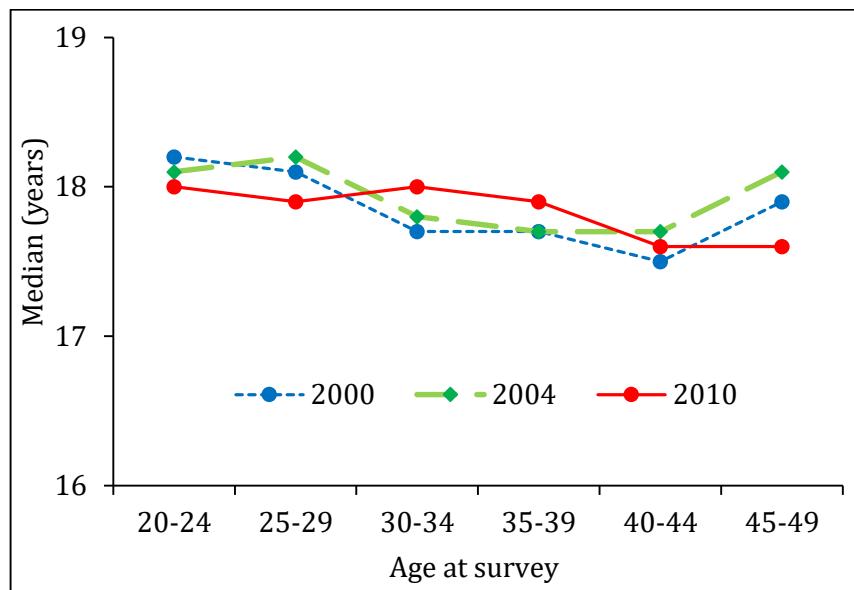
Source: Own computation, 2000–2010 MDHS

Figure 5.1 shows that variations in age at first marriage are limited to within the survey. However, a less clear pattern emerges when age at marriage is assessed over time. As shown in Table 5.3, overall, half of women are married by the time they reach 18 years of age. With respect to the subgroups within the survey, the younger cohorts appear to delay entry into union for all the age groups in 2010. However, this pattern fails to hold for the earlier two surveys; the median age at marriage appears to be lower in the preceding age group of 25–29 years. It seems that women in age group (44–49) appear to enter in union later than younger ones.

Table 5.3: Median age at first marriage among women (20–49) by year of survey

Background characteristics	2000	2004	2010
Place of residence			
Urban	18.7	18.9	18.8
Rural	17.8	17.8	17.7
Region			
Northern	17.6	17.8	17.8
Central	18.3	18.4	18.2
Southern	17.7	17.6	17.6
Highest education attained			
No education	17.4	17.2	17.1
Primary 1–4	17.5	17.5	17.1
Primary 5–8	18.0	17.9	17.7
Secondary+	21.7	21.4	21.0
Wealth Index			
Poorest	17.8	17.6	17.6
Poor	17.8	17.7	17.5
Middle	17.7	17.6	17.6
Rich	18.0	17.9	17.8
Richest	18.6	19.2	19.2
Ethnicity			
Ngoni	18.1	18.4	18.2
Chewa	18.4	18.3	18.2
Tumbuka/Tonga	17.9	18.1	18.1
Lomwe	17.4	17.4	17.4
Yao	17.7	17.4	17.5
Other	17.6	17.7	17.6
Type of marriage			
Monogamous	17.9	17.8	17.8
Polygamous	17.6	17.5	17.4
Malawi	17.9	18.0	17.9

Source: Own computation, 2000–2010 MDHS

Table 5.3 shows that the median age at marriage is higher among women that reside in the urban areas, higher among respondents from women in the southern region compared to the northern region, and generally increases with increases in the level of education of the respondents. Median age at first marriage increased in the total sample of women aged 20–49 in 2000, from 18 years among those with no formal education to 23 years among those with tertiary level of education.

Age at first marriage increases with increasing levels of education. This pattern is true even at low level of education within each survey. Over time, there is no apparent increase in age at marriage for each category of education. Nevertheless, the four-year

difference in median age at first marriage between respondents with no formal education and those with tertiary level of education is maintained across the survey years.

Age at first marriage also differs across the ethnic groups considered. For example, the Tumbuka/Tonga ethnic group, which predominantly follows patrilineal marriage regime, has a higher age at first marriage compared to the Yao ethnic group. It has been suggested that higher age at first marriage among ethnic groups that practise patrilineal marriage may be a common response to delaying marriage, since men would need more time to acquire bride wealth (Eltigani 2003, Arnaldo 2004). If this is true, one would expect the ethnic groups practising patrilineal marriage regime to have a higher median age at first marriage. The Yao, who practise matrilineal, have low median age at first marriage. Table 5.3 also supports the literature on the relationship between religion and age at marriage, which shows that Muslim women marry earlier than Christians (Eltigani 2003).

5.5 Postpartum and Sexual Abstinence Practices among Various Ethnic Groups

The length of amenorrhea and anovulatory periods after childbirth is mainly determined by the duration, frequency and intensity of breastfeeding. In the absence of breastfeeding, this period can last between one and two months (Bongaarts and Potter 1983). Biologically, the body produces hormones that suppress the return of ovulation and resumption of the menstrual cycle, which in turn reduce the likelihood of the woman becoming pregnant (Page, Lesthaeghe et al. 1982, Bongaarts and Potter 1983).

In sub-Saharan Africa women traditionally breastfeed for extended durations that last from 12 to 24 months (Gebreselassie, Rutstein et al. 2008). There are various social, ethnic and religious rules that govern the period when the woman is nursing a child, and they are often strict (Kabiru and Ezeh 2007, Rossier and Hellen 2014). The observance is not necessarily for the purpose of limiting births, but it is for fulfilment of certain norms, which are sanctioned by the society (Awusabo-Asare and Anarfi 1997). Sexual intercourse is prohibited while the nursing mother is breastfeeding. The understanding is that when having sexual intercourse while breastfeeding, semen may

contaminate the milk, which in turn can make the child suffer from certain illnesses (Schoenmaeckers, Shah et al. 1981, Lockwood 1995).

The beliefs are a traditional way of extending birth spacing, as a way to preserve the health of mother and child. In so doing, the woman cannot become pregnant while the child is still suckling (Zulu 1996). Family members are involved in ensuring that the husband complies with sexual abstinence. Family advisors may come to advise the couple on ways of taking care of the child; in particular, the husband is advised to refrain from sex with other women. Elsewhere, Caldwell (1992) notes that long durations of abstinence within marriages among the Igbo in Nigeria were achieved through polygyny, while monogamous husbands who could not afford a second wife were having sex with other women within the lineages, or young women who were not betrothed.

Although there are many ethnic groups in Malawi which have different beliefs, sexual abstinence is a fundamental belief to them all, and it is closely tied to the health of the mother and the child. During the FGDs the author conducted, it emerged that among the Tonga, during the period of sexual abstinence known as *ntheta* (meaning waiting for the child to grow), the consensus among the participants was that, during this time, the husband must refrain from sex and sleep in a separate room from the nursing mother and the child. The nursing mother may also go to her maternal mother or paternal mother so as to ensure sexual abstinence.

To mark the end of the sexual abstinence period, the Tonga practise the ceremony known as *kumeta mundende*, which involves shaving the hair of the child and mother to signify the end of the abstinence period and resumption of the couple's sexual intercourse(Zulu 2001). The woman also wears new clothes, while the old ones are burnt or given to someone else. This means that the woman can for the first time cook food for her husband and their relations. The period of sexual abstinence is officially over, the Tonga further observe the ritual of *kulimbitsa mwana* by encouraging the couple to practise the withdrawal method of contraception. Again, the belief is that the semen might contaminate the milk, and hence the child might not grow properly.

The practice among the matrilineal Chewa is to abstain from sex for a period of three months. The period is commonly known as *munthu ali pa nkhalanga* or *thala*, literally meaning that is on the roof. Following a period of sexual abstinence, the practice among the Chewa is that family advisors approach the couple to mark the resumption of sexual intercourse. The ritual of strengthening a child among the matrilineal Chewa involves wrapping the child in the beddings the couple used the first night they slept together and as the couple holds and stretches the baby

Just like the Tonga and the Chewa, the Yao believe that the ritual of child strengthening protects the child from illnesses when the couple resumes intercourse. According to the Yao, it emerged during the FGD that sweating that occurs when the couple is having sex is believed to contain impurities, which can make the child ill should it get in contact with the parents' bodies after sex. Similarly, it also transpired during the FGD that the semen also contaminates the breast milk. This in turn can result in the suckling child becoming sick; hence the need to perform the ritual, to inoculate the child from becoming sick and eventually dying.

All ethnic groups in the study areas have many taboos and myths concerning the observance of sexual abstinence. These are aimed at discouraging men from resuming sex that can result in pregnancy, which can be detrimental to the health of the mother and the child. To prevent this from happening, the participants in FGDs mentioned that there are myths that claim that failing to observe the rituals will result in the children becoming sick (*tsempho*) or even die from illnesses known as *kaliwondewonde*, or malnutrition. Similarly, men who fail to abstain from sex are also likely to become ill. As the woman may not have properly healed and the uterus is said to be still hot, participants in the FGDs repeatedly said that if the man has sexual intercourse with her, she can infect the man. The man can suffer from malnutrition-like diseases, low blood pressure, loss of blood, or developing a blotted belly. All these taboos are meant to scare men into not having sex.

Although some FGD participants in this study mentioned that they observe sexual abstinence, many people do not follow it in the strictest sense, because the practices are increasingly being modified as a result of modernisation and education—a finding which also echoes other studies in the region (Awusabo-Asare and Anarfi 1997,

Rossier and Hellen 2014). Men and women in FGDs mentioned that it is difficult to practise sexual abstinence whereby the husband lives in a separate room from the nursing mother in urban areas, because of limited space. They further said that they cannot afford to rent separate houses for fulfilment of the ritual, and in most cases they live in crowded rooms.

Similarly, the informant mentioned that with the advent of the HIV and AIDS pandemic, people get advice from the health personnel not to wait too long before resuming sexual intercourse, as this gives men a chance to have sex with other women, thus putting women at risk of contracting STIs including HIV and AIDS. In FGDs, the dominant view was that increasingly, men tend to have affairs during the period. Thus, there is always the potential for them to contract HIV and infect their wives.

5.6   Calculation of Duration of Breastfeeding, Amenorrhea and Abstinence

Following birth, women experience an infecundable period during which they are unable to conceive because the normal pattern of ovulation and menstruation is absent. This period is known as postpartum insusceptibility (Bongaarts and Potter 1983). This duration of postpartum amenorrhea is determined by the intensity, duration and the pattern of breastfeeding (Bongaarts 1982, Page, Lesthaeghe et al. 1982) . Thus, the precise measurements of anovulation estimates are not easy to measure. Hence most studies use the period until the woman menses return—known as postpartum amenorrhea—as a close approximation of anovulation.

In sub-Saharan Africa, this period tend to be extended owing to the practices different ethnic groups observe. In the context of Malawi, breastfeeding patterns are also affected by the WHO guidelines, which promote exclusive breastfeeding patterns for the first six months, before introducing complementary foods (WHO, 2010). This may extend the duration for which women breastfeed their children, which may particularly explain the long duration of the breastfeeding period in Malawi as shown in the MDHS. The duration of this may also be affected because pregnant mothers living with HIV need to prevent HIV infection from being passed on to their babies during breastfeeding, known as Prevention of Mother to Child Transmission (PMTCT) (Malawi National Plan for the Elimination of Mother to Child Transmission, date

unknown). As women who are HIV positive are discouraged form breastfeeding for extended periods, the reduced period of breastfeeding implies that the period for which they are postpartum infecund is also reduced. Hence, they may become pregnant if they are not using contraception.

The DHS collected data on breastfeeding, amenorrhea and postpartum sexual abstinence. In estimating duration of breastfeeding, the point of interest was whether the woman was currently breastfeeding at the time of the interview date. With respect to amenorrhea, the point of interest was whether the mother had had her menses return, while for abstinence, it was whether the mother was still abstaining from sex since her most recent birth. Thus medians and means are calculated based on the current status of mothers of the births. The estimates pertained only to children born in the last 0–35 months, and who were single births or the last of multiple births (Rutstein and Rojas 2006).

In estimating duration, there is the need to have an appropriate time reference of observation. Durations that are too short, such as two years, may exclude women who observe postpartum practices for extended periods. Likewise, if the periods are too long, chances are that women with short birth intervals are more likely to be overrepresented in the sample (Rodrigues 2015). This study uses three years as a cut-off point because it provides a representative sample, compared to the analyses based on open or closed intervals, which are known to seriously be biased (Rodrigues 2015).

During the preliminary analysis, it was observed that retrospective reports of duration of breastfeeding in Malawi (as elsewhere) tended to be irregular and as proposed by Rutstein and Rojas (2006), a moving average was used to smooth them before computing the median. To compute the median, the breastfeeding durations were grouped into two-month intervals as determined by the difference in interview date and birth date where the mother is still breastfeeding the child since the birth (Rutstein and Rojas 2006). For each time interval, a proportion of children still breastfeeding was identified. Beginning with the lowest-time-since-birth group, the proportions were cumulated and the median was obtained when half of or more children still breastfeeding was reached. While the computation of the means involves accumulating over all two-month intervals of the proportions of breastfeeding, amenorrheic, or abstaining multiplied by the width of the time-since-birth group

(Rutstein and Rojas 2006). However, in this study, the median was preferred compared to the mean, because distributions of durations of postpartum variables appear to be highly skewed due to extended periods of abstinence.

5.6.1 Duration of Breastfeeding are Based on Current Status Information in the Three Years Preceding the Survey

As can be seen in Table 5.4, there is little difference in median durations of breastfeeding within and across surveys. Comparing within the survey, women who attained secondary education and higher breastfed their children less than those with no education by 3.9 months in 2000, 1.5 months in 2004 and 2.0 months in 2010. However, over time, the greatest reduction was observed among women with no education, where it declined by 1.6 months, from 25.8 to 24.2 months in 2010.

Table 5.4: Change of over time (months) of breastfeeding are based on current status information following live births three years before the survey by selected socio-economic characteristics

Background Characteristics	Median			Mean		
	2000	2004	2010	2000	2004	2010
Malawi	24.3	23.2	23.7	22.5	22.9	22.8
Place of residence						
Urban	22.7	22.8	22.5	21.4	21.8	20.7
Rural	24.6	23.2	23.9	22.6	23.1	23.1
Region						
Northern	23.4	23.1	23.2	21.8	22.4	21.8
Central	24.4	23.0	24.4	22.6	22.9	23.0
Southern	24.5	23.4	23.4	22.6	23.0	21.8
Education attainment						
No education	25.8	24.1	24.2	23.6	24.0	23.0
Primary (1–4)	24.7	23.1	23.9	21.9	22.9	22.7
Primary (5–8)	23.6	22.9	23.5	22.2	22.5	22.1
Secondary	21.9	22.6	22.2	21.4	21.6	21.2
Religious Affiliation						
Catholic	23.8	23.1	24.5	22.8	22.6	23.3
CCAP (Presbyterian)	23.2	23.3	23.4	22.4	22.8	22.4
Pentecost	22.7	23.3	23.7	22.0	23.0	22.8
Muslim	24.3	23.3	23.6	23.5	23.1	22.2
Other	23.9	22.8	24.2	22.5	23.1	23.0
Ethnicity						
Chewa	23.5	23.0	24.8	22.6	22.9	23.8
Tumbuka/Tonga	22.9	23.6	23.7	21.6	22.6	22.2
Lomwe	22.9	22.4	23.0	21.9	22.4	22.0
Yao	24.6	23.5	23.6	21.7	23.2	22.2
Ngoni	22.6	23.4	22.7	22.0	23.4	21.7
Other	23.6	23.6	23.7	23.1	23.3	22.9
District						
Karonga	22.3	22.5	21.9	21.1	21.9	22.0
Nkhata Bay	20.5	22.8	23.5	16.7	19.3	23.5
Mzimba	22.4	23.8	23.4	21.5	23.9	22.2
Dowa	23.7	23.4	25.9	22.9	22.9	24.9
Lilongwe	23.9	23.0	24.0	22.4	22.5	23.1
Dedza	24.4	21.9	24.8	23.5	23.1	24.3
Machinga	24.5	24.5	23.7	21.8	24.4	21.0
Blantyre	21.9	23.8	22.0	21.6	22.7	22.8
Thyolo	22.5	23.2	24.1	20.7	22.1	23.0

Source: Own computation, 2000–2010 MDHS

The results in table 5.4 show that the duration of breastfeeding among women in the urban areas is less than in the rural areas. The relationship may be attributed to the fact that women in urban areas may have more access to breast milk substitutes, since they are likely to be working and earn some income. With regard to religion, women affiliated with CCAP, Catholicism and "Other"-categorised religions had increases in duration of breastfeeding over time. In contrast, women who were affiliated with

Muslim and Pentecostal religions experienced a decline in the duration of breastfeeding over the same period.

Regarding ethnicity, with exception of Yao, all ethnic groups experienced marginal increases in the duration of breastfeeding. It is not clear why the duration of breastfeeding declined among the Yao, although the differences in the duration of breastfeeding among other groups are small, reflecting commonality of practice among all groups. It is also worthwhile to mention that Nkhata Bay had the shortest duration of breastfeeding (20.5 months) but this increased to 23.5 months in 2010.

5.6.2   Duration of Postpartum Amenorrhea

Table 5.5 shows that on average, mothers abstain from sex for slightly over six months at each survey point, but over time, this duration has marginally declined. Large differences are notable within each survey, according to women's education and place of residence. Women in rural areas abstain from sex longer than their urban counterparts, with a six-month difference at each point. Women with no education abstain longer than women who attained secondary and higher education. This pattern fails to hold when women with lower primary education are compared with women who attained upper primary education.

The large variations at district level may be explained by the cultural practices regarding breastfeeding. Another explanation may be the nutrition programmes aimed at improving the survival rates of children, which encourage exclusive breastfeeding for the first six months, and prolonged breastfeeding until the child is two years old. It is sufficient to highlight that no one breastfeed for less than 22 months. This is consistent with the findings from the fieldwork (Chapter 7), whereby women mentioned that two years at least should elapse before they can wean the child and the couple might consider having another baby.

However, while the above may be plausible explanations, it is also possible that some women may want to conform to the norm and be seen to be practising abstinence, especially when the baby is young, for fear of being derided by others should it be known that they are engaging in sex before the child is grown. This may lead to inaccuracies in data.

Table 5.5: Duration (months) of postpartum amenorrhea following childbirth three years before the survey, by selected socio-economic characteristics

Background	median			mean		
Characteristics	2000	2004	2010	2000	2004	2010
Malawi	12.7	11.5	10.5	13.8	12.8	12.4
Place of residence						
Urban	11.1	9.9	8.5	12.5	11.9	11.6
Rural	12.7	11.6	10.8	15.8	12.9	12.5
Region						
Northern	11.2	8.9	9.8	11.9	10.8	11.3
Central	13.7	11.5	11.0	14.1	13.0	12.6
Southern	12.4	12.2	10.4	14.0	13.3	12.4
Education						
No education	14.3	14.0	12.1	15.6	14.1	13.9
Primary (1–4)	12.6	12.0	11.9	13.9	13.3	12.6
Primary (5–8)	11.5	11.3	9.7	12.6	12.4	12.2
Secondary	9.6	8.3	8.2	10.5	10.1	10.8
Religious affiliation						
Catholic	11.6	10.5	9.6	13.5	11.9	12.2
CCAP (Presbyterian)	10.8	10.8	10.0	12.9	12.3	12.3
Pentecost	13.3	12.3	10.7	14.0	13.3	12.4
Muslim	13.7	12.5	11.3	14.7	13.4	12.8
Other	13.3	11.7	10.3	13.7	12.9	12.2
Ethnicity						
Chewa	13.9	10.7	11.9	14.1	12.5	12.7
Tumbuka	11.7	10.9	9.7	12.2	11.6	11.3
Lomwe	11.2	12.0	9.8	13.4	13.4	12.3
Yao	12.8	12.4	11.0	14.5	13.3	12.3
Ngoni	12.6	12.1	9.7	13.1	13.7	12.4
Other	13.1	11.5	10.0	14.4	12.5	12.4
District						
Karonga	11.9	8.5	8.1	12.5	10.4	10.7
Nkhata Bay	10.5	10.1	10.4	10.1	11.1	12.7
Mzimba	12.9	9.9	9.3	13.0	11.6	11.2
Dowa	14.5	11.3	11.5	14.1	13.4	12.8
Lilongwe	13.9	9.9	9.3	13.8	12.6	11.7
Dedza	15.5	11.8	11.3	14.3	13.1	13.8
Machinga	11.3	12.7	11.6	13.6	14.4	11.6
Blantyre	10.9	11.1	7.6	11.9	11.7	12.6
Thyolo	11.6	13.3	12.6	14.5	13.3	12.0

Source: Own computation, 2000–2010 MDHS

5.6.3 Duration of Postpartum Sexual Abstinence

Table 5.6: Duration (months) of postpartum abstinence following live birth births three years before the survey.

Background Characteristics	Median			Mean		
	2000	2004	2010	2000	2004	2010
Malawi	5.5	4.9	4.1	8.6	8.0	7.7
Place of Residence						
Urban	5.4	4.4	3.8	8.2	7.6	6.6
Rural	5.5	5.0	4.2	8.6	8.0	8.0
Region						
Northern	7.9	6.1	4.2	12.1	10.4	8.9
Central	3.1	3.7	3.0	6.2	6.4	6.1
Southern	7.4	6.7	6.5	9.9	8.8	9.2
Education						
No education	6.3	5.7	4.7	9.0	8.3	8.6
Primary (1–4)	4.0	4.7	4.4	7.5	7.6	7.6
Primary (5–8)	6.0	5.0	4.2	8.9	8.2	7.2
Secondary+	6.0	4.5	4.0	10.2	7.9	8.0
Religion						
Catholic	5.0	5.4	3.9	8.1	8.1	7.3
CCAP	4.2	4.8	3.3	8.0	7.4	6.8
Pentecost	5.5	4.3	4.2	8.6	7.7	7.6
Muslim	7.4	7.3	6.2	9.9	9.4	9.4
Other	5.2	5.6	4.9	8.7	8.2	7.9
Ethnicity						
Chewa	2.7	3.5	3.0	5.7	6.2	5.8
Tumbuka	7.7	7.0	4.2	12.1	10.4	8.7
Lomwe	6.7	6.6	6.5	8.7	8.4	9.3
Yao	7.6	7.3	6.2	10.3	9.5	9.5
Ngoni	5.4	5.4	4.2	9.4	9.3	8.3
Other	8.2	5.2	5.9	10.6	8.0	8.2
District						
Karonga	8.1	2.5	3.6	11.6	7.0	6.4
Nkhata Bay	16.5	10.7	8.9	17.2	15.8	14.5
Mzimba	6.0	7.8	4.5	12.7	11.6	9.5
Dowa	1.8	2.0	2.3	4.4	4.4	5.3
Lilongwe	2.5	4.5	2.7	5.0	6.8	5.7
Dedza	3.1	3.8	3.6	6.7	7.1	7.8
Machinga	8.0	6.9	5.9	10.1	8.0	9.0
Blantyre	6.4	6.3	5.2	8.4	8.9	7.7
Thyolo	6.6	7.1	8.3	9.1	8.5	10.9

Source: Own computation, 2000–2010 MDHS

Table 5.6 shows the duration of postpartum sexual abstinence and in terms of religion, only Muslim women abstain from sex for periods of at least six months, although the median durations has declined over time, from 7.4 months in 2000 to 6.2 months in 2010. With respect to ethnicity, the Tumbuka on average abstain from sex the longest compared to the rest of ethnic groups. In 2000, this duration was slightly over a year, but declined to 8.7 months by 2010.

Consistent with ethnic patterns, sexual abstinence is longest in the north and shortest in the central regions. This pattern is not surprising because the Tumbuka and the Tonga, who on average abstain from sex longer, mostly reside in the northern districts of Karonga, Mzimba and Nkhata Bay. However, there is an exception among the districts in that women in Karonga had the shortest postpartum durations in 2004 and 2010. One plausible explanation is that Karonga has a uranium mining plant, and this may have attracted people from various ethnic backgrounds in search for employment, hence affecting the local taboos of sexual abstinence.

5.7   Summary

The aim of this section was to examine the magnitude of change in the proximate determinants of fertility. The findings show that there has been little variation over time in the proximate determinants of fertility. In fact, the analysis of age at marriage and singulate mean age at marriage (SMAM) correspond with each other to corroborate that early marriage is the norm in Malawi, with virtually everyone marrying by the end of their reproductive period. In the present case, the changes in SMAM over time were very small. Lack of substantial change in age at first marriage explains the slow fertility change.

While the analysis of the proximate determinants of fertility showed little variations, with the exception of those correlating with residence and education attainment, nonetheless it is important to understand the contribution of each proximate determinant to the overall change in total fertility rate (TFR). The next section examines the contribution of each proximate determinant to the overall fertility decline.

5.8   The Role of the Proximate Determinants to the Overall Fertility Level

The above evaluation in trends in each of the proximate determinants has shown little evidence of change over time. Since variations in fertility are mainly due to the change in the proximate determinants (Bongaarts and Potter 1983), an analysis of these factors combined allows an understanding of the relative contribution of each of the proximate determinant to the overall fertility rate.

Although Bongaarts' model is very useful in estimating the influence of the proximate determinants of fertility, reporting of errors for variables such as current age, age at marriage, duration of postpartum variables, use of contraception and abortion is one of the problems that make the model give biased estimates (Jolly and Gribble 1993). For example, the index of the proportion of married women (Cm) according to Bongaarts and Potter (1983) assumed there was very little sex occurring outside of marriage. Hence, all of the calculations they proposed were based on only married women or women in consensual union of reproductive age. (Stover 1998) suggested making several modifications to the original model to capture the full "risk" of exposure by measuring sexual activity rather than the proportion of women married; by revising the sterility index to measure infertility from all causes; by including a revised index of contraception to account to the fact that women who use sterilisation become infecund before the age of 49; and by using a revised definition and estimate of total fecundity (Jolly and Gribble 1993, Stover 1998). This alternative way of estimating some of the indices and the potential fertility was expected to produce more robust estimates than the original Bongaarts' (1983) model, especially when a considerable amount of sexual activity and consequent childbearing takes place outside of marriage (Stover 1998).

More recently, Bongaarts (2015) made revisions to the original model and to Stover's (1998) suggestions. This is because social norms have been shifting to greater or lesser degrees across countries, meaning that young women are having sex before and outside of marriage, and that these same women may use contraceptives and seek induced abortions (Bearinger, Sieving et al. 2007, Garenne 2008, MacQuarrie 2014). This study takes into account the new revisions, which are explained in the respective sections.

5.9   Application of the Model

Since Bongaarts (2015) is in agreement with the earlier models, the aggregate mathematical relationship between fertility and the proximate determinants remains the same and is represented as:

$$TFR = C_m^* \, C_c^* \, C_i^* \, C_a^* \, TF^* \qquad\qquad (5.1)$$

where C^*_m, C^*_c, C^*_i and C^*_a and TF^*, the inhibiting influence of non-marriage, lactational amenorrhoea, contraception, induced abortion reflect total fecundity, respectively. The indices lie between the bounds of 0 and 1; when the index is closer to the value of zero, the more influential the associated proximate determinant is in reducing fertility from its maximum potential, whereas if it takes the value of 1, its influence is negligible. When all indices are equal to one, fertility is at its biological maximum, and the predicted TFR equals TF. Based on studies of historical populations with the highest recorded fertility, Bongaarts recommends using 15.3 as an estimate of TF, or the maximum number of births. In other words, in the absence of the proximate determinants, human fertility is expected to reach the maximum total fecundity (TF), amounting to an average of 15.3 births per woman.

5.9.1 Index of Proportion Married (now called Marriage/union/sexual exposure) (C*m*)

Bongaarts and Potter (1983) proposed the proximate determinants model at a time when it was assumed that there was very little intercourse outside of marriage. Hence, all of the calculations the authors proposed were based on only married women of reproductive age. The estimates from the original Bongaarts models use the proportion married of women aged 15–49 to measure the reduction of fertility caused by the fact that women are not sexually active throughout their reproductive period. This reduction is given by in the following expression:

$$C_m = \frac{\Sigma m(a)g(a)}{\Sigma g(a)} \tag{5.2}$$

where *m(a)* is the age-specific proportion of women currently married or in consensual union, and *g(a)* is age specific marital fertility rate. The estimate of *g(a)* is derived by dividing the proportion of females currently married or union in each age group by the age-specific fertility rate in each age group.

Owing to the simplicity of the original models, which assumed that only women who were married or in union were at risk of pregnancy, Bongaarts (2015) proposes an amended version which is slightly more inclusive of exposure to the risk of pregnancy. It includes all women, irrespective of their marital status, who have had sex in the last month or are pregnant or abstaining postpartum or are using contraceptives. The rationale for this modification is that women who have sex less often in a month are

still at risk of childbearing, and similarly women who are using contraceptives should be considered sexually active even if the sex intercourse did not take place in the last month (*ibid*, 2005) . Given the revised assumptions, a new index that captures sexual exposure is expressed as:

$$C_m^* = m(a) + ex(a) \qquad (5.1)$$

where m(a) is the proportion of women who are marred or in union and ex(a) measures extra marital exposure. Excluding the latter would misestimate the effect of non-marriage, where non-marital childbearing and extramarital sex is as common as new evidence suggests (Garenne 2008, United Nations Department of Economic and Social Affairs 2013, MacQuarrie 2014).

5.9.2 Index of Contraception (C*c*)

The index of contraception measures the fertility-inhibiting effect of use of contraception denoted by

$$C_c = 1 - 1.08 * u * e \qquad (5.3)$$

where u is the proportion of currently married women of reproductive age using any method of contraception, and e is the average use-effectiveness of contraception, and 1.08 is the sterility correction factor. In this study, 0.85 was used as the average contraceptive effectiveness, as recommended by Bongaarts for developing nations. The values of use-effectiveness of contraception are not easily available. For this reason, this study uses Trussell (2011) estimates in calculating contraceptive use-effectiveness.

Bongaarts (2015) takes into account that contraceptive use is higher among fecund women than infecund women, hence there is need to make adjustment. To capture the full effectiveness of the method mix, Bongaarts introduces a fecundity adjustment factor. This is because the prevalence of contraceptive use is higher among fecund women than among infecund women. Similarly, the adjustments take into account the fact that contraceptive effectiveness is also affected by age: the youngest age groups have below-average contraceptive effectiveness, and contraceptive use at a young age is most often used for spacing rather than for limiting (Bongaarts, 2015).

$$C_c^* = 1 - r^*(a)(u^*(a) - o(a))e^*(a) \qquad (5.1)$$

166

where $r^*(a)$ is fecundity adjustment, $u^*(a)$ refers to contraceptive prevalence of exposed women, $o^*(a)$ describes the overlap of women using contraceptive while postpartum infecund, and $e^*(a)$ represents average contraceptive effectiveness.

5.9.3   Index of Postpartum Infecundability (Ci)

The effect on fertility of extended periods of postpartum amenorrhoea and abstinence is indicated by the index of postpartum infecundability (Ci) expressed as

$$C_i = \frac{20}{(18+i)} \tag{5.4}$$

where i = the mean duration of postpartum infecundability measured in months. The value of i can be estimated using the following equation:

$$i = 1.753*\exp(0.1396*B - 0.001872 * B^2) \tag{5.5}$$

where B is the mean or median duration of breastfeeding in months (Bongaarts and Potter, 1983).

The fertility-reducing effect of postpartum infecundability operates through the modification of birth intervals. The practices of breastfeeding and sexual abstinence after the birth of a child reduce a woman's exposure to becoming pregnant. This is because the suckling of an infant stimulates the flow of hormones which in turn delays the return of ovulation. In the absence of lactation or abstinence, the birth interval averages 20 months (being the sum of 1.5 months of immediate postpartum amenorrhea, 7.5 months of waiting time to conception, 2 months of the aftermath of a spontaneous abortion, and 9 months of pregnancy that is carried to full term and results in a live birth).

5.9.4   Index of Abortion (Ca)

An important coefficient in the model is the index of abortion which is intended to capture the depressing effects of induced abortion on fertility. The index gains its significance in suppressing fertility by averting less than one birth, because it shortens the intervals between potential pregnancies, which is presented as

$$C_a = \frac{TFR}{TFR + 0.4(1 + u * e)TAR} \tag{5.6}$$

167

where the values of *u* and *e* represent contraceptive prevalence and average use effectiveness of contraception, respectively, while *TAR* is the total abortion rate. This Stover (1998) modification differs from Bongaarts and Potter (1983) original formula in that it includes use-effectiveness of contraception to measure the influence of induced abortion on fertility.

C*a* represents the most challenging of calculations, since abortion, in general, stands as one the toughest indicators to directly measure or observe. Induced abortion tends to be greatly underreported, particularly in lower- and middle-income countries where the legal status of abortion may be restricted. Therefore, C*a* must be derived from either existing estimates of the Total Abortion Rate (TAR), such as those routinely published by the Alan Guttmacher Institute/World Health Organization (Sedge et al, 2012), or modelled estimates of TAR.

As already presented in section 2.4.4., abortion in Malawi is restricted suggesting that using the estimates derived from the most recent study in the country (Ministry of Health Malawi 2011), may yield to unreliable the influence of fertility level in the country. This was confirmed during preliminary analyses where by the index of abortion derived from the study had negligible influence on fertility.

Similarly, it is not possible to use induced abortion rates from the MDHS. In her seminar presentation, Coast (2014) criticized the way the question is framed in some of the Demographic and Health Surveys (DHS): for example, the 2000 to 2010 MDHS, women were asked, "have you ever had abortions (induced/spontaneous) or still births and if so, how many?" As can be seen, the question is ambiguous: it is difficult to quantify whether the response would relate to abortions or stillbirths. Because of this, it is difficult to obtain accurate estimates of abortions. Even if the respondents provided the information, women are unlikely to report the abortion experience because of the stigma attached to the exercise (Kinoti, Gaffikin et al. 1996, Bearinger, Sieving et al. 2007, Culwell, Vekemans et al. 2010), which may make other women relocate to other areas to avoid stigma, where the new place may offer privacy (Kinfu 2001). Another element is that since a significant number of women often seek unsafe abortions from herbalists, many women die, meaning that those who report are the ones who survived the exercise and thus the DHS estimates are likely to be biased.

Therefore to avoid producing biased estimates, this study uses regional abortion rates as presented in Sedgh, Singh et al. (2012). Furthermore, since the current study is looking at change over time, the assumption should be that abortion rates in Malawi have not declined compared to those presented in Sedgh, Singh et al. (2012).

5.10   Inhibiting Influence of the Proximate Determinants

Table 5.7 shows the effects of the proximate determinants by social and economic characteristics. The value of each index represents the proportionate reduction in fertility, which in its presence is attributable to change in fertility.

Table 5.7: Indices of Bongaarts' model (Revised) related measures, 2000–2010

Background	2000				2004				2010			
Characteristics	C_m	C_c	C_i	C_a	C_m	C_c	C_i	C_a	C_m	C_c	C_i	C_a
Place of residence												
Urban	0.699	0.662	0.581	0.993	0.665	0.691	0.578	0.993	0.663	0.663	0.578	0.989
Rural	0.830	0.763	0.555	0.997	0.847	0.737	0.564	0.996	0.774	0.774	0.564	0.994
Region												
North	0.818	0.709	0.540	0.996	0.754	0.657	0.576	0.994	0.751	0.720	0.574	0.993
Central	0.826	0.742	0.554	0.996	0.806	0.724	0.577	0.996	0.746	0.746	0.558	0.993
South	0.808	0.764	0.568	0.996	0.717	0.832	0.571	0.996	0.756	0.756	0.571	0.993
Education attainment												
No education	0.867	0.787	0.540	0.997	0.991	0.784	0.560	0.997	0.945	0.761	0.560	0.995
Primary 1-4	0.844	0.769	0.554	0.997	0.918	0.766	0.576	0.997	0.854	0.727	0.564	0.994
Primary 5-8	0.733	0.715	0.568	0.995	0.733	0.711	0.578	0.995	0.709	0.686	0.570	0.992
Secondary+	0.565	0.630	0.593	0.989	0.565	0.632	0.583	0.991	0.585	0.660	0.589	0.986
Malawi	0.818	0.749	0.559	0.996	0.811	0.730	0.578	0.996	0.752	0.726	0.578	0.993

Source: Own computation, 2000–2010 MDHS

5.10.1 Effect of Marriage on Fertility

Overall, the results show a modest decline in the index of marriage, which declined from 0.818 (2000) to 0.752 (2010), suggesting that the index gained in its inhibiting influence on fertility, from 18% in 2000 to 15% in 2010. Since women in urban areas marry later than their rural counterparts, this effect is also reflected by the index for the urban being slightly higher than that of the rural areas. With regard to education, the pattern of variation in C_m is as expected; the inhibiting influence of marriage is low among women who attained no education compared to women who attained secondary and higher education. The pattern observed in 2000 is also observed in 2010, and stayed stable.

5.10.2 Effects of Contraception on Fertility

As modern contraceptive use has increased substantially in Malawi, it is important to examine the influence of contraception on fertility. It may throw light on the changing patterns of women's reproductive behaviour. Table 5.7 also shows that the influence of contraception in inhibiting fertility has marginally changed over time, from 0.749 in 2000 to 0.726 in 2010.

The change in inhibiting influence of contraception on fertility for place of residence, education attainment, is only restricted to within each survey, but show minimal changes across the surveys. For example, the index declined from 0.787 in 2000 to 0.784 in 2010 among women with no education. Notable changes were registered among women with primary education within each survey. Women with secondary education and over had the lowest index in 2010, implying that the fertility-reducing effect of contraception was highest for this category.

5.10.3 Effect of Postpartum Infecundability

The results show that when all the indices are considered, postpartum infecundability (0.578) has the largest fertility-inhibiting effect. This implies that it is the most important index in explaining fertility decline, followed by the indices of contraception, marriage and abortion, in that order. Although postpartum infecundability appears to have had the largest effect in reducing fertility, over time, its effect is weakening; from 0.559 in 2000 to 0.578 in 2010.

When other socio-economic characteristics are considered, there are minimal differences between urban and rural areas. As the index is determined by the duration of breastfeeding, lack of difference between women in urban and rural areas may suggest that women in both settings have similar breastfeeding patterns. The marginally higher coefficient of postpartum infecundability for women in urban areas may suggest that women in urban areas breastfeed less than women in rural areas.

5.11 The Relative Contribution of Each Index in Reducing Fertility

The importance of each index in reducing fertility in comparison with the others is best assessed by determining the standardised percentage contribution of each

proximate determinant to the reduction of fertility from the observed TFR. The total inhibiting effect is determined by the proportion of the logarithm of each index to the sum of logarithm of all indices. If Rm, Rc, Ri and Ra are the relative contributions of marriage, contraception and postpartum insusceptibility respectively, then prorating each index can be represented as:

$$R_m = \frac{ln(C_m)}{(ln(C_m) + ln(C_c) + ln(C_i) + ln(C_a))} * 100 \qquad (5.7)$$

$$R_c = \frac{ln(C_c)}{(ln(C_m) + ln(C_c) + ln(C_i) + ln(C_a))} * 100 \qquad (5.8)$$

$$R_i = \frac{ln(C_i)}{(ln(C_m) + ln(C_c) + ln(C_i) + ln(C_a))} * 100 \qquad (5.9)$$

$$R_a = \frac{ln(C_a)}{(ln(C_m) + ln(C_c) + ln(C_i) + ln(C_a))} * 100 \qquad (5.10)$$

where ln denotes the natural logarithm, and Cm, Cc, Ci and Ca are the indices of marriage, contraception, postpartum infecundability and abortion, respectively.

Figure 5. 2 shows that the indices of marriage, contraception, postpartum infecundability and abortion contributed to the reduction in TFR by 18.7%, 26.9%, 54.0% and 0.4% in 2000, respectively. The pattern stayed roughly the same in 2004. There was a gradual weakening of the index of postpartum infecundability as the most important factor in explaining fertility level in Malawi, as it declined from 54.0% in 2000 to 47.2% in 2010; while the index of contraception gained strength, from 26.9% in 2000 to 27.6% in 2010.

Figure 5.2: Percent contribution of the indices of marriage, contraception and postpartum infecundability, and abortion to total fertility reduction, 2000 to 2010
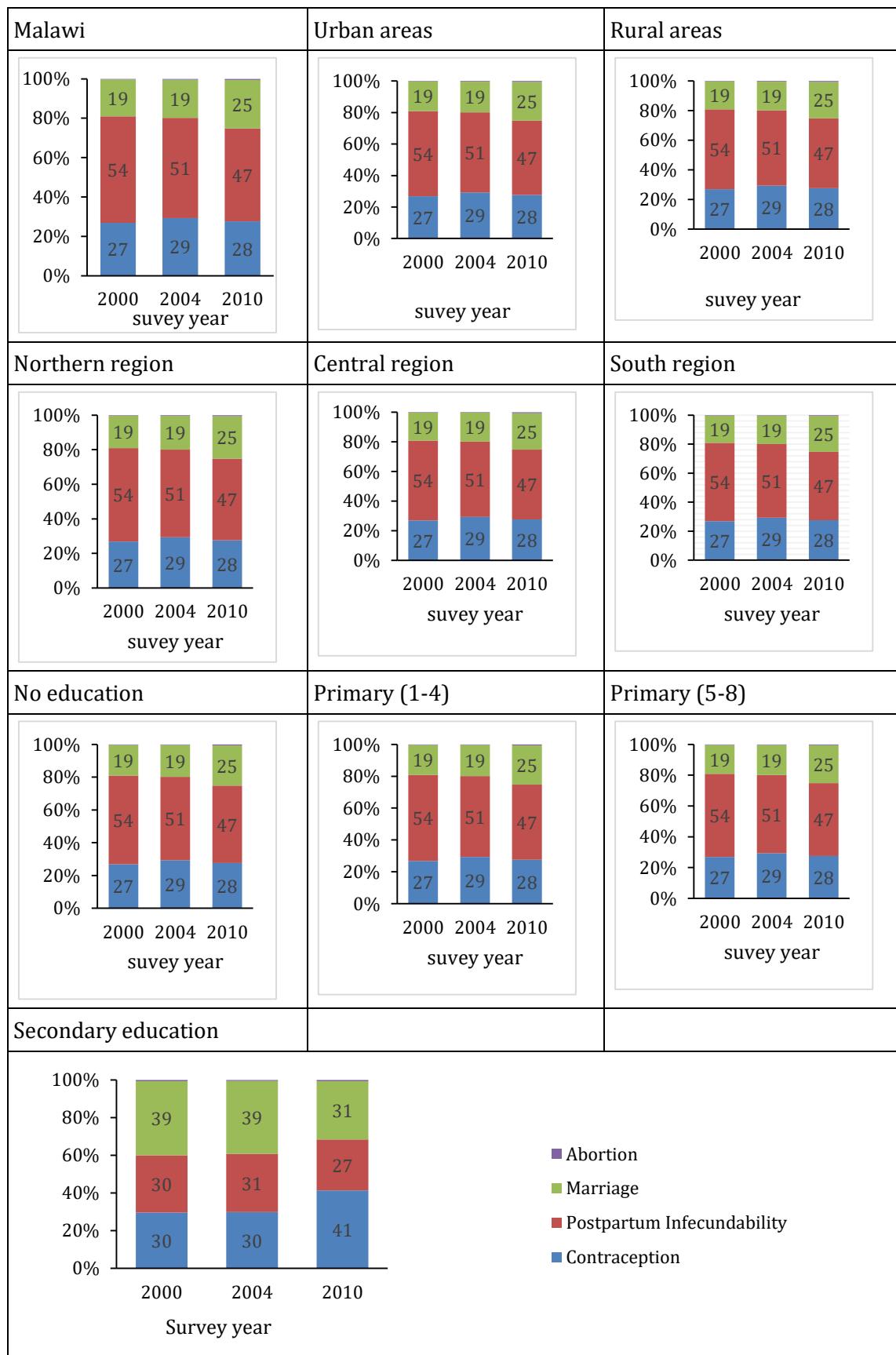
Source: Computed from 2000, 2004 and 2010 MDHS

Figure 5.2 illustrates the large depressing influence of education on fertility; the highest depressing effect is observed among women with secondary education and higher, and less importantly, with lower influence among women with no education in 2010. This is an expected trend because women with increasing education are expected to use more contraception and breastfeed less.

5.12   Summary of the Chapter

The aim of this chapter was to examine the change (if any) in the proximate determinants of fertility, with a view to explaining the level and pace of fertility decline in Malawi. In doing so, the chapter examined, nuptiality patterns and postpartum variables.

The findings from this study provide one of the relatively rare instances when the apparent absence of change in the proximate determinants of fertility is of great interest. Median age at first marriage has not changed over time, which supports previous research by Manda and Meyer (2005). However, the findings of this study contradict the early postulation of Harwood-Lejeune (2000) which, using one dataset, concluded that age at marriage was increasing. Methodologically, this chapter contributes to the knowledge that analyses that focus on the proximate determinants of fertility require more than one set of data.

An analysis of the postpartum variables showed that there is little variation in the pattern of breastfeeding, which has stayed stable over time, whereas that of amenorrhea and sexual abstinence shows a declining trend. The near-constant pattern which in some cases appears to increase over time may be explained by extended periods of breastfeeding patterns. In Malawi the pattern of lactation is governed by social and cultural taboos and lack of change in duration of breastfeeding patterns over time may not be surprising considering that the practice has been promoted by the Ministry of Health since the early 1980s (Chikhungu 2013).

The declining trend in the practice of postpartum amenorrhea and sexual abstinence suggests the waning of old traditions as the country develops. It is also worth mentioning that the urban-rural differentials are narrow, meaning that the postpartum practices in both settings closely resemble each other. This may not be

surprising considering that most women reside in rural areas, and migrate to urban areas in search of employment opportunities. Therefore, it could also be that as women migrate to urban areas, they bring with them customs and traditional values relating to breastfeeding.

The study further attempted to examine how each of the proximate determinants changed over time and their influence on overall fertility in Malawi. Employing the Bongaarts' analytical framework, the model shows that the inhibiting influences of non-marriage and contraception have remained higher than index of postpartum throughout the study period. During this period, postpartum infecundability had the greatest influence in curtailing fertility. This finding is in contrast to the proposition which says that when a country is in transition, there is changeover of the indices, with the index of contraception gaining more influence than the index of postpartum infecundability (Bongaarts 2006).

One of the reasons for the mismatch between contraceptive use and fertility is that exposure to sex is high. This corresponds with the fact that marriage is universal in Malawi, and hence it is less influential in impacting total fertility rate. The findings from this thesis also differ from other studies which used marriage as a marker of sexual activity on Malawi. Johnson et al. (2011), in their study to examine the changes in the proximate determinants of in Malawi, used marriage as a proxy measure of inhibiting influence of non-marriage on fertility; the study found that the indices of marriage were 0.78 and 0.77 in 2000 and 2004, respectively. Another study Madhavan (2014), which used sexual activity in the last four weeks as recommended by Stover (1998), found the index of marriage for Malawi as follows: 0.78 (2000), 0.78 (2004), and 0.70 (2010). In contrast to the findings, both Johnson et al. (2011) and Madhavan (2014), who respectively used the original and Stover's revision, overestimated the index of marriage: in this thesis, the index was found to be 0.82 (2000) and 0.81 (2004) while for 2010, it was 0.75. This suggests that using non-marriage or recent sexual activity, measured as sexual activity in the last four weeks, overestimated the depressing effect on fertility.

Chapter 6.   Levels and Determinants of Contraceptive Use[7]

6.1   Introduction

This chapter derives from the first objective which investigates the change in proximate determinants of fertility and the socioeconomic factors associated with the use of modern contraception. In particular, it assesses the levels of and trends in contraceptive use. The previous chapter examined the role of the proximate determinants of fertility; contraception in particular appeared to have the most influence in curtailing fertility level in the last survey. This justifies the investigation of factors affecting contraceptive use further, which is the objective of the current chapter.

Several background factors may influence women's choice of contraceptive method. For instance, young women might want methods that are temporary because they are in the early stages of childbearing or would want to delay childbearing, but might also want to pursue education and other employment opportunities; while women approaching the end of their period of fertility might want to limit childbearing, hence permanent methods might be suitable (Blanc, Tsui et al. 2009). Thus, analysis of socioeconomic factors affecting contraceptive use and types of method allows an understanding of contraceptive use patterns among different subgroups of women.

The chapter begins by presenting the basic background characteristics of currently married women (currently married includes married women and women living with a partner). This is followed by univariate and bivariate analyses of contraceptive use. The effect of socioeconomic factors on contraceptive use in Malawi and how they have changed over time is the main focus in this chapter, and is examined by applying multivariate techniques. Finally, the main findings from the chapter will be presented.

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[7] A version of this chapter has been published as Chintsanya, J.M.N., (2013) Trends and Correlates of Contraceptive Use among Married Women in Malawi: Evidence from 2000-2010 Malawi Demographic and Health Surveys *Demographic and Health Surveys (DHS) working papers series* no. 87

6.1 Basics Characteristics of Currently Married Women

Table 6.1 presents the percentage of women included in each category of the selected variables for each survey point. Generally, there were few changes over time in women's characteristics, such as place of residence (where there was only a slight increase in the proportion living in urban areas), current age distribution, or number of living children. Notable changes are observed in education attainment, especially the proportion of women with secondary and higher education, which has more than doubled since 2000. The proportion of women with more than two children slightly increased over time. The proportion of women reporting four as an ideal family size has increased while those reporting five and over declined over time. The category of women belonging to the CCAP (Presbyterian) religion slightly increased, while the proportions of Catholics, Muslims and others decreased. Concerning fertility preferences, the proportion of women wanting fewer than five children increased over time.

Table 6.1: Distribution of currently married women by selected variables MDHS 2000–2010

Background characteristics	2000	2004	2010
Age			
15–19	9.9	9.5	7.5
20–24	24.6	27.5	22.3
25–29	22.2	21.8	24.0
30–34	13.9	14.7	17.0
35–39	12.6	10.9	13.1
40–44	9.0	9.1	8.6
45–49	7.8	6.6	7.4
Residence			
Urban	14.4	16.1	17.3
Rural	85.6	83.9	82.7
Region			
Northern	11.0	13.3	11.6
Central	40.3	40.5	42.8
Southern	48.8	46.3	45.6
Woman's education			
No education	32.9	26.8	19.1
Primary (1–8)	30.1	27.6	28.2
Primary (5–8)	29.6	34.5	37.2
Secondary and higher	7.4	11.1	15.5
Wealth Index			
Poorest	20.1	15.1	17.0
Poor	20.0	21.5	20.1
Middle	19.5	22.3	21.3
Rich	20.2	21.4	20.6
Richest	20.2	19.7	21.1

Table 6.1 Continued…

Background Characteristics	2000	2004	2010
Heard FP message on radio			
Yes	70.8	70.6	61.4
No	18.3	29.4	38.6
Heard FP message on TV			
Yes	4.4	6.7	9.4
No	95.6	93.4	90.6
Heard FP message in Newspaper			
Yes	16.1	11.7	11.9
No	83.9	88.3	88.1
Fertility preference			
Have another	53.4	53.9	49.7
Undecided	1.5	3.8	2.1
No more	45.1	42.3	48.2
Number of living children			
0–2	50.9	49.3	42.8
3–4	26.3	27.9	31.8
5+	22.8	22.8	25.4
Ideal no. of children			
0–2	11.3	12.5	12.9
3–4	48.7	50.5	54.9
5+	36.6	33.6	31.3
Unknown	3.5	3.4	1.0
Ethnic group			
Chewa	33.3	34.2	34.6
Tumbuka/Tonga	9.6	11.3	11.1
Lomwe	17.4	17.1	15.8
Yao	13.7	13.0	13.3
Ngoni	12.0	11.1	12.3
Other	14.0	13.4	12.9
Religion			
Catholic	25.0	24.7	21.8
CCAP (Presbyterian)	16.5	16.9	14.9
Pentecost	36.9	38.4	41.5
Muslim	13.6	12.7	13.8
Other	8.0	7.3	8.0
Total	9,452	8,313	15,528

6.2 Sample Population of Currently Married Women

The sample population for the analyses of contraceptive use comprises currently married women (15–49 years). The sample of currently married women was chosen because this is the target population for the programming effort. In addition, it provides a fairly reasonable distribution for the analysis of married women's contraceptive method choice.

Information on current use of contraception was captured by asking the question "Are you and your partner currently using/doing something or using any method to delay

177

or avoid getting pregnant?" to non-pregnant women; women who reported that they were pregnant and women who said that they had never had sexual intercourse were excluded from the analysis.

6.3   Women's Knowledge of Contraceptive Methods

Knowledge about contraception is an important step in access to and use of a particular supply method. Without this knowledge, women miss the opportunity to access free contraceptives offered in health facilitates in a timely and effective manner. Information on knowledge and use of family planning methods was obtained from female and male respondents by asking them to mention the ways or methods by which a couple can delay or avoid pregnancy. If the respondents failed to mention the methods spontaneously, the interviewer provided a description of each method and asked them whether they knew the method. Evidence from the DHS reports shows that knowledge of family planning methods in Malawi has remained high and is almost universal. The percentage of women that knew of any modern family planning method was 98.4, 98.6 and 99.7% in 2000, 2004 and 2010 respectively (NSO and ICF Macro, 2010). Since knowledge of contraceptive methods is universal, tables are not provided in this section.

6.4   Trends and Levels of Contraceptive Use

Large variations in contraceptive use exist between regions, even within countries, and according to a woman's socioeconomic status. Although the focus of the study is the period between 2000 and 2010, it is important to note the data that start from 1992. Figure 6.1 shows that the percentage of women that uses any form of contraception has increased sevenfold from the 1992 level. The percentage of married women who reported using modern contraception was 42.2% in Malawi in 2010. The use of traditional methods, however, has changed marginally over time, from 4.5% in 2000 to 3.9% in 2010.

Figure 6.1:   Trends in current use of contraceptive methods among women currently
             married women (15-49), 1992–2010 MDHS
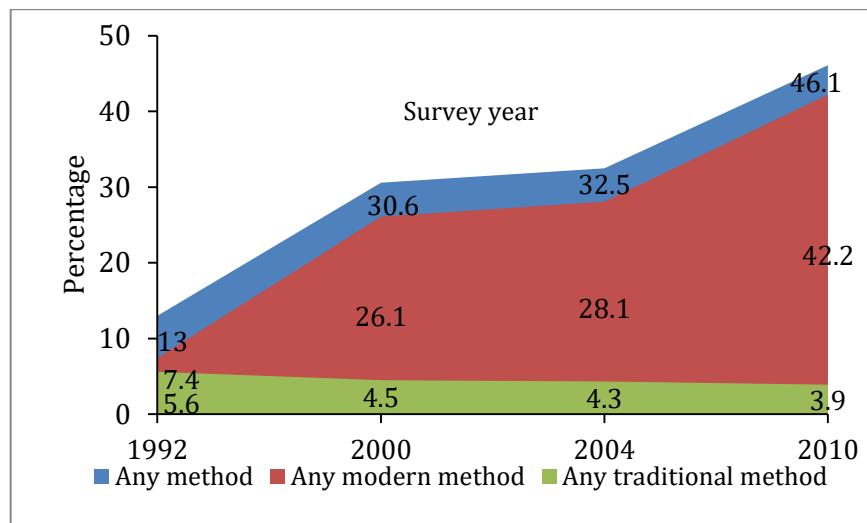
Source: computed from MDHS

6.5   Bivariate Analysis of Current Use of Contraception

As contraceptive use tends to vary between regions and according to woman's
socioeconomic characteristics, several explanatory variables were included in the
bivariate analysis. Chi-square tests were performed to show the association of the
independent variables with modern contraceptive use.

Table 6.2 shows variations in the percentage of currently married women who were
using modern contraception, according to selected socioeconomic and demographic
variables, from 2000 to 2010. Overall, 26.1% of currently married women were using
modern contraception in 2000. The percentage changed marginally in 2004 to 28.2%
before rising to 42.4% in 2010. In 2000, 38.2% of currently married women in urban
areas were using modern contraception. The percentage, however, declined to 34.7%
in 2004, before rising sharply to almost 50% in 2010. Although there was a gradual
increase in modern contraceptive use among women in rural areas, the percentage
was consistently lower than in urban areas during all three survey periods, with the
highest registered in 2010, at 40.7%.

Contraceptive use patterns by age differ across the survey years. Women aged 15–19
years reported least use of modern contraception across the three survey years. This
may not be surprising because women in this group are at the beginning of their

reproductive years. It seems fair to say that most women in this age group are unlikely to take steps to avoid pregnancy, since they would want to prove fertility before they start using contraception. Nonetheless, the percentage of women in age group 15–19 doubled between 2000 and 2010, from 12.9% to 26.4%. It is also worth mentioning that there was a sharp rise in modern contraceptive use among women in age group 35–39, peaking at 49.1% in 2010.

The results with respect to education are in the expected direction, with women with highest educational attainment reporting higher use of modern contraception. Level of education shows the greatest variation within the survey and across the survey years. For example, 21.9% of women with no formal education, 29.4% with primary education (5–8), and 42.3% with secondary education and higher were using modern contraception in 2000, while the corresponding levels of contraceptive use were 37.1%, 42.1% and 48.5% in 2010.

Table 6.2: Percentage distribution of use of modern contraception among currently married women age 15–49, by selected background characteristics, MDHS

Background characteristics	Year of survey		
	2000	2004	2010
Place of residence	***	***	***
Urban	38.2	34.7	49.6
Rural	24.1	26.9	40.7
Region			*
North	25.4	25.4	39.0
Central	27.2	27.2	44.6
South	25.4	25.4	40.8
Age	***	***	***
15–19	12.9	16.6	26.4
20–24	22.7	25.4	38.0
25–29	29.9	30.8	45.0
30–34	30.2	31.6	46.0
35–39	31.5	31.8	49.1
40–44	31.6	33.3	45.0
45–49	20.4	26.7	38.2
Education	***	***	***
No education	21.9	23.1	37.2
Primary (1–4)	23.6	25.5	40.6
Primary (5–8)	29.4	30.0	43.5
Secondary+	42.3	41.1	48.4
Wealth index	***	***	***
Poorest	19.8	21.8	34.9
Poor	24.2	24.2	39.8
Middle	24.9	25.2	41.4
Rich	25.3	31.1	45.3
Richest	36.2	37.6	48.4
Source of Family Planning message	***	***	***
None	18.5	24.0	39.3
Radio	27.6	27.9	42.5
Television	32.6	34.5	47.4
Newspaper	41.3	45.4	49.6

Table 6.2 continued...

Religion	***	***	***
Catholic	28.4	30.5	44.7
CCAP	31.2	34.1	48.5
Pentecost	24.1	26.7	42.0
Muslim	19.0	20.5	28.5
Other	29.8	27.5	48.6
Ethnicity	*	***	***
Chewa	28.0	28.8	45.5
Tumbuka/Tonga	27.8	30.7	40.7
Lomwe	25.3	29.8	43.6
Yao	19.8	22.0	30.8
Ngoni	26.6	31.9	42.9
Other	27.1	25.1	44.2
Number of living children	***	***	***
0	2.6	1.8	4.9
1–2	22.1	26.2	37.9
3–4	31.6	33.0	48.0
5+	37.8	36.5	50.7
Fertility planning status	***	***	***
Have another soon	19.5	23.3	35.9
Undecided	9.8	16.2	29.9
No more	34.5	35.5	49.4
Ideal number of children	**	***	***
0–2	25.1	32.7	41.4
3–4	27.2	28.3	43.9
5+	25.4	27.0	40.0
Unknown	21.8	20.2	42.5
Total percentage	26.1	28.1	42.2
Total number	9452	8313	15528

Significance: *$p<0.05$, **$p<0.01$, ***$p<0.005$

Source: Computed from 2000, 2004 and 2010 MDHS

Over time, exposure to forms of mass media is positively associated with contraceptive use; women who reported reading magazines, listening to the radio and watching television have higher percentages of modern contraceptive use. Similarly, Table 6.2 also shows that the greatest increase among women in different quintiles was observed among the poorest, among whom use of contraception increased by almost 15%, from 19.8% in 2000 to 34.9% in 2010.

The percentage of women using modern contraception increases with the number of living children, suggesting that women begin to space or limit the number of children they have once they reach their desired family size. There are few differences between 2000 and 2004, but the proportions increase substantially in 2010. Regarding ideal

family size, women who did not mention a figure or said it was "up to God" had lower levels of modern contraceptive use in 2000 and 2004, but in 2010 had levels of contraceptive use comparable to other women.

6.6 Multivariate Analysis

To assess the net effect of the predictors on modern contraceptive use in each survey, binary logistic regression was used controlling for selected explanatory variables. The explanatory variables are those that proved significant during the bivariate analyses. The results are presented in the following sections.

6.6.1 Results from Logistic Regression Analyses

Table 6.3 shows that, in 2000, women residing in rural areas were 27% less likely to use contraception compared with those living in the urban areas. However, in 2010, the percentage improved to 21%, suggesting a narrowing of the gap between urban and rural areas.

Table 6.3 indicates that in 2000, compared with women aged 15–19, women aged 30–34 were significantly more likely to use modern contraception. In 2004, however, the trend starts with women aged 25–29, while in 2010 it starts at age 20–24. This shows that, over time, women in Malawi have started using modern contraception at younger ages. Furthermore, for each survey, the magnitude of odds ratios declines with increasing age, suggesting that older women are less likely to use modern contraception than younger women.

With regards to education, women who attained higher primary education (5–8), and those with secondary and higher levels of education, were more likely to use modern contraceptives than women with no education.

Table 6.3: Odds Ratios (ORs) and 95% Confidence Intervals (CIs) from binary logistic regression analyses assessing associations between socioeconomic characteristics and use of modern contraception among currently married women in Malawi, in 2000-2010

Background Characteristics	2000 O.R. (95% C.I.)	2004 O.R. (95% C.I.)	2010 O.R. (95% C.I.)
Place of residence			
Urban (ref)			
Rural	0.73 (0.58-0.92)*	0.97 (0.81-1.17)	0.79 (0.66-0.94)**
Region			
North (ref)			
Central	1.28 (0.96-1.71)	1.29 (0.94-1.76)	1.35 (1.05-1.74)*
South	1.32 (0.99-1.77)	1.15 (0.85-1.57)	1.33 (1.06-1.67)*
Age			
15-19 (ref)			
20-24	1.05 (0.78-1.43)	0.79 (0.60-1.04)	0.75 (0.61-0.92)**
25-29	0.99 (0.73-1.34)	0.72 (0.54-0.96)*	0.63 (0.50-0.79)***
30-34	0.68 (0.48-0.97) *	0.62 (0.44-0.87)**	0.50 (0.39-0.64)***
35-39	0.62 (0.43-0.92) *	0.50 (0.36-0.70)***	0.52 (0.39-0.68)***
40-44	0.59 (0.39-0.88) **	0.55 (0.39-0.77)***	0.43 (0.32-0.57)***
45-49	0.34 (0.22-0.53)***	0.41 (0.28-0.60)***	0.32 (0.23-0.43)***
Education attainment			
No education (ref)			
Primary (1-4)	1.11 (0.93-1.32)	1.14 (0.95-1.36)	1.08 (0.94-1.25)
Primary (5-8)	1.26 (1.03-1.53)*	1.40 (1.18-1.66)***	1.28 (1.11-1.48)***
Secondary+	1.81 (1.31-2.48)***	2.12 (1.60-2.81)***	1.55 (1.25-1.93)***
Wealth index			
Poorest (ref)			
Poor	1.11 (0.91-1.36)	1.11 (0.90-1.38)	1.27 (1.09-1.47)***
Middle	1.12 (0.92-1.38)	1.14 (0.93-1.39)	1.28 (1.11-1.47)***
Rich	1.23 (1.00-1.52)*	1.39 (1.13-1.72)***	1.42 (1.23-1.64)***
Richest	1.46 (1.18-1.79)***	1.38 (1.08-1.77)**	1.40 (1.17-1.67)***
Employment status			
Not working (ref)			
Working	1.18 (1.04-1.33)**	1.22 (1.07-1.38)***	1.35 (1.23-1.47)***
Religious affiliation			
Catholic (ref)			
CCAP	0.98 (0.79-1.21)	1.02 (0.82-1.29)	1.12 (0.97-1.30)
Pentecost	0.88 (0.75-1.03)	0.89 (0.75-1.06)	0.97 (0.85-1.10)
Muslim	0.79 (0.59-1.07)	0.68 (0.51-0.89)**	0.58 (0.46-0.72)***
Other	1.12 (0.88-1.43)	0.83 (0.64-1.07)	1.16 (0.95-1.41)
Ethnicity			
Chewa (ref)			
Tumbuka/Tonga	0.85 (0.62-1.16)	1.00 (0.74-1.36)	0.90 (0.71-1.14)
Lomwe	0.90 (0.73-1.12)	1.15 (0.69-1.31)	0.88 (0.74-1.05)
Yao	0.76 (0.56-1.04)	0.95 (0.90-1.46)	0.89 (0.72-1.10)
Ngoni	0.80 (0.63-1.01)	1.08 (0.75-1.24)	0.82 (0.69-0.97) *
Other	1.07 (0.84-1.36)	0.97 (0.75-1.24)	1.04 (0.87-1.23)
Fertility planning status			
Have another (ref)			
Undecided	0.37 (0.18-0.75) **	0.57 (0.40-0.82) **	0.60 (0.44-0.84) ***
no more	1.43 (1.25-1.64) ***	1.22 (1.05-1.43) **	1.24 (1.10-1.39) ***

Table 6.3 continued...

Number of living children			
5 or over (ref)			
No children	0.10(0.05-0.20) ***	0.06 (0.02-0.12) ***	0.08 (0.04-0.16) ***
1-2	0.47 (0.39-0.56) ***	0.51 (0.42-0.61) ***	0.47 (0.41-0.54) ***
3-4	1.84 (1.53-2.20) ***	1.53 (1.27-1.84) ***	1.53 (1.33-1.76) ***
Ideal family size			
5 over (ref)			
0-2	1.00 (0.82-1.22)	1.43 (1.16-1.75) ***	1.00 (0.84-1.18)
3-4	0.80 (0.70-0.91) ***	0.82 (0.71-0.95) **	0.74 (0.67-0.83) ***
unknown	0.75 (0.53-1.07)	0.61 (0.43-0.87) **	0.72 (0.53-0.98) *
Constant	0.27(0.15-0.49) ***	0.33 (0.19-0.57) ***	0.89 (0.57-1.39)

Significance: *p<0.05, **p <0.01, ***p<0.005, Ref: reference category

In terms of household wealth quintiles, the trend shows that for the first two surveys, only women in the two categories of "rich" and "richest" were significantly more likely to use contraceptives than women in the poorest quintile in 2000 and 2004; whereas in 2010, all the other quintiles were significantly different from the poorest.

As for exposure to family planning messages via various forms mass media, the results were only significant in 2000 (not shown). Regarding the other channels of information, the results for news and television were not significant, which may not be surprising considering that reading newspapers and watching television are associated with urban settings, while the majority of women live in the rural areas with little or no access to television and newspapers. It is likely that women obtained information about contraceptives in ways other than from the radio. These sources have been elaborated upon in Chapter 7 of the qualitative findings.

The likelihood of use of modern contraceptives was lower for women with no children or fewer than three children, compared with those with five children or more. However, the likelihood of use of modern contraceptives increased for women with between three and four living children compared with those with five children or more and no children by 84%, 53% and 53% in 2000, 2004 and 2010, respectively. Compared with women who wanted to have another child, women who were uncertain about having another child were less likely to use modern contraception.

In all three surveys, women who wanted no more children were more likely to use modern contraception than women who wanted another child. A similar pattern is observed when ideal family size is considered. Women who reported three or four as

185

their ideal number of children, as well as women who did not know how many was ideal (or reported it as up to God), were less likely to use modern contraception than women whose ideal number of children was five or more. Since the results show that women are more likely to use contraceptives after reaching three to four children, this suggests that women want to have a certain number of children before using contraception.

6.7 Demographic and Socioeconomic Factors Influencing Contraceptive Method Choice

To further our understanding of the pattern of contraceptive use and how that can be linked to the slow fertility decline in Malawi, trends in contraceptive method choice by demographic and socioeconomic characteristics of women are examined in this section using bivariate analyse. A multivariate analysis is then carried out with the aim of examining changes (if any) in the factors affecting contraceptive method choice. A subset of contraceptive users is further investigated, and the analyses are restricted to women currently using modern contraceptives.

6.7.1 Univariate and Bivariate Analyses of Contraceptive Method Mix

Table 6.4 shows that the use of injections has increased steadily and is the predominant method. In 2010, about 26% of currently married women used the contraceptive injection, up from 18% in 2004 and 16.4% in 2000. In 2010, almost 10% of women relied on female sterilization, twice the rate of 2000. Use rates of the pill and male condoms have remained constant at low levels over the survey period. In fact, the use of the pill has declined over time. Relative to the injection, all other contraceptive methods are infrequently used, including the traditional methods such as periodic abstinence. An extremely small percentage of women use the IUD. For analytical purposes, the pill, IUD and male condom including female condom have been combined as "other" modern methods owing to their small proportions of use.

Table 6.4: Percentage distribution of current contraceptive users among women by method currently used, 1992–2010 MDHS

Method type	Survey year			
	1992	2000	2004	2010
Any method	13	30.6	32.5	46.1
Female sterilisation	1.7	4.7	5.8	9.7
Male sterilisation	0.0	0.1	0.0	0.1
Pill	2.2	2.7	2.0	2.5
IUD	0.3	0.1	0.1	0.3
Injectable	1.5	16.4	18.0	25.8
Implants	n/a	0.1	0.5	1.3
Male condom	1.6	1.6	1.8	2.5
Any modern method	7.4	26.1	28.1	42.2
Rhythm/periodic abstinence	2.2	0.9	0.5	0.8
Withdrawal	1.5	1.5	`	1.8
Other traditional methods	2.0	2.1	1.7	1.2
Any traditional method	5.6	4.5	4.3	3.9
Number of women	3492	9452	8312	15528

Source: computed from MDHS except 1992 (obtained from 1992 MDHS report)

Overall, among modern contraceptive users, use of injectable contraceptive increased from 16.4% in 2000 to 25.8% in 2010, representing a 60% increase. This is followed in popularity by sterilisation (4.8%) and the pill (2.7%). Just like the injection, use of sterilisation has increased over time; from as low as 4.8% in 2000, doubling by 2010 (9.7%). Among the other modern methods—IUD, male condom and male sterilisation—all combined were at about 5% in 2000, but over time their importance as methods of contraception declined to 4.3% in 2010.

6.7.2 Use of Modern Contraceptive Method by Selected Background Characteristics

Figure 6.2 shows that high use rates of the injection are observed among young women (15–29), suggesting that it is the most popular method of protection for this age group. It can also be seen that the greatest increase in use rates of injection occurred among women in the age group 15–19 in 2010.

Figure 6.2: Distribution of women using injection as their current method of contraception by age group, 2000–2010 MDHS
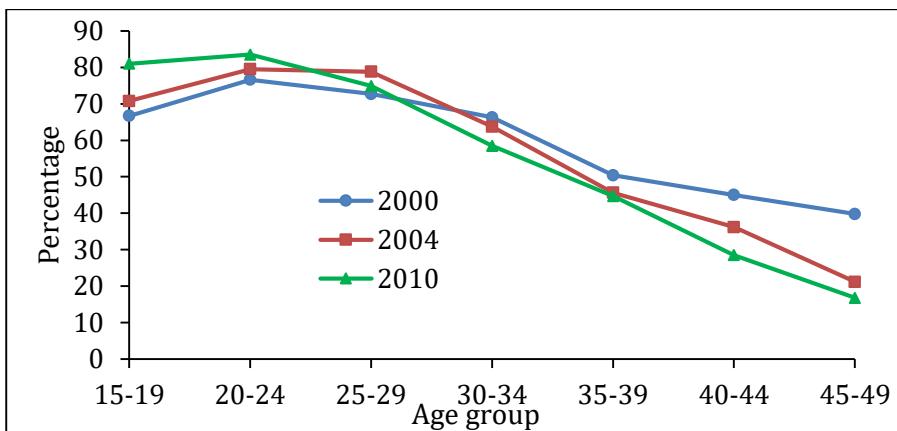
Source: computed from MDHS

Figure 6.3 which shows that in Malawi the percentage of women who opt for sterilisation increases dramatically after the age of 30 years, and the maximum is observed among the oldest age groups. Among currently married women using current modern method in the age group 45-49 years, use rates of sterilisation reach more than 70%. A plausible explanation for the dramatic rise is that since childbearing starts early in Malawi, it is likely that most women have attained their desired number of children by the age of 30 years, and hence consider limiting.

Figure 6.3: Distribution of women using sterilisation as their current method of contraception, 2000–2010 MDHS
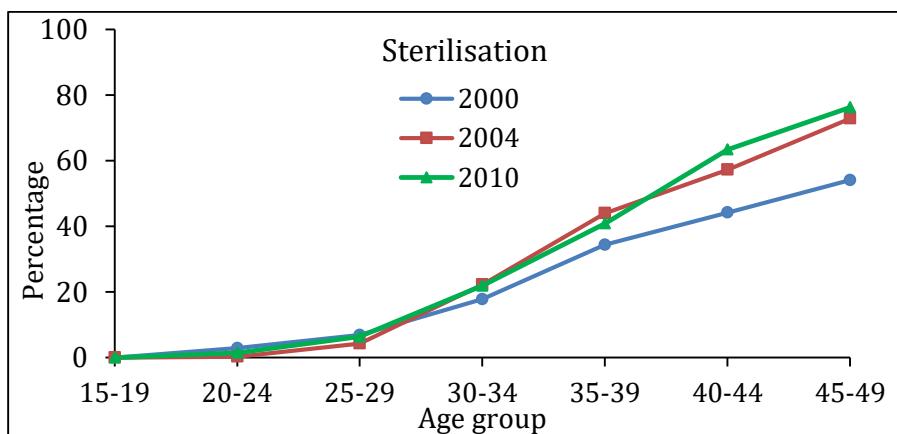
Source: computed from MDHS

Figure 6.4 shows that the use of the pill/IUD/condoms among younger women (15–24) has declined substantially compared to the first two surveys, and the rates remain low with increasing age. The only increase, however, is observed in 2010 among women aged 30–34 years, where one in five women report using the

188

pill/IUD/condoms as their method of contraception. One qualification is that the increase is mainly due to use of the male condom, which according to Table 6.5 increased in use from 1.6% in 2000 to 2.4% in 2010.

Figure 6.4:   Percentage of women who are currently using the pill/IUD/condoms as their current method of contraception by age, Malawi 2000-2010 MDHS
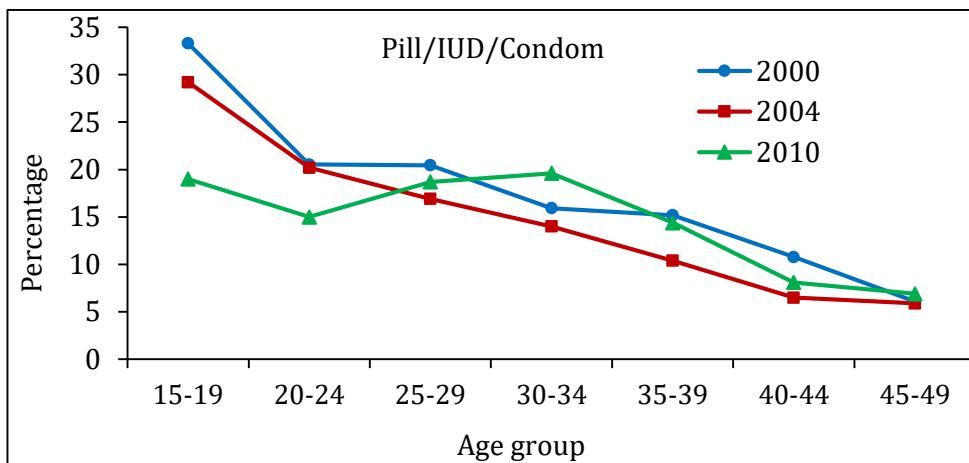
Source: computed from MDHS

As regards to education attainment, Figures 6.5–6.7 show that among modern users of contraception, injection was the most used method. In 2000, women with no education have the highest use rates of injection compared with those with at least secondary education. Use of injection among women with no education declined over time, such that in 2010, the proportion had reached its lowest level (53%) (see Figure 6.7).

Figure 6.5: Percentage distribution of currently married contraceptive users by, method used and education level, 2000 MDHS
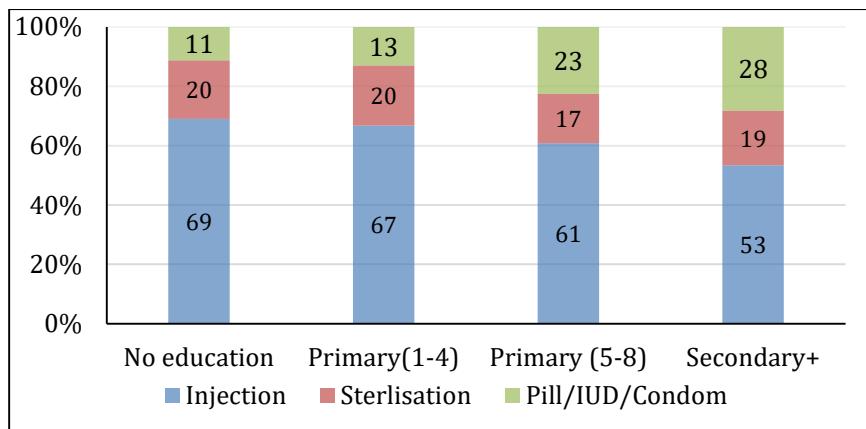
Figure 6.6: Percentage distribution of currently married contraceptive users, by method used and education level, 2004 MDHS
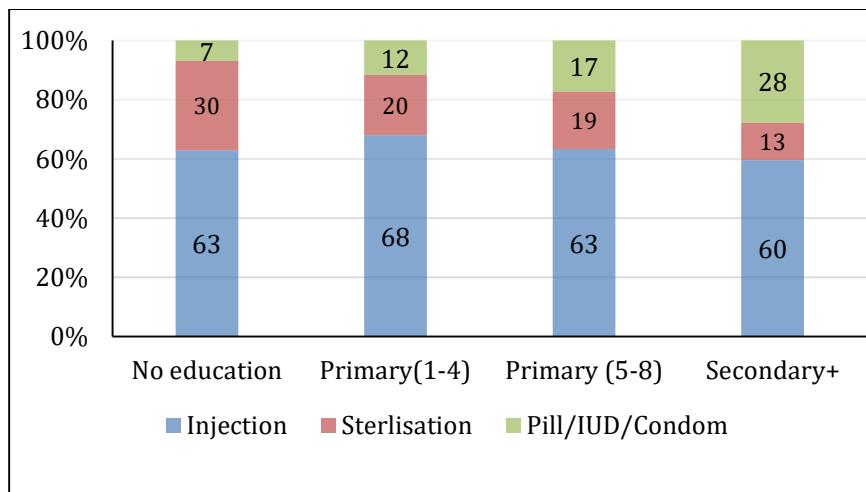
Figure 6.7: Percentage distribution of currently married contraceptive users, by method used and education level, 2010 MDHS
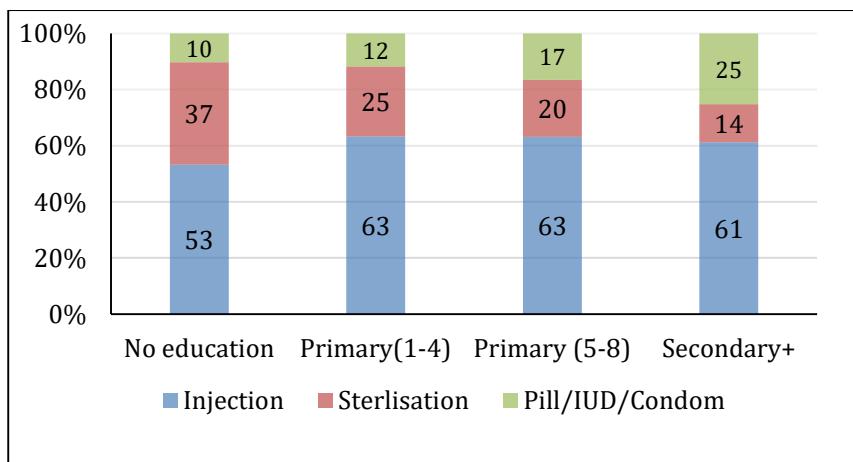
Source: Computed from 2000, 2004 and 2010 MDHS

As noted above, Figure 6.7 reveals that the decline in use rates of injection among women with no education in between 2000 and 2010 decline, the proportion of women using sterilisation increases in the same period. This may be explained by the fact that women with no education have high parity (as shown in Chapter 4), and have achieved the desired family size, and may be strongly encouraged by health workers to choose sterilisation in order to limit childbearing.

With the exception of women who attained secondary and higher education, the results also show a lack of change in the use of the pill, IUD and condoms, and in some cases, the use rates have marginally declined. The increase in pill use with educational level may be due to a greater ability of educated than uneducated women to take the pill correctly, since the pill has to be taken on daily basis to achieve protection. Educated women are more likely to follow pill guidelines, which can be a problem for uneducated women. Similarly, women who are educated are likely to be able to afford other methods, such as implants and IUDs.

Considering that Catholicism is known to be conservative in use of modern contraceptives, it is expected that women affiliated with Catholicism should show a lower proportion of contraceptive use. However, as shown in tables 6.5–6.7, Catholics do not show substantially low percentages in comparison with other religious groups, and in many cases, they match the Protestants in numbers of use of injection. The tables also show that use rates for injection are highest among Muslim women; by contrast, they have the lowest use rates for sterilisation.

Table 6.5: Percentage distribution of current users of contraceptives, by method used by selected socioeconomic background characteristics, Malawi 2000

Background characteristics	2000			
	Injection	Sterilisation	Pill/IUD/Condom	Number
Place of residence				
Urban	60.1	20.3	19.6	518
Rural	64.7	18.3	17.0	1912
Region ***				
North	43.5	19.9	36.6	270
Central	68.0	19.4	12.6	1047
South	64.7	17.7	17.6	1113
Age group***				
15-19	66.7	0.0	33.3	113
20-24	76.6	2.9	20.5	521
25-29	72.7	6.9	20.4	615
30-34	66.3	17.8	15.9	392
35-39	50.4	34.4	15.2	370
40-44	45.0	44.2	10.8	268
45-49	39.8	54.1	6.1	151
Education attainment ***				
No education	69.0	19.7	11.3	664
Primary(1-4)	66.7	20.3	13.0	660
Primary (5-8)	60.8	16.6	22.6	812
Secondary+	53.4	18.5	28.2	295
Partners education ***				
No education	67.9	19.0	13.1	309
Primary	65.5	19.6	14.9	1468
Secondary	57.8	16.5	25.7	653
Occupation ***				
Not working	69.0	14.3	16.7	844
Skilled	48.9	23.2	27.9	187
Unskilled	59.8	20.5	19.7	422
Agriculture	63.7	20.8	15.5	977
Employment status ***				
Employed	60.8	21.6	17.7	1497
Unemployed	68.4	14.1	17.5	932
Wealth index ***				
Poorest	71.8	16.8	11.4	374
Poor	63.5	19.9	16.6	450
Middle	64.7	20.1	15.2	453
Rich	63.9	16.3	19.8	470
Richest	58.7	19.7	21.7	374

Table 6.5 continued...

Religious affiliation				
Catholic	63.3	20.5	16.2	481
CCAP(Presbyterian)	61.5	21.9	16.6	828
Pentecost	63.9	18.5	17.6	235
Muslim	69.2	12.7	18.1	224
Other	63.6	13.2	23.2	663
Ethnicity ***				
Chewa (matrilineal)	66.6	19.5	13.9	869
Tumbuka (patrilineal)	47.0	20.2	32.8	249
Lomwe (matrilineal)	67.8	16.3	15.9	410
Yao (matrilineal)	65.4	16.1	18.5	251
Ngoni (matrilineal)	57.7	25.5	16.8	297
Other	67.7	14.6	17.7	354
Source of FP message ***				
None	67.2	18.0	14.7	490
Radio	65.7	17.9	16.3	1391
Television	56.0	19.1	24.9	419
Newspaper	54.1	28.0	17.9	130
Desire for children				
Have another soon	76.4	0.0	23.6	961
Undecided	48.5	0.0	51.5	11
No more	55.4	31.2	13.4	1457
No. of living children ***				
0	23.7	45.0	31.4	51
1-2	69.2	5.4	25.4	795
3-4	67.3	16.9	15.8	773
5+	56.0	33.1	10.9	811
Ideal number of children ***				
0-2	68.0	11.5	20.5	263
3-4	67.4	13.7	19.0	1232
5+	58.8	26.3	15.0	864
Unknown	44.8	40.4	14.8	71
Malawi	63.7	18.7	17.6	2430

Significance: *p<0.05, **p <0.01, ***p<0.005

A comparison of use of contraception method between urban and rural areas shows that there was no significant difference in use of injection in the first two surveys. In 2010, the proportion of currently women using injections was significantly higher in rural areas than in urban areas, and the gap between the rural and urban users of injections widened such that the difference was almost 8%. A similar comparison for other methods reveals that the proportion of currently–married women using the methods was higher in urban areas than in rural areas. The exception was in 2004, where the use rate for sterilisation was higher in latter than in the former. The

differentials in the use of injections observed between urban and rural areas to some degree reflect the emphasis on community-based distribution programmes in rural areas that occurred between 2004 and 2010.

Table 6.6: Percentage distribution of current users of contraceptives, by method used by selected socioeconomic background characteristics, 2004 MDHS

Background characteristics	2004			
	Injection	Sterilisation	Pill/IUD/Condom	Number
Place of residence				
Urban	64.7	18.4	17.0	464
Rural	63.6	21.5	15.0	1875
Region ***				
North	38.3	23.0	38.7	312
Central	63.7	23.0	13.4	998
South	71.7	18.1	10.2	1030
Age ***				
15-19	70.8	0.0	29.2	131
20-24	79.5	0.3	20.2	580
25-29	78.8	4.3	16.9	558
30-34	63.7	22.2	14.0	387
35-39	45.6	44.0	10.4	287
40-44	36.2	57.3	6.5	251
45-49	21.2	72.9	5.9	145
Education ***				
No education	63.0	30.1	6.9	515
Primary (1–4)	68.0	20.4	11.6	584
Primary (5–8)	63.4	19.3	17.3	861
Secondary+	59.6	12.6	27.8	380
Partner's education ***				
No education	61.4	29.6	9.1	275
Primary	65.0	22.0	13.0	1353
Secondary	62.6	15.1	22.3	709
Woman's work status *				
Not working	66.3	18.0	15.7	868
Skilled	46.9	32.2	20.9	110
Unskilled	61.9	24.5	13.6	353
Agriculture	64.2	20.7	15.1	1009
Employment status				
Employed	65.7	18.6	15.7	1,417
Unemployed	62.6	22.2	15.2	922
Wealth index **				
Poorest	73.0	17.2	9.8	273
Poor	69.4	19.1	11.5	432
Middle	65.3	18.5	16.2	466
Rich	59.8	23.6	16.6	552
Richest	58.3	23.0	18.7	616
Religious Affiliation				
Catholic	63.3	19.8	16.9	626
CCAP	62.1	23.1	14.8	479
Pentecost	64.3	21.6	14.1	850
Muslim	69.8	16.3	13.9	217
Other	60.3	20.5	19.2	168

Table 6.6 continued

Ethnicity ***				
Chewa	66.2	22.0	11.8	817
Tumbuka	37.5	22.0	40.5	289
Lomwe	68.5	21.0	10.5	423
Yao	73.9	13.8	12.3	238
Ngoni	66.6	22.1	11.3	294
Other	65.5	20.5	14.0	278
Source of FP message***				
None	67.6	19.8	12.6	575
Radio	64.9	21.3	13.8	1326
Television	57.4	16.0	26.7	277
Newspaper	52.6	28.7	18.7	162
Fertility planning status ***				
Have another soon	78.4	0.0	21.6	1,043
Undecided	74.7	0.0	25.3	51
No more	51.2	39.1	9.7	1,245
No. of living children ***				
0	23.3	2.9	73.8	14
1-2	75.6	3.7	20.7	870
3-4	67.2	17.2	15.6	765
5+	46.0	46.8	7.2	691
Ideal no. of children ***				
0-2	64.0	13.6	22.4	339
3-4	69.9	14.8	15.3	1188
5+	56.1	31.3	12.6	756
Unknown	38.9	49.5	11.6	57
Malawi	63.8	20.8	15.3	2340

Significance: *p<0.05, **p <0.01, ***p<0.005; IUD (Intra-Uterine Device)

Apart from the Tumbuka/Tonga ethnic group, at least two thirds of women from all ethnic groups reported the use of injections at each survey point. It can be observed that the proportion of currently married women of the Tumbuka/Tonga group who report the use of use of pill/IUD/condoms are much higher than for other ethnic groups. For instance, among Tumbuka/Tonga users of modern methods, 38% use injection, 22% use sterilisation and 41% used the pill/IUD/condoms in 2004. A similar pattern is also evident for the other surveys. These differences may not be to do with ethnicity and lineage type; rather, women in the northern region on average have higher education attainment levels, and hence are more knowledgeable about other modern contraceptives (see section 3.3).

Table 6.7: Percentage distribution of current users of contraceptives, by method used by selected socioeconomic background characteristics, Malawi 2010

Background characteristics	2010			
	Injection	Sterilisation	Pill/IUD/Condom	Number
Place of residence ***				
Urban	54.9	25.0	20.1	1,333
Rural	62.8	22.6	14.6	5,226
Region***				
North	42.5	26.9	30.6	730
Central	59.8	27.2	13.0	2981
South	67.4	17.9	14.7	2847
Age group***				
15-19	81.0	0.0	19.0	309
20-24	83.5	1.5	15.0	1318
25-29	74.9	6.4	18.7	1674
30-34	58.5	21.9	19.6	1214
35-39	44.7	40.9	14.4	1001
40-44	28.5	63.4	8.1	602
45-49	16.8	76.3	6.9	441
Education***				
No education	53.2	36.5	10.3	1,104
Primary (1-4)	63.3	25.0	11.7	1,782
Primary (5--8)	63.2	20.3	16.5	2,508
Secondary+	61.2	13.6	25.2	1,164
Partner's education***				
No education	62.5	29.0	8.5	622
Primary	62.1	24.7	13.2	3805
Secondary	59.1	18.6	22.3	2119
Occupation***				
Not working	66.6	18.9	14.5	1358
Skilled	47.4	30.5	22.1	625
Unskilled	59.1	22.6	18.3	1712
Agriculture	62.9	23.8	13.3	2864
Employment status***				
Employed	58.8	24.7	16.5	4,139
Unemployed	65.2	20.4	14.4	2,414
Wealth index***				
Poorest	68.5	18.5	13.0	922
Poor	67.4	20.2	12.4	1242
Middle	63.7	22.1	14.2	1366
Rich	59.7	24.8	15.5	1447
Richest	51.1	27.4	21.5	1582
Religion***				
Catholic	61.4	21.4	17.2	1514
CCAP	56.6	26.6	16.8	1125
Pentecost	61.2	23.6	15.2	2708
Muslim	71.9	16.1	12.0	608
Other	58.1	26.2	15.7	602
Ethnicity***				
Chewa	62.7	26.3	11.0	2442
Tumbuka/Tonga	45.3	25.9	28.8	701
Lomwe	68.0	19.6	12.4	1072
Yao	69.9	16.6	13.5	637
Ngoni	55.1	25.0	19.9	822
Other	60.7	19.4	19.9	885

Table 6.7 continued...

Source of FP message**				
None	63.3	22.3	14.4	2268
Radio	61.5	22.7	15.8	3073
Television	59.6	23.3	17.1	843
Newspaper	49.2	31.2	19.6	374
Preference status***				
Have another soon	82.1	0.0	17.9	2769
Undecided	75.3	0.0	24.7	96
No more	45.2	41.1	13.7	3688
No. of living children***				
0	27.8	12.5	59.8	49
1-2	76.9	4.0	19.1	2139
3-4	65.6	18.4	16.0	2371
5+	39.9	49.5	10.5	1999
Ideal no. of children***				
0-2	64.0	14.0	22.1	743
3-4	66.3	17.8	15.9	3742
5+	51.9	35.4	13.1	1944
Unknown	42.0	46.9	11.1	127
Total	61.2	23.1	15.7	6558

Significance: *$p<0.05$, **$p<0.01$, ***$p<0.005$; IUD (Intra-Uterine Device)

A closer look at Tables 6.5 to 6.7 shows that, despite expressing the desire to limit childbearing, 55.4%, 51.2% and 45.2% of women were still using the injection as a method of contraception in 2000, 2004 and 2010, respectively.

6.7.3 Multinomial Logistic Regression: Factors Associated with Contraceptive Method Use

Knowing the factors associated with the change in method use is important to inform policy. This would allow for the making of appropriate strategies for scaling up the methods that lag behind. A multivariate analysis is now performed, which uses multinomial logistic regression to assess the socioeconomic determinants of the likelihood of using a particular method of contraception. The independent variables include those that were used in the bivariate analysis.

6.7.4 Parameter Estimates for Multinomial Logistic Regression

For each year, two separate models were conducted: Model I compares use of sterilisation relative to injection, while Model II compares use of the pill/IUD/condoms to injection. The results of magnitude of change in the predictors of contraceptive method are presented in the appendices 6A to 6B, however are summarised in Table 6.8. Table 6.8 show that there was shift in factors affecting

contraceptive method choice between 2000 and 2010. Controlling for all other factors, Model I in 2000 shows that women were significantly more likely to use sterilisation if they lived in the north; belonged to the age group of 35–49 year compared to 25-34 years, and if they had attained primary (1-4) and secondary education compared to no education. Further, women aged 15–24 years compared to 25-34; affiliated to Islam, belonged to Ngoni tribe and having at least one child, were less likely to use sterilisation relative to injection in 2000. In 2004, women residing in rural areas compared to urban areas, northern compared southern region, were in age category 35-49 year group compared to 25-34 year age group, and were in the richest wealth quintile, were more likely to use sterilisation than injection.

Uses of sterilisation versus injection (Model I) in 2010 shows that women residing in the central and southern regions; who were in the age category 35-49; who belonged to the rich and richest quintiles, and were Pentecost, were associated with increased relative risk ratios (RRRs) of using sterilisation compared to injection. Women were less likely to use sterilisation compared to injection if they resided in the rural area and were in the age group 15-24 year's compared to 25-34 years.

With respect to use pill/IUD/condoms versus injection (Model II), attaining primary (5–8) education in 2000 and secondary education in 2000 and 2004 increased the relative risk ratios of using the use pill/IUD/condoms compared with the injection in the first two surveys. It is likely that educated women had access to other contraceptive methods, such as the pill, IUD and implants, in between these periods. Higher education attainment is known to increase a women's knowledge of contraceptive methods and makes it more likely that she will have the financial means needed to acquire other appropriate methods (Caldwell 1986). This finding may suggest that educated women preferred to use the IUD and the pill. However, as the bivariate results suggest, both of these methods declined in use over time, such that there was no significant difference according to level of education in 2010.

Table 6.8: Summary of results for variables significant in women's use of
contraceptive methods

Background Characteristics	2000 Model I	2000 Model II	2004 Model I	2004 Model II	2010 Model I	2010 Model II
Place of residence						
Urban (ref)						
Rural		+			-	
Region						
South (ref)						
North	+	+	+	+	+	+
Centre		-	+	+	+	
Age group						
25-34 (ref)						
15-24	-	-	-		-	-
35-49	+	-	+		+	+
Education attainment						
No education (ref)						
Primary(1-4)	+					
Primary (5-8)		+				
Secondary+	+	+		+		
Wealth index						
Poorest (ref)						
Poor						
Middle						
Rich		+			+	
Richest		+	+		+	+
Religion affiliation						
Catholic (ref)						
CCAP(Presbyterian)						
Pentecost					+	
Muslim	-					
Other						
Ethnicity						
Chewa (Ref)						
Tumbuka/Tonga				+		+
Lomwe						
Yao						
Ngoni	-					+
Other						+
Source of FP message						
None						
Radio						
Television				+		
News						
Living children						
0 (ref)						
1-2	-	-		-	-	-
3-4	-	-		-	-	-
5+	-	-		-	-	-
Ideal number of children						
0-2 (ref)	-					
3-4						
5+						
Unknown						

+ and – Indicates more or less likely, respectively, to use the method relative to
the base category. Ref: Reference category

The results from Model II in 2000 show that women who resided in the rural areas; northern region, who had at least primary school (5–8) education, and belonged to the rich and richest wealth quintiles, had an increased likelihood of using the pill/IUD/condoms compared to injection. In 2004, increased RRRs were associated with women living in the north and central regions; had attained secondary education, were of Tumbuka/Tonga tribes, and reported television as their source of family planning messages. These results are similar to the 2010 survey, except that women living in the northern region; who belonged to 35-49 year age group; belonged to the riches wealth quintile; were of Ngoni, Tumbuka/Tonga and other tribes had increased RRRs in use of pill/IUD/condoms compared to injection. In 2004 and 2010, however, women were less likely to use these methods if they belonged to 15-24 and 35-49 year age groups (the exception is 2000), and as the number of children they had increased.

It is worth mentioning that women who identified themselves as being Tumbuka/Tonga were more likely to use the pill/IUD/condoms than injection. As already pointed out, use of other methods is associated with attaining some education. The Tumbuka/Tonga women, as is the general case in Malawi, have relatively higher education levels and hence may be more knowledgeable about how to use the pill, and other methods.

6.8 Predicted Probabilities of Using Contraceptive Methods

In order to discern change in contraceptive behaviour over time, the parameters for the multinomial logistic regressions were presented as probabilities. This involves assessing the influence of the variable of interest when all other factors are at their mean levels. Table 6.9 consistently shows that injection is the predominant method of contraception in Malawi, and its use over time has remained high. Most importantly, there is an increase in the probability of using injection among young women, increasing from 77% to 85% between 2000 and 2010. Similar patterns are also observed correlating with the number of living children a woman has: women with fewer than four children predominantly use injection. Interestingly, and to confirm that women use injection even at high parity, the probability of using sterilisation only increases after they have at least five children. Overall, their chance of using the pill/IUD/condoms is small.

Restricting all other factors to their means, a consistent pattern across the survey years emerges whereby the chances of using injection decrease gradually with increasing age up to 35 years, before taking a sharp decline. Only one in ten women aged 25–34 years are likely to use sterilisation, but the probability increases to almost 60% in the last two surveys among women aged 35–49. The likelihood of using the injection declined slightly in 2010, suggesting that women were using other methods of contraception. The table also shows that use of sterilisation is determined by the number of children the woman has; rates of sterilisation only increase when the number of children is over five. This suggests that there is no obvious intention to limit the number of children, unless women have at least five living children.

Table 6.9: Predicted probabilities of using injection, sterilisation, and the pill/IUD/condoms, 2000–2010 MDHS

Background characteristics	2000			2004			2010		
	Injection	Sterilisation	Pill/IUD/ Condom	Injection	Sterilisation	Pill/IUD/ Condom	Injection	Sterilisation	Pill/IUD/ Condom
Place of residence									
Urban	0.67	0.14	0.19	0.78	0.06	0.16	0.63	0.15	0.22
Rural	0.72	0.11	0.17	0.78	0.08	0.14	0.72	0.12	0.16
Region									
North	0.48	0.13	0.39	0.48	0.07	0.45	0.48	0.16	0.36
Central	0.75	0.12	0.13	0.77	0.09	0.14	0.69	0.16	0.15
South	0.71	0.11	0.18	0.84	0.06	0.10	0.75	0.09	0.16
Age group									
15-24	0.76	0.04	0.20	0.81	0.02	0.17	0.81	0.03	0.16
25-34	0.60	0.26	0.14	0.58	0.32	0.10	0.54	0.30	0.16
35-49	0.43	0.48	0.09	0.30	0.65	0.05	0.23	0.70	0.07
Education level									
No education	0.75	0.13	0.12	0.75	0.18	0.07	0.60	0.28	0.12
Primary(1-4)	0.74	0.13	0.13	0.81	0.07	0.12	0.73	0.14	0.13
Primary (5-8)	0.67	0.10	0.23	0.77	0.05	0.18	0.72	0.10	0.18
Secondary+	0.59	0.12	0.29	0.68	0.03	0.29	0.67	0.07	0.26
Wealth Index									
Poorest	0.79	0.10	0.11	0.86	0.05	0.09	0.78	0.08	0.14
Poor	0.70	0.13	0.17	0.84	0.06	0.10	0.77	0.10	0.13
Middle	0.72	0.13	0.15	0.79	0.05	0.16	0.73	0.12	0.15
Rich	0.71	0.10	0.19	0.75	0.09	0.16	0.68	0.15	0.17
Richest	0.65	0.13	0.22	0.72	0.09	0.19	0.58	0.18	0.24
Religious affiliation									
Catholic	0.70	0.14	0.16	0.77	0.06	0.17	0.70	0.12	0.18
CCAP (Presbyterian)	0.69	0.15	0.16	0.75	0.10	0.15	0.66	0.16	0.18
Pentecost	0.71	0.12	0.17	0.79	0.08	0.13	0.70	0.14	0.16
Muslim	0.75	0.07	0.18	0.82	0.04	0.14	0.80	0.07	0.13
Other	0.70	0.08	0.22	0.74	0.07	0.19	0.67	0.16	0.17
Ethnicity									
Chewa	0.73	0.13	0.14	0.78	0.10	0.12	0.71	0.16	0.13
Tumbuka/Tonga	0.52	0.15	0.33	0.45	0.09	0.46	0.50	0.17	0.33
Lomwe	0.74	0.10	0.16	0.80	0.10	0.10	0.75	0.12	0.13
Yao	0.71	0.10	0.19	0.83	0.05	0.12	0.78	0.07	0.15
Ngoni	0.64	0.19	0.17	0.78	0.09	0.14	0.63	0.15	0.22
Other	0.74	0.10	0.16	0.78	0.10	0.11	0.68	0.11	0.21
Source of Family Planning message									
None	0.74	0.11	0.14	0.82	0.06	0.12	0.73	0.12	0.15
Radio	0.73	0.11	0.16	0.80	0.07	0.13	0.71	0.12	0.17
Television	0.62	0.13	0.25	0.67	0.05	0.28	0.69	0.14	0.17
Newspaper	0.61	0.22	0.18	0.65	0.15	0.20	0.56	0.23	0.21
Number of living children									
0	0.22	0.46	0.32	0.22	0.00	0.78	0.28	0.07	0.65
1-2	0.72	0.03	0.25	0.80	0.01	0.19	0.80	0.02	0.18
3-4	0.71	0.13	0.16	0.75	0.10	0.15	0.70	0.14	0.16
5+	0.59	0.30	0.11	0.48	0.46	0.06	0.41	0.49	0.10
Overall mean	0.71	0.12	0.17	0.76	0.10	0.14	0.70	0.13	0.17

Source: Computed from 2000, 2004 and 2010 MDHS

6.9 Summary

The findings from this chapter show that Malawi has made tremendous progress in increasing contraceptive prevalence rate (CPR), especially at the last survey. CPR started from modest levels of 7.2% in 1992, climbing steeply to 42.2% in 2010. The rapid increase can be attributed to a number of factors; over time, the proportion of young married women using modern contraceptives increased faster than among older women. The trend among the youth has been observed elsewhere in the region (Blanc, Tsui et al. 2009, UNFPA 2012).

The change in CPR has been driven in part by more women with high parity who are adopting sterilisation as their contraception. As the study has demonstrated, only a small proportion of all women who have a high number of children use sterilisation, but most primarily use injection as the method of contraception. Further, the proportion of women using modern contraception increased more in rural than in urban areas. The chapter also showed that the contraceptive use rate has doubled among women aged 15–19 years, particularly between 2004 and 2010. This sharp increase can be attributed to the increase in investment in family planning programmes and services that target young married women in Malawi. Suffice to say that Government of Malawi and its development partners working for and with the youths are beginning to realize the importance of targeted interventions for marginalized groups such as young married women. At the same time, considerable progress has been achieved in education in Malawi, including free primary education and the girl child policies (Munthali 2004).

A number of frameworks have been implemented during the last decade that aim to address the challenges that youth and women face in accessing contraceptives. For example, the Malawi Government launched the Malawi Road Map for the Reduction of Maternal and Neonatal Mortality and Morbidity in 2007, which aims to strengthen services that address adolescents' sexual and reproductive health needs (Malawi Government, 2007). The adoption and implementation of such programmes might have created an enabling environment for the adoption of contraceptive use, by removing attitudinal barriers that create major disincentives to both unmarried and married adolescents who are interested in receiving sexual and reproductive health information and services (Ross, Stover et al. 2005, Blanc, Tsui et al. 2009).

The findings from the analyses of contraceptive method use showed that injections are popular among women even at high parity. It can be suggested that this is because women might want to use a method which can be easily discontinued if they want to have additional children. On the part of the busy service providers, the injection might be the preferred method because it does not require special skills for insertion or removal (Ross, Stover et al. 2005). Studies in the region have shown that women also prefer the injection to other methods because it is only needed every three months, and allows discreet use where women have spouses who oppose the use of contraception (Magadi and Curtis 2003, Sutherland, Otterness et al. 2011).

Despite the overall increase in CPR, the use of male and female condom as a proportion of method mix has slightly increased, but overall it remains low. This finding is consistent with other studies from the region that find that the male condom is not a popular method among married women (Maharaj and Cleland 2004, Chimbiri 2007, Hendriksen, Pettifor et al. 2007, Seiber, Bertrand et al. 2007). This is worrying, because Malawi is one of the countries where one in ten adults is HIV positive (NSO and ICF Macro, 2010). However, the modest increase in condom use, as proposed by (Moultrie, Hosegood et al. 2008), might be attributed to the use of the condom for dual protection of HIV and AIDS. With just under 3% of women using the male condom, it is likely that a large proportion of women are exposed to the risk of childbearing and have unwanted pregnancies, which might explain continued high fertility (Moultrie, Hosegood et al. 2008).

In understanding fertility transition in Malawi, the focus should be on the contraceptive method use pattern, which is comprised primarily of resupply methods as opposed to long-acting and revisable methods. The pattern of use of contraception resembles that of other countries in sub-Saharan Africa: use of methods is selective, and dependence is upon only two or at most three principal methods, with the injection being the predominant method (Moultrie, Hosegood et al. 2008, Sutherland, Otterness et al. 2011).

As observed in this study, only a small proportion of contraceptive users rely on female sterilization, and the proportions are even smaller for IUDs. There is still a

challenge in that many women are relying on short-acting and less reliable methods to prevent pregnancy, while the majority of married women do not use any contraceptive method at all.

In conclusion, Malawi has made impressive gains in increasing the number of women using sterilisation—currently at 10%, the highest in sub-Saharan Africa. However, high sterilisation use rate has not led to substantial fertility decline in the country because women opt for sterilisation when they are already at high parity (5 children), or else late in their reproductive life (35 years and over).

Chapter 7.   Understanding Norms Regarding Family Size, Fertility Preferences and the Contexts Women Use to Achieve Desired Fertility

7.1   Introduction

Given that fertility in Malawi has remained high for a long time despite the tremendous increase in contraceptive use, a qualitative study was undertaken employing focus group discussions (FGD) and in-depth interviews (IDIs) with a view to exploring the reasons for the slow fertility decline. The FGDs sought to explore community norms and values regarding the number of children that men and women desire and have. In addition, they were also used to gain a deeper understanding of the facilitators of contraceptive use, and the societal perceptions and attitudes towards contraceptive use. The IDIs sought to explore in more depth issues that emerged during the FGDs. Specifically, the chapter seeks to explore the norms regarding fertility preference and family size and understand the context in which men and women achieve, or fail to achieve their desired fertility. Understanding the context in which men and women use contraceptives to achieve desired fertility allows us to know the areas that require intervention by policies and programs in order to achieve lower fertility rates in Malawi.

The data presented in this chapter comes from two sources: 16 focus group discussions involving men and women of reproductive age, and in-depth interviews with 10 women. There were two categories of currently married women used in the IDIs: current users of modern contraceptives and non-users of contraceptives. The approaches were used in order to triangulate the information that came from each of the methods employed, with a view to putting into perspective reasons for the slow fertility decline and the high use of contraception in Malawi. Previously Section 3.14, provided the details of the selection procedures used in this study.

In terms of organisation, this chapter is divided into the following sections: 7.2 examine the perceptions and attitudes toward family size; 7.3 deals with triggers to lower fertility; 7.4 assesses knowledge of modern contraceptive methods; 7.5 presents factors affecting contraceptive uses, 7.6 and 7.7 deal with practices, perceptions and attitudes towards contraceptives; and 7.8 identifies the contexts in which men and

women achieve the desired fertility. Finally, section 7.9 presents a summary of the findings of the chapter.

7.2 Perceptions and Attitudes toward Family Size among Men and Women

In order to get a deeper understanding on the reasons why people have many children, the topic was introduced to the participants as: "communities in many parts of Malawi might be expected to have a certain number of children. In this community, what would you say is the number of children people expect to have in a family?" The question sought to identify the norms and the attitudes regarding family size and further probed for reasons that border on socio-economic, cultural and religious factors that sustain the high fertility.

The ideal family size was not one that men and women could easily agree on, the number mentioned ranged from four to eight children with others expressing fatalism by saying it was 'up to God'. Men and women in all group discussions and in-depth interviews reported that the family sizes they had was larger than they desired, which they attributed to instability of and preservations of marriages, expectation of support in old age, gender preference, social standing and child mortality and replacement of births, which are each discussed in detail in the following sections.

7.2.1 Concerns about Instability and Preservation of Marriage

The recurrent theme in women's focus group discussions as a factor leading to high fertility was marital instability. This appears to be the most problematic among the discussants in Machinga who spoke more strongly about it compared to the other study sites. As already shown, women in Machinga have lower socio-economic status compared to the other districts. This makes women more dependent on their partners for their support. Thus, women who are divorced want to find another partner to support their children. In Malawi, a study found that between 40% and 60% of marriages end in divorce (Reniers 2003). Regardless of the number of children a woman may have brought with her from the previous marriage, it was a recurrent theme that often the new partner immediately wants to see his 'face' in marriage, implying that he wants to be recognised by having his own child.

207

One of the opinion leaders during the interviews mentioned that women who had fewer than two children in their first marriage had more stable second marriages than women who have more children. This is because it is economically difficult for the prospective father to support many children who are not his own. A participant from one of the focus group discussions asserted that:

> *"Men in this day and age usually ask how many bags you have before he marries you (a slang implying children). If it is a small number, for example one, then he proceeds to marry you and in the course of that marriage he adds his children up until they become like a football team...the problem is that women cannot use family planning."* - Female FGD, 30-35, 4 children Machinga.

As already described in Chapter 3, most women in this study have low socio-economic status and low levels of education and empowerment such that they may not cope with supporting the children on their own when divorced. Thus, in the absence of a husband, women feel less autonomous and rely on their husbands financially. The implication for this is that the woman may want have fewer number of children, but may be compelled to remain in unions and bear more children to satisfy fertility preferences of the new partner, a factor reported to contribute to high fertility.

The findings reveal that the rural society considers women's childbearing as the means of establishing status in the community and consolidating the marriage. Men reported that in some instances, there were arguments regarding the number of children the couple should have in second marriages, primarily because men do not recognise the children from the previous marriages as their own. As a male participant elaborated:

> *"There is opposition but not intentional, the issue is about childbearing and the way it is happening in the family. It happens that you have found a woman who has already children and you want to have your own children; the woman can insist on using contraceptives since is afraid to have many children while the husband does not want her to use family planning because he wants her to have his children...the husband is then in the forefront, insisting on not using family planning."* - Men FGD, Machinga

To fully understand the interplay between marital stability and the desired number of children, and how this might affect the use of highly effective contraceptives, the in-

depth interview with a 23-year-old, Jane, (not her real name) in Box 7.1 illustrates this relationship. Jane's case presents one of the dilemmas that many women face. It can be seen that, while she may want to have a small number of children, the husband's higher fertility aspirations may override her fertility intentions. In wanting to preserve her marriage, a woman may discontinue contraceptives in order to have more children with the new partner.

Box 7.1:   In-depth interview with Jane illustrating the dilema of using long-term methods.

Jane is 23 years old and currently married to a second husband. She resides in an area where marriage is traced through matrilineal lineage. Of the three children she had from her previous marriage, two are living and are aged five and two years. Jane became pregnant with the first child when she was 18 years old. She became pregnant a second time when the first child was one year and eight months old. She said that the birth interval between the second and the last born-child was two years eight months. Jane reported first use of contraception when she had already three children, but this was from her previous marriage. She chose Norplant over injection as a method of contraception so that she could give herself enough time to space her births, but also to avoid the need to visit regularly the health facility, which is very far from her home. Six months into her second marriage, Jane's husband asked her to have the insertions removed because he wants to have his own child. She intends to have five children, although her husband wants to have six children including the previous two living children. Although she acknowledges that couples who have fewer than three children are able to take better care of their children than those who have more, Jane believes that having a smaller number of children would not serve her well. This is because the community perceives women who have a small number of children as lazy, or that the husband is weak, and she does not want to be perceived as such. - IDI, User, Machinga.

The picture that emerges from the above excerpt suggests the husband's fertility intentions may be in line with the community's expectations. In the Machinga district, the practice is that the husband relocates to the wife's side and lives among her relations upon marriage. In this example, the husband's insistence on having his own children may be centred on establishing his status among the wife's relations. This is because children belong to their mother's family. The husband's desire to have his own children may end up with the couple having more children than they intended.

7.2.2 Expectation of Support in the Old Age

Another recurrent theme among men and women in the focus group discussions was that parents anticipate a reciprocal favour from their children; just as parents support their children, children should also support the parents. The resources that the parents spend on their children such as paying for school costs and other child-related costs were considered as an investment. Thus, it was expected that when the children grow up, their parents should reap from the resources they invested in their children. There was agreement in the FGDs from both lineages that the nature of help from the children ranged from buying small groceries to major investment such as building houses, the latter being cited when children attain higher education. Thus, the discussants perceived that having many children would mean bringing more to the family resources. The participants further elaborated that this is not only beneficial for the parents; it also brings prestige and elevates social status in their communities. This supports the idea that most parents would want to invest for the future, to cover unexpected financial difficulties and provide them with financial security (Caldwell and Caldwell 1987, Frejka 2001, Caldwell 2006).

7.2.3 Gender Preference

One of the norms sustaining high fertility in Malawi is preference for both sons and daughters. During the FGDs, the question about the ideal number of children was further probed: "Tell me, for the ideal number of children you have mentioned does the sex of the child to you matter, and why?" The question sought to identify whether or not there are changing values regarding gender preferences in the different lineage types, and how this is reflected in practice. While there was a stronger preference for sons among some of the discussants, girls were also sought after, especially to balance the sex of children in the family. There were differences between male and female

discussants in that more men preferred boys while women tended to prefer both sexes. Also, preferences for male and female children varied by lineage system. These issues are described in greater detail below.

In Nkhata Bay, which has a patrilineal system, boys were preferred but girls were also seen as important. Son preference was a regular topic of discussion in Nkhata Bay, because male children extend the lineage (but girls bring bride wealth):

> *Here in Nkhata Bay children are wealth. When you have many children especially the female ones, it means many cattle. Male children help in making the clan increase in number since when they marry; they bring in wives who will bear children.* - Female FGD, 30-35, 6 children, Primary, Nkhata Bay.

There was a gender difference between men and women in that the majority of men in the FGDs preferred more male children because they said that male children were a source of labour in the farms. For example, in Lilongwe (matrilineal), men justified their strong preference for male children, citing that they contribute more to farming than female children do. It was also mentioned that girls were less preferred because they go to live somewhere else when they are married. The practice whereby male children are preferred compared to females ones, drives up the value of male children to the extent that it becomes desirable to have more male children, especially if a couple had only had female children.

A supporting view emerged among the female FGDs in Nkhata Bay, which follows the patrilineal marriage system. Women considered female children to be in transit, arguing that the child would be 'snatched' away from the parents and married off. One participant, having said that the ideal number of children should be four, went on to make a mathematical breakdown, that there should be two of each sex and justified herself by saying that:

> *We do not count on female children very much because they get married when they reach 15 years and they will be taken away and live elsewhere. According to our custom, these females are just passing through the family whereas the males, you will stay with them forever because they will bring their wives at your home forever unlike the female children..., which means*

> *you will still have four children: two male, two females to help you.* - Women FGD, 20-25, 3 children, Nkhata Bay

Embedded in this is an acknowledgement by the discussants of a tradition that, on the one hand, marriage occurs at an early age, while, on the other is the fact that, although the family may lose their daughters, it still gains daughter-in-laws who can help with household chores.

Others also cited religious reasons. In an in-depth interview with a participant in the matrilineal areas, she cited that an ideal number of children could not be decided upon. She expressed opinions that were ambivalent about the sex of the child, arguing that a child is a gift from God, and as such people do not have the power to choose the sex of the child.

> *Children are a gift from God...He is the one who determines the sex of a child. I have a good example because all along I have been thinking that I will have two males and two females but I have three males and one female children; it pains me because what I wanted did not happen.* - IDI, non-user 40 years, Machinga

The tendency to have at least two boys and two girls may also be sustaining fertility. Such a tendency may lead women into having more children if the preferred sex of their children is not achieved. On further probing what she would do, the informant in the quote above narrated that she would keep on trying until she matches up the sexes, although she sounded cautious about the notion that she would end up having more children. Related to this, several male participants reported that some women who did not have a daughter did not really feel complete as a family.

> *Sometimes a woman can have children of the same sex, girls or boys only, so because a couple wants to have a different sex of child they end up having many children. Sometimes the child you wanted comes at the end, may be the sixth child and in some cases, the child does not come at all...* [laugh]*.* Female FGD, 25-29, secondary, 3 children, Nkhata Bay

When a woman did not have a female child, the recurrent theme among male discussants was that sometimes women would lie to their husbands that they were using contraceptives, when in fact they were not. This was done in order to

deliberately become pregnant in the hope of having a female child. This finding underscores the gender differences in sex preference of children.

7.2.4   Social Standing in the Community

Men and women mentioned that having many children enhances a woman's prestige and assures respect in the community, while, in contrast, infertility or few children subjects the woman to scorn and ridicule. It was not uncommon to hear sentiments attached to having fewer than the desired number of children as "weakness" or "bareness", even if a couple had one or two children. Women also reported that mothers-in-law encouraged their sons to take another wife with the aim of having many children. For both male and female FGDs, childbearing was perceived as the basis for marriage.

> *When a male child has married all eyes are in that house to see when the girl will become pregnant. If months pass by without getting pregnant, they take their child to traditional doctors for assistance, until she becomes pregnant. So in this culture, women do not have much say on the number of children they want to have… we listen to what our mothers in-law say.* - Female FGD, 26, 3 children, Nkhata Bay.

It emerged from the male FGDs that one of the reasons for wanting a large number of children was a sense of pride that men feel when talking to their friends. Men in Malawi come together to pass time over a game of *bawo*[8] or while drinking at a trading centre. When together, they discuss all manner of things, one of which is bragging about the number of children they have. However, there were contradicting sentiments, which suggested that such bragging comes at the expense of women's self-esteem; this is because women are the ones who are ridiculed for having many children.

> *Many men feel proud when they are telling their friends that these are my kids…. but it is very painful to women who have many children because she is being despised or rebuked or scorned at by her fellow women while a man*

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[8] Bawo is a board game akin to chess, mostly played by men.

is somewhere drinking beer or playing bawo. - Male FGD, 40, Fishmonger, Machinga.

The findings from the previous sections show that there are certain socio-cultural, economic, religious and traditional practices that are not favourable to fertility reduction prevalent both in matrilineal and patrilineal marriage lineages. Despite these reasons, there is clear support for smaller family sizes. In all the focus group discussions, respondents agreed that four children was the ideal family size. The study participants expressed concern over the increasing cost of feeding, clothing and paying for school fees for families with many children.

> *When you have a large number of children much of your time is spent raising children. Children spend days without food because there are many parents who cannot manage to provide food for them. A small fish costs K10.00 (£0.15). So you cannot manage to feed them all. With few children, you are able to spread across the little money you can get from farming. Although primary school is free but you spend some money to buy exercise books, school uniform, contribute to school fund and when selected to secondary school you cannot manage to pay if you have many children.* - Women FGD, 25-29, Farmer, Standard 8, Nkhata Bay.

The narrative above shows that economic realities, as well as the perceived need to plan for the future of their children, may change the norms regarding the number of desired children.

7.2.5   Child Mortality

Child mortality continues to be a major problem in Malawi, which the participants mentioned that it influences their reproductive decision-making. This was apparent in both male and female FGDs, in that the participants raised their concerns by stating that it is not appropriate to have the exact number in case some of the children die. One striking feature of all the FGDs was a tendency to revise the ideal number of children upwards by one in anticipation of the death of a child.

> *It happens that God has taken away one you should remain with some children. However, if you have few of them; if God has taken away two or three you have none and this is a problem… I feel that with many children you don't face problems with work in future…here we depend on farming and*

with four, five or six children it takes [few] days to complete farm work. -
Male FGD, 35, 4 children, Machinga

The adjustment underscores the high infant and child mortality rates in Malawi. The death of children has long been recognised as playing a significant role in making fertility-related decisions in other settings (Nyarko, Madise et al. 2003, Syamala 2001).

7.3 What May Trigger Transition to Lower Fertility?

This study also collected data on peoples' views of constraints they are likely to face in the future if they have many children. The participants were asked to consider the current situation and what would happen in the future, for example in five years' time if people continued to have high numbers of children. The aim was to assess people's basic knowledge of the link between the high number of children and the constraints they faced, and if that was important enough to adopt new reproductive behaviour.

Changes in the economy appear to sway people's attitudes toward smaller family sizes, arguing that life has become challenging and it is unsustainable if they continued to have many children, hence the need to adjust the number in order to reflect the present economic situation. Most discussants pointed to the relationship between the rising cost of goods and providing adequate care for children. There was divided opinion on where the participants were concerned with spending most of their money. Interestingly, in Lilongwe and Machinga, much concern focused on feeding and clothing the children whereas in Nkhata Bay, paying for school fees was of paramount importance, particularly in secondary schools. The findings suggest that parents in Nkhata Bay recognise the importance of education and they would want to give their children the best education possible.

In line with Caldwell (1982) theory of intergenerational flow of wealth, it is likely that the perceived costs of raising children reported by the participants in the rural areas may be a catalyst for changing norms regarding children. The theory suggests that fertility is high when the net flow of transfers is from children to parents and associated costs of raising children are low, and the opposite direction of wealth flow influences parents to have fewer number of children (Caldwell 1982). Other evidence

supporting such behaviour change comes from Mozambique where economic hardships and increasing costs of education encouraged fertility limiting behaviour (Agadjanian 2001).

So significant is the concern of the high number of children to the participants that they reminded the researcher that there was no need to look in the future when there are many examples already. As they cannot support the children, they have some parents who reportedly withdrew their children from school so that they could help to raise incomes through casual work "*ganyu*". Others sent their children away to stay with relatives where they could eat better. It was noted that in the face of food insecurity, people were turning to natural resources, particularly trees; invading the forests to collect firewood or cut down trees for charcoal production. People would then sell charcoal in towns in order to buy food. As expected, the most important constraint cited by the participants was shortage of land.

> *I will give you an example of where we are; this place had forests. Land was abundant but now everything is a thing of the past. No land is available; all the forests have gone now if we continue having many children we shall run out of farming land. This time we just wait for somebody to die then we can take her piece of land and start using it… in 20 years to come this will not be the case.* - Female FGD, 40-45, 5 children, Machinga.

The finding links well with the recent qualitative study conducted by Schreffler and Dodoo in Nyeri district, Kenya which found that land scarcity and farm size, and not costs associated with educating children, were related to the attitudes that supported smaller family sizes (Shreffler and Dodoo 2009).

This section has illuminated a complex set of the factors that affect the desired number of children leading to large family sizes. The participants were then asked what could be done considering that couples wanted to have smaller family sizes but they are unable to achieve their desired number of children. Against this background, the next section explores knowledge, perception and attitudes towards family planning. This allows us to explore in more detail the context in which men and women use contraceptives.

7.4 Sources of Knowledge of Modern Contraceptive Methods

In order to understand the factors associated with high fertility, the study first assessed the knowledge of modern contraception among the participants. The aim was to find out whether there was correct knowledge of contraceptives, and if so, where this knowledge was obtained.

The different forms of knowledge about contraceptives can be distinguished into two broad types: campaigns through Information, Education and Communication (IEC) and from the community. The first category is delivered via the mass media, which includes print, radio and television. As already seen in Chapter 6, knowledge of contraception is nearly universal in Malawi, which can be attributed to the role of mass media. The respondents, particularly those in the rural areas, cited specific radio programmes which focus on family planning as their source of knowledge.

The second source, the community, comprised mainly the outreach programs, contact with the health system, and providing information at groups and clubs. For example, information can be passed to the community through women who attend health facilities for antenatal care or under-five clinics. Another way is through the outreach program. Before conducting outreach programs, health surveillance assistants go to communities, usually door to door, to mobilise people. In addition, an official goes around the community using a megaphone mounted on a vehicle and informing the community about the various methods of contraceptives and where to get them.

In terms of community contacts through groups and clubs, it emerged that within each community, there are various groups that provide on-going family planning education and sensitisation campaigns. Women participate in many clubs and they are in regular contact with each other. Some of the clubs include the Village Banks, which are aimed at empowering women to be self-reliant and to close the gender gap in households. They comprise groups of 15 to 25 women who contribute an agreed amount of money every month and those who are in need can take a loan at an agreed interest, often lower than that levied by private lenders. Women meet on weekly basis to deposit the savings and acquire loans. This offers an opportunity for members to know each other and discuss various issues not only relating to their income augmenting activities but also on family planning, health, immunisation, children's education and so on.

Men reported that contraception is usually mentioned during their idle talk as they play *bawo* and at beer drinking joints. Importantly, men who belonged to the Bicycle Association known as *"a ka baza"* appeared to be more knowledgeable about family planning. *A ka baza* are male bicycle riders who carry passengers at a fee to areas which cannot be easily accessed by other forms of transport. This type of transport offers employment to many men in Malawi. Thus, it is likely that the nature of their job makes the riders highly mobile and often puts them in contact with women, from whom they learn the information about contraceptives. Other community-based channels from which men and women learn about contraception include meetings held with local chiefs and other leaders; during village, while women discuss family planning methods when they are pounding maize or drawing water.

7.4.1 Specific Knowledge about Contraceptive Methods

The informal networks play a crucial role in exchanging information regarding family planning. These, in turn, make men in particular become more knowledgeable about modern contraceptives, leading to them developing positive attitudes toward contraceptives. When asked to mention specific contraceptive methods, virtually all respondents could mention three or more modern contraceptive methods. Some men openly reported that the injection was the method they used with their spouses. Furthermore, despite the fact that the female condom was only recently introduced in Malawi, meaning that many people would not have accessed it and some had not even seen one, one rural male participant was able to explain the difference between a male and a female condom. He went on to describe the female condom and how it should be inserted into the vagina:

> When *inserting the condom, bend the condom into an eight shape then insert the ring into her vagina* [laugh]. -Men FGD 25-30, Lilongwe Rural.

This finding is intriguing given that it has long been suggested that in matters concerning childbearing and family planning, those issues have been primarily considered as the concern of women. This is because it is less likely to expect men to know much about a female controlled method such as the female condom.

Nevertheless, the knowledge of some men who lived in rural areas appeared to be limited in terms of how some methods of contraception actually work. For example, for the full protection from pregnancy, women should get the injection regularly and on time (World Health Organisation (WHO) 2010). However, female participants in the FGDs reported that when they fail to get the injection on time they refuse to have sex with their partners for fear of becoming pregnant. This action is perceived by the men as the women's tactic to avoid sexual intercourse. Concerning condom use, others believed that withdrawal was just as good as a condom, since semen does not enter the woman. Similarly, they believed that with withdrawal, it was not possible to infect her with sexually transmitted diseases.

In one of the female FGDs some women could not differentiate between short acting and long acting methods, referring to the injection as belonging to the latter category. Others, while appearing to know about IUD, incorrectly mentioned that the IUD was a barrier method:

> Respondent 1: *I also heard that when using loop (IUD), it can become loose then you can get pregnant*
>
> Respondent 2: *They do not tie loop but it is inserted so that the sperms should not go inside but should return from there.* [Women FGD, Lilongwe (Rural)]

The above section shows that men and women are aware of the specific family planning methods. In a few instances, knowledge about long-acting methods, such as the IUD, and how other methods work varied between men and women.

7.5 Men's And Women's Positive Attitudes towards Use of Contraceptives

The study also sought to understand the reasons behind the changes, and explore community members' attitudes and practices towards family planning. Knowing community attitudes is important since the reasons for an increase in one area may be replicated in other areas. These factors are discussed in the following sections.

7.5.1   Pregnancy Spacing and Health Related Reasons

Women frequently cited positive attributes that result from using contraceptives as regards to proper child development and the health of the mother. Repeatedly both men and women said that a woman who has many pregnancies puts her life at risk. The concept of health may have come about because, in the study, men and women reported that a pregnant woman is considered to be sick and that the loss of blood during birth makes her become weak. Because of this, men and women understood that a woman needed to use contraceptives to prevent unwanted pregnancies. In turn this would allow her to have more time to recuperate before another child is born. In contrast, if the time is short, the succeeding child may not be happy because the child will be competing for the mother's attention. These perceptions were also echoed in men's FGDs:

> *Contraceptives are good because children are widely spaced and this makes*
> *them healthy because parents have enough time to care for them Lilongwe*,
> Men FGD, Lilongwe.

It was also mentioned that long birth intervals prevented children from becoming sick so often. This means that women are able to spend their time in the field, participate in income generating activities that make them become self-reliant, and attend development work and village meetings freely. This is because they do not have to look after many children. The study participants could easily relate to the difference contraceptives had made in their lives in terms of having more time to farm. The excerpt below summarises the narratives of many women:

> *When a woman is using contraceptives, she is free to do her work properly,*
> *she is able to mingle with friends and even the husband delights in you. When*
> *you have too many children, they often use that as an excuse to leave you*
> *behind in many activities. If you are on a journey, he gets ready quickly while*
> *you are busy preparing children. So using contraceptives helps you to be free,*
> *do our farming, not age quickly and the husband does not have excuses to*
> *leave you for other women.* - Lilongwe, FGD, Injection user, 35-40, 5
> children.

In addition, when comparing the time they were not users to the current situation, women reported that contraceptives brought them freedom. For some

freedom in this context refers partly to the physical ability to do other things, for others, it related to the emotional freedom of not having to worry about becoming pregnant if they had sexual intercourse with their spouses.

7.5.2   Physical Appearance Appeal

In the women's FGDs looking younger was of paramount importance, because it was perceived that this would prevent partners from having affairs with other women. Women reiterated that the use of contraceptives rejuvenated their bodies, and made them look attractive to their husbands. Study participants who were using contraceptives mentioned that they were looking much younger compared to their age peers who were not using contraceptives. It is likely that the positive remarks about contraceptives and the body-enhancing effect of using contraceptives made women favour contraceptives. Study participants mentioned that their peers opt for contraceptives after observing these changes. One woman in an in-depth interview shared the views of many women in FGDs:

> "*Family planning is medicine that binds my marriage together*" - IDI, 25-30, Norplant, Lilongwe (Urban).

However, some participants mentioned that looking attractive made men uneasy, as women might become promiscuous. It was reported in the female FGDs that when men realised that their spouses were looking attractive, men persuaded their wives to have more children as a tactic to 'root' them in their homes.

7.5.3   Use of Contraceptives to Increase Education Opportunities

Support for contraceptives also centered on advancing education goals: both for themselves and for their children. The recurrent theme among the discussants was that private schools compared to public ones offer higher educational standards. Using contraceptives which would allow them have fewer numbers of children, which would in turn permit them send their children to private schools. In an in-depth interview, one woman affirms her motivations for using contraception:

> *When people see our family, they admire us because of the way we live. We have fewer children whom we manage to meet their needs; if my son says he*

wants K10 for pocket money, I can afford to give him but if they were many, say five or six, I would not be able to give them money. I even can afford to pay fees in private schools. This would not be possible if I had six children. So I tell them that I use family planning in my family. - IDI, Injection user, 30-35, Nkhata Bay.

With regards to the education of women and children, the motivation to use contraceptives varied between rural and urban areas. In the former, the dominant view was for the betterment of children's education, while in the latter, the reasons pertained to women's desire to return to and finish their education. Most participants in the urban areas had become pregnant and dropped out school in order to be married but wanted to continue with their studies. It is likely that the responses were as a result of the re-entry policy that the government of Malawi had introduced to give opportunities for girls who had dropped out of school due to being pregnant to return to school and complete their studies (see Chapter 8).

Related to this, while both men and women were of the view that the young should not start using family planning methods early (because they are not supposed to engage in sex), and should focus instead on their education, it is worth mentioning that some parents appreciated the benefits of education to the extent that they would ignore knowledge of their children's use of contraceptives.

> *My daughter is 16 years old. I know she can become pregnant any time and I know that she uses family planning…I do not want to ask her or search her … I just close my eyes. -* Woman FGD, 35-36, Lilongwe.

This finding suggests that parents may relax their views which do not support the use of contraceptives for the benefit of their children's education, which is in contrast to the study by Munthali, Zulu et al. (2006), who found that the younger generation may be frowned upon if found to be using contraceptives.

7.5.4   Changes in Traditional Practices

As already shown in section 5, men and women from both patrilineal and matrilineal lineages practise certain rituals to mark resumption of sexual intercourse following the birth of a child. The norms aim to safeguard the health of the child and to allow the mother to take care of the baby. Before resuming sex, a couple perform a special ceremony to mark the end of abstention and to welcome the child into the family, known as cleansing.

The duration of abstention was marked with variations; some participants mentioned after menses have returned, others expressed when an umbilical stump drops off. The abstinence period ranged from a minimum of six weeks to one year. In virtually all focus group discussions, participants mentioned that resumption of sex was occurring much earlier than the tradition requires. Participants from Machinga and Lilongwe predominantly agreed that the period of sexual abstinence had reduced to less than six months, whereas in Nkhata Bay, a consensus view was of the period to be over six months, suggesting that cultural values remain strong there. There were clear differences in how the respondents reasoned out why the period had become shorter; one among them was the belief that couples are increasingly using contraceptives during the period.

> *I started sleeping with my husband after 2 months but I had already gone to get the family planning methods to avoid pregnancy. IDI Injection 25-30, Machinga*

> *A woman should wait for six months, when she has just delivered...you are not supposed to have sexual intercourse. However, due to reasons best known to the health personnel the time has been reduced to 4 months. –* Women FGD, Injection 30-35, Lilongwe Rural.

It also emerged that the health personnel discouraged couples from abstaining from sexual intercourse for extended periods because men were likely to have sex with other women, hence putting their spouses at risk of contracting sexually transmitted diseases, including HIV and AIDS.

> *This time our friends from the hospitals* [health personnel] *are advising women that they should not take a long time before they have sexual relationship with their husbands .. because this is giving men a chance to*

223

meet other women and they can contract the diseases and infect their wives..
- Men, FGD, Lilongwe (Urban).

Reflecting on changes to traditional practices, one woman said "our parents instructed us that 6 weeks is not enough, but we should wait for ten to eleven months, of which six months should be spent with the wife's parents" (Nkhata Bay, FGD, 30-35 years, farmer). However, the respondent further mentioned that people get advice from the health personnel to use contraceptives "*when the child is six weeks, we should go to the hospital and get injection*". These findings suggest that the traditional practices of observing sexual abstinence during the postpartum period may be giving way to modernisation, and that contraceptives have enabled this.

7.5.5 Partner's Support to Use Contraceptives

In the men's FGDs, participants perceived contraception as a way of preventing them from putting their households into economic hardship. Men who had many children reported suggesting to their spouses to go for contraception when they realised that they were unable to provide for them:

> *I could not do otherwise because my family had become too big to manage. Then I decided not to stop her from using contraceptives to prevent further pregnancies.* - Men FGD, 40-45, Lilongwe (Urban).

In both male and female FGDs, a recurrent theme was that many men accompanied their wives to the health facilities to get contraceptives.

> *This time many husbands are beginning to understand the problems of having many children and they are encouraging their women to go for contraceptives. This is so because health officials are encouraging husbands to accompany their wives to clinics whenever their wives are going for antenatal and postnatal clinics.* - Man FGD 35-40, farming Standard 8 Machinga.

However, when asked whether men accompanied their wives to health facilities to access information about family planning, there was a variation. Men in the rural areas mentioned that they accompanied their wives to the antenatal and under-five clinics,

whereas men in the urban areas cited that they were always busy attending to sales at the markets.

7.5.6   Service Delivery Related Reasons

Another positive factor in the use of contraception as mentioned by the participants was the warmth and quality of service that they receive at the health facilities. Women reported being satisfied when Health Surveillance Assistants conduct physical examination before prescribing hormonal contraceptives. Interestingly, although the health surveillance assistants are predominantly male, women spoke highly of them. The observation by a participant is illustrative:

> *The service providers are well trained; I am saying this because they cannot tell you to start using contraceptives before being tested for BP [blood pressure], diabetes, HIV and everything.* - Woman FGD, 40-45, secondary, Lilongwe, Urban.

Concerning the health facilities in their communities, the participants reiterated the warmth and quality of service they experience, particularly encouragement to use contraceptives. There was a consensus in the men and women discussion groups that women who go to seek family planning services are appreciated and regarded as role models to other people in their communities.

> *Women who go there to have contraception are received very well because they are taken as special people who have made a good decision… so they are treated very well so that other women should be encouraged and start using contraception.* – [Men FGD, 40-45, primary, Nkhata Bay]

7.6   Men's and Women's Negative Attitudes towards Use of Contraceptives

An individual's experience of using contraceptives, the decision to use them is shaped by the perceived attitudes and the behaviour of the people they are often in contact with. While the previous section has demonstrated a noticeably high level of positive attitudes towards family planning. The next sections explore side effects that the participants mentioned they faced when using contraceptives.

7.6.1 Side Effects of Contraceptives

Focus group discussions revealed that concerns about the experienced and perceived side effects of hormonal contraceptives, particularly menstrual disruption, were central to women. Commonly, many women complained of irregular and prolonged bleeding patterns related to the injection. This was particularly concerning considering that women perceive it as normal to have regular menstruation. Others cited that women live longer if they have menstruation as it removes bad blood from the body; hence, the lack of it can be problematic.

As already revealed in 7.2, the desire for more children is high among men and women. Hence, some women mentioned that contraception delays the return to conception after women had stopped using methods. Some women equated this delay to infertility, although none of the women mentioned that they were unable to conceive again after stopping using contraceptives. Women also believed that prolonged use of the pill could cause cancer. There was a common misconception that the pills do not dissolve when ingested and that they accumulate in the body at one spot. It was believed that it would require surgery to remove them.

The IUD did not receive many negative attitudes compared to the other methods, partly because the participants were not conversant with the method. However, a few male and female participants from urban area were knowledgeable about the IUD, although they admitted that they had not used the method but had heard about it from their friends. They had heard that the IUD could untie, and also that some people even get pregnant when using the method. Other rumors included that it can come out easily when passing urine; that it causes pain; and that the man can feel it with his penis when having sexual intercourse. Another woman who was using an implant mentioned the perceived side effects of using the method:

> *We just used to hear rumours that Norplant descends to the abdomen, which I have never seen happening to a person before. But I witnessed this for my neighbour in Salima. Norplant had descended into the stomach and her heart was racing such that she had to be ferried to the hospital. Doctors operated on her in order to remove it ...Then I switched to injection but I stayed for two years without any problems but I started menstruation, it lasted for two months and this created problems with my husband. –Women FGD, 35-39, Nkhata Bay*

The above narrative shows that the misconceptions could lead to discontinuation, or provide sufficient reasons to switch methods. It is possible that some of the side effects that users attribute to specific methods have nothing to do with that particular method. This was true especially when some participants could not link rumors and myths to their personal experience or what their friends had experienced.

7.6.2 Influence of Male Identity in Going for Male Sterilisation

Besides mentioning that male sterilisation (vasectomy) interferes with sex life, in that they would not be able to have an erection, the method was associated with loss of self-esteem among men. It was stated that a vasectomy would make people and women laugh at men.

> *If you are sterilised ...* [Gesturing] *people will be talking bad of you saying that you are like an ox that pulls a cart. They will be laughing at you and underrate you especially the women.* – Men FGDs, Lilongwe**.**

To bring the reference to an ox[9] into context, not only does it signify loss of power, but also it meant that women in their community could easily control them. This may suggest that men may not easily agree to undergoing male sterilisation since this signifies loss of identity. In some cases, male discussants cited rumours to reinforce their concerns on sterilisation:

> *I saw men with hidden faces at BLM [clinic] who had undergone vasectomy and it was rumoured that one of the them had volunteered, things are not going on well and their [testicles] have been dissolved...Culturally, it is not good for men to practise sterilisation...it is for women. It [sterilisation] is a strange act; we should not copy these things.* - Men FGD, Urban, Lilongwe.

Another factor which concerned men was the non-reversibility of the method, particularly as it creates problems if a marriage breakups. Men mentioned that they

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[9] In Malawi oxen that are used for pulling carts or ploughing are often castrated so that they can be controlled easily.

would not be able to have children in the future and that this would attract ridicule from the people in their communities.

7.6.3 The Role of Men in Women's Use of Contraceptives

Use of contraception by men makes up a relatively small subset of all users; however, men play a significant part in the decision-making regarding women's access to, and use of, contraception. When asked whether they discuss the use of contraception with their spouses, women mentioned that some husbands are cooperative, but that others are not. However, it became clear that bringing up the subject raises a number of concerns for men. Paramount among these is to do with the husband's refusal to use contraceptive because it is perceived as harmful to women's bodies.

> *My husband does not allow me to use contraception because he hears a lot about it. He says contraceptives contain chemicals, which create problems to women. He is afraid that I might develop fibroids. But I have to help myself; I cannot live without them so I do use them without his knowledge. -* IDI, Injection, Lilongwe (urban)

Some female participants echoed that while they may initiate use of contraception, this is not easily accepted. It may require the husband to be present when the wife is giving birth. According to one woman, she had had to drag her husband to the clinic when she was giving birth in order for the husband to let her go for sterilisation:

> *The point, which my friend has just raised, that situation has also happened to me before. My husband had a chance to be present when I was delivering my fifth child, after his experience he asked me to go for female sterilization. -* Women FGD, five children, Lilongwe (urban)

7.6.4 Covert Use of Contraceptives

As most women have positive attitudes and are highly motivated to use contraception, they mentioned the many ways used to access contraceptives if they faced opposition. The ways ranged widely from asking the husband's relations to counsel the partner, to covert means if the partner was still resisting. The strategies included asking the neighbour to keep the health passport books, hiding the book in the toilet's thatched roof and, in extreme cases, stitching pills and health passports into pillowcases.

228

Other forms of covert use of modern family planning methods involved some women who reported going to the health facility in the pretence that a child was sick so that they could access contraceptives from the service providers. The participants reported that the service providers cooperate by retaining the health passport card as records for their next visits.

> *Sometimes even if you ask his relatives to assist, sometimes they do not allow you to use contraception. So what you do is just go to the health centre, pretending as if the child is sick and you explain everything to the HSA* [Health Surveillance Assistance]...*and he assists you very well because he knows that you have made the right choice. He will give you the medication* (contraceptives) *and sometimes he keeps the passbook with him and you will use it next time you go there.* - Female FGD, four children, 25-30, Nkhata Bay

When probed whether her husband suspects anything, the participant said:

> *He just sees that you are not conceiving and sometimes when he asks what is happening that you are not conceiving, you just tell him that may be that is what God has planned, and whenever it pleases him, he will give us a child not knowing that you are secretly using contraceptives...* (Laughing and gesturing). -Female FGD, four children, 25-30, Nkhata Bay

7.7   Reasons for Non-Use of Modern Contraception

Given that couples are aware of the existence of modern contraceptives and the effectiveness of such methods, why are modern contraceptives not used as much as they should? This question was asked of non-users of modern contraception in order to shed more light on the reasons for the non-use of modern contraception. Female participants reported that access to the methods was not a factor, since they could access the methods from outreach programs if they wanted to. In addition, there was little evidence to suggest that religion prevented women from using modern contraception. Rather, they believed that they had 'long backs', meaning that they could not get pregnant easily.

The recurrent theme during the in-depth interviews with non-users was that women were discouraged by what their peers said about contraceptives. It was claimed that women always complain of body pains or boils, "*zibuli*", which require surgery to

remove them. Another woman had incorrect information about sterilisation, as reported below.

> *Some people say that when you have gone for sterilization it means removing every female part of a woman including the vagina and you are left with just an empty hole. So people are afraid that their "category" (vagina) will be removed and left with an empty hole so you cannot be married.* – IDI, non-user, 20-25 years, primary, Machinga.

Others doubted the efficacy of the methods. One female participant argued that women who use contraceptives equally face the problems of having too many children, as they cannot provide for the children. Similarly, others mentioned friends who had got pregnant while using contraceptives. All non-users predominantly, as expected, advocated abstinence from sex during the days they were likely to get pregnant. One female participant mentioned the use of unconfirmed methods:

> *I prepare concoction of ash before having sexual intercourse…I make sure that this is ready before starting everything so that you just take and drink after sexual intercourse.* IDI, non-user, 25-30 years, primary, Nkhata Bay.

Women in the female FGDs also corroborated the account provided by the non-users. Some women reported that wearing a pair of trousers and sleeping in separate rooms at the times the woman can become pregnant were some of the many ways used to prevent pregnancies.

7.8 Contexts Surrounding Use of Contraceptives to Achieve the Desired Family Sizes

The previous section has examined the factors that have led to increased contraceptive use. However, the question remains why so many women report using contraceptives yet fertility remains high. The present section extends the understanding of the context in which women use contraception to achieve the desired fertility. To achieve this, two broad contexts are identified relating to women's use of contraceptive methods while still having high fertility. The reason they are important to answering this question is because they are ways of both using a contraceptive method that if measured in a cross-sectional survey in the short run would result in a high contraceptive prevalence rate. By contrast, because of women's

preference for high fertility behaviour, if measured on a longitudinal basis, the high CPR does not translate to low fertility rate. It has to be mentioned that sometimes these categories overlap.

7.8.1 First Context: Intermittent Use of Contraception

The first category are women who are using methods, but are not particularly motivated to either space or limit their pregnancies, due to their desire for a large family. They may use methods inconsistently or incorrectly. Women in this category overwhelmingly expressed strong reservations regarding the use of contraceptives before having the first child. During the female FGDs, we were interested to know whether it was appropriate for a woman to start using contraceptives before having a child. This question caused heated debate, with some saying yes, and others saying no. Those who indicated that a first child must be born before the use of contraceptives argued that sometimes contraceptives could go wrong, which can lead to not being able to have children. In addition, women mentioned that those who started using contraceptives when they have had one child had too much confidence in contraceptive methods. There were dominant views in favour of a second child to ensure that one has both sexes in case the method could go wrong. Since the desire to have a child or to become pregnant is strong, women are likely to discontinue the method when faced with side effects.

> *Mmmm... you cannot start using contraceptives before you have children. You should try out first if you are fruitful* (can bear children)*... when you get married, parents are very keen to see that you are pregnant, even just after 2 months of your marriage and we have seen many people who are now barren because they started using contraceptives before having children.* - IDI, user (injection), 30-35, Nkhata Bay.

It was common for women in this group to report current breastfeeding status and observing long birth intervals. Given these sentiments, it is likely that the use of contraceptives may not be consistent and only for short spans, complimented by extensive breastfeeding.

> *A woman is encouraged to breastfeed her child for a long period before another child is born. For example, two years have to elapse before having*

231

> *another child, sometimes after 4 or 5 years so that you give enough time for the child to grow.* - IDI, injection, 20-25, 3 children, primary, Machinga.

The group was characterised by women who were first time users of contraceptives, who often learned of contraceptive methods from their friends. Thus, peers influenced the choice of the contraceptive method.

> *Because our friends who are on injection live a life without worries, healthy bodies, we also want to do the same … when we get the number of children we want for example, four children rather than suffer with childbearing, we will go for sterilisation in future.* - IDI, injection, 20-25 years, primary, Machinga.

The group was also characterised by predominant use of the injection, with some early adopters of Norplant, and specifically used for spacing. It is worth noting that women in this category were young, so they might not wish to adopt a long acting or permanent method unless an issue of sufficient importance came up, such as birth complications.

7.8.2   Second Context: Mulling Over Contraception

The second group was characterised by women who stated that they were using contraceptives for limiting pregnancies, but only when they reached high parity. Views were sought from women who were in their late twenties, who had three to five children and had reached the desired number of children and could have been considering stopping childbearing.

The pattern of behaviour of this group of women may suggest that they were not really limiters at all, but spacers, because even though they did not actually desire more children – and would say that when asked in interviews – they wanted to keep the option of more children open, in case this was needed to secure a new relationship. Given their parity, most participants were very knowledgeable about sterilization. Moreover, they were aware of the costs, effectiveness, and risks associated with temporary versus permanent methods. The motivation for using contraceptives among this group was not necessarily that of limiting, but to delay births as long as possible.

Women in this context were using the method they were familiar with, the injection. They exercised cautious behaviour towards terminating childbearing, mulling over the adoption of sterilisation. The participants were comfortable with saying that they were satisfied with the injection and did not intend to change it. Thus, the main reason for not choosing sterilisation was to preserve fertility were the relationship to break down so that she should remarry.

Some women expressed the view that they were unwilling to use highly effective or permanent methods because of fear of health–related problems. This may indicate that they were clearly knowledgeable of the procedure, but that they would rather exercise cautious behaviour before choosing sterilisation.

> *Some people say that it is not good to go for sterilization because with time the wound deteriorates so that it is easy for you to die and sometimes cancer or inflammations occur where they operated on you.* - IDI, injection, 30-35 years, four children, Machinga.

For others, fearing possible marriage dissolution, the intention was to delay the next birth, not with the view of protecting their health and that of the child, but to keep the reproductive and marital options open.

> *When these men are proposing us they seem to be very innocent but when you go to their houses they change to worse they can send you packing without proper reasons so you cannot go anywhere. Marriages nowadays is like a rest house* [temporary lodging] ... *any time you can be divorced and if you are not sterilized, then you can get married to another man and continue having children.* - Female FGD, 35-40, 5 children, Nkhata Bay.

Another plausible explanation for delaying the termination of childbearing altogether is that it allows the parents to maintain the desired number of children should the ones they already have die. Women may consider infant and child mortality rates to be high such that they may consider their children at risk of dying young. One female participant reported:

> *You can decide to have four children with your husband but deaths strikes, and then you are left with three children. But what I can suggest is that it is better to use family planning to space and in the end you should go for sterilisation.* (IDI, 30-35 years, four children, Lilongwe)

While other women reported that while their partners may agree to sterilisation, often men would change their minds and claim they wanted a child. Some women were of the view that men were not fully committed to the decision of going for sterilisation.

> *I can ask my husband that I want to go for sterilisation. Yes he will agree but you will be disappointed at the end that he will be telling you that I want to have children and you will end up losing him to other women because he wants to have children there…. The best way is to use these other methods that are reversible rather than sterilisation so that if things go wrong, then you can go reverse the situation and have more children.* –IDI, Pill, Nkhata Bay 30-35

Supply side also affected the decision of women in this group to adopt sterilisation. Women reported being advised by providers against sterilisation before they are 35 years. The other methods, such as the IUD and implants, require a high level of expertise to insert or remove and the providers may not often have that experience. Meanwhile, women may be using other methods as they wait to stop childbearing. During the interviews, it was common to hear of the experiences of some women who reportedly were sent back by the service providers because they were too young.

> *We are advised at the facility that a person should go for sterilization when she is at least 35 years. Unless you have problems in delivering and the medical personnel have seen that you to for sterilisation, then it is another thing. While a woman is waiting to reach 35 years, she can use other means of contraceptives like condoms, loop* [IUD]*, implants or injection to avoid pregnancy.* Women FGD, 30-35 years, Machinga.

7.9   Summary of the Findings

The findings from this chapter show that, despite having varied sociocultural factors, the desire to have many children is at least as pronounced for men and women. According to the Malawi Demographic and Health surveys, the desire for children has changed little, almost in parallel to fertility decline; in 2000 the ideal family size was five children declining to 4.0 in 2010 (National Statistical Office (NSO) and ICF Macro 2011). While participants from both matrilineal and patrilineal areas expressed that the ideal number of children should be four, there were notable differences in terms of sex preference. In the patrilineal system, male children were preferred, in order to extend the lineage, while in the matrilineal lineage, couples wanted equal numbers of

boys and girls. These findings are consistent with the study by Bongaarts and Casterline (2013) which shows that countries that are in the early stages of fertility transition and with low levels of socio-economic development, fertility decline is slow because the desire for children remains strong.

Several findings show that fertility is likely to decline in the near future. Firstly, men and women were concerned about the increasing costs of feeding, clothing and paying for school fees for the growing number of children. This result is consistent with the evidence from Caldwell, Orubuloye et al. (1992),who found that economic hardships experienced in the past 15 years in Nigeria were important factors that facilitated the onset of fertility transition in the Ekiti District.

The chapter's findings on the context in which contraceptives are used contribute to the high levels of fertility in the country. Women would want to prove their fertility first before starting using contraceptives, while another way concerns women who are not motivated to opt sterilisation in order to keep their reproductive option open. These beliefs have been acknowledged by Caldwell and Caldwell (1987) who stated that "a woman capable of reproduction or anticipating that she will reproduce again is regarded in quite a different way from a woman who cannot longer reproduce or is unlikely to do so again." The narratives from this chapter show that men and women place importance on childbearing and family, a belief which has a bearing on contraceptive use.

Given that so many women use modern contraceptives, yet the desire for large family size remains strong, it is likely that IEC focuses on acceptance of family planning and its positive benefits – which are reflected by the respondents – but not on changing the desired family size or increasing the motivation to have fewer children. In addition, the community-based approach used in the distribution of the modern contraceptive methods may not provide clients enough time to know how they work, and may result in incorrect use and or problems with side effects.

Chapter 8.   Summary, Recommendations and Policy Implications

8.1   Introduction

The thesis presents one of very few mixed-method examinations of fertility change in Malawi. This study was motivated by the fact that the contraceptive prevalence rate (CPR) in Malawi has substantially increased from 2000 to 2010, yet the average number of children per woman (total fertility rate, or TFR) has remained high (above five children per woman)—although it is slowly declining. The quantitative component of the research made use of 2000, 2004 and 2010 Malawi Demographic and Health Surveys to examine changes in each of the proximate determinants and their overall contribution to fertility change. A multivariate analysis was undertaken to study the relationship between a set of independent variables compared with current contraceptive use and current contraceptive methods, using logistic regression and its extension, multinomial logistic regression, respectively. The regression models were estimated separately for each year, to examine whether the factors determining contraceptive use changed over time. A qualitative research component employed focus group discussions and in-depth interviews with a view to exploring the socioeconomic and cultural factors that may be responsible for the atypical relationship between high TFR and CPR.

The present study attempted to answer the following research questions:
1. What are the factors associated with fertility decline in Malawi?
2. What are the relative contributions of the individual proximate determinants to the observed fertility levels in Malawi between 2000 and 2010?
3. What are the socio-economic and cultural factors associated with the rapid rise in contraceptive use observed between 2000 and 2010?
4. What are the socio-economic and cultural factors that affect desired family size, and how do these factors affect contraceptive use?

The aims of this chapter are three-fold. First, it will summarize the results presented in the preceding chapters. Second, it will provide conclusions and suggest major policy recommendations based on the findings. Third, it will outline the limitations of the

study and suggest the direction for future research. This chapter is, therefore, organized as follows: Section 8.1 provides a discussion of empirical results, Section 8.2 incorporates the theories which are relevant to the understanding of the atypical CPR-TFR relationship in Malawi; 8.3 acknowledges the limitations of the study; 8.4 presents makes concluding remarks. Finally, Sections 8.5 and 8.6 make recommendations for policy and future research respectively.

8.1.1 Evaluation of Data Quality

Chapter 3 described some of the commonly used methods to test the quality of Malawi Demographic and Health Surveys (MDHS) data. The chapter describes a variety of methods that were used to test the presence or absence of certain errors associated with reporting procedures, hence determining the accuracy and adequacy of the MDHS data. Methods of evaluating the accuracy of demographic data involved checking any irregularities (peaks and troughs) in age distribution of women. In addition, age data was examined for digital preference using the Myers' Index (1940), Whipple's indices, and detecting evidence for birth displacement. The outcomes of such assessment procedures did not show irregularities to warrant smoothing and adjustment of the data. Therefore the data was deemed of reasonable accuracy for the analytical purposes of the research.

Similarly, there were elements that could have affected qualitative data. This is because, as a researcher, my position might affect the research between the researcher and the researched subjects, and have a bearing on the research findings (Frisch 2008). This might have been apparent in the probing of some questions in which the researcher was seeking further clarification to the responses. While this is the case, Guba and Lincoln (1989) argue that it is not entirely possible for a researcher to exclude themselves. The study ensured that the research assistants that were recruited had adequate training so that they were comfortable in dealing with the participants. Secondly, during training, the researcher was aware throughout the research process of this role. The researcher provided the participants with adequate information that allowed them to understand what the study was about, their expectations, and remove any assumptions that the participants might have held about the study. Thirdly, during data collection, the researcher assured the participants of the confidentiality and privacy when conducting the interviews. During

the analysis phase, the researcher ensured that the interpretations were premised on the participants' accounts from the fieldwork, and not from personal inferences.

8.1.2   What are the Factors Associated with Fertility Decline in Malawi?

In examining the socioeconomic and cultural factors associated with levels, differentials and the magnitude of fertility change over time, several direct techniques were applied to the MDHS datasets in Chapter 4. The analysis of levels and trends over time revealed that total fertility rate (TFR) declined slowly; the average number of children born per woman was 7.6 children in 1977 and declined to around six children in 2010, which corresponds to a 26% reduction in fertility over a 33-year period. For the most part of this period, fertility remained well above 7.0 children per woman. Between 1992 and 2008, fertility rate remained above 6.0 children per woman. Despite the little change that has occurred, Malawi may be said to be in transition as this pattern meets Coale and Treadway (1986) conditions for the onset of fertility transition: a 10% decline from pre-transition level.

Slow fertility transition places the country in Phase II, according to Bongaarts and Potter (1983), as shown in Table 8.1. Bongaarts and Potter (1983, pp.104) classified the different phases of populations according to the stages in fertility transition. TFR greater than 6.0 indicates membership of the Phase 1 group; those with a TFR value which ranges from from 4.5 through to 6 children are placed in Phase II; Phase III contains areas with TFR ranging from 3.0 to 4.5 children, and Phase IV is indicated by a TFR of less than 3.0 children per woman. With the exception of the urban areas, other regions of the country are in Phases I and II, suggesting that the transition is in its early stages—as indicated by fertility rates of five children and above.

Table 8.1: Stages of fertility transition in Malawi and selected background characteristics

Background Characteristics	Level of Total Fertility Rate in 2010	Phase of Transition in 2010
Place of Residence		
Urban	4.0	III
Rural	6.1	I
Region		
North	5.7	II
South	5.8	II
Centre	5.6	II
Education attainment		
No education	6.9	I
Primary (1-4)	6.4	I
Primary (5-8)	5.5	II
Secondary and higher	3.6	II
Malawi	5.7	II

Women in Malawi marry at young age, a fact supported by the female singulate mean age at marriage (SMAM), which the study has shown that it has changed very little: by 0.7 months between 2000 and 2010 (from 18.9 to 19.6 years). The median age at first marriage is also low (17.9 years) and has not changed in the same period. The low SMAM and median age at first marriage suggest that the reproductive life course of women favours a high TFR. For example, the current analysis shows that young women in Malawi aged 15–19 have 152 live births per 1000 women, and women continue to have children in their late 40s; for women in the age group 40–49 the age specific fertility rate (ASFR) was 115 births for every 1000 women. By contrast, other countries in the region the fertility levels for the corresponding age groups are lower than Malawi. For example, Kenya with TFR of 3.6 children per woman in 2014, young women (15-19 years) have 49 births per 1000 women while older women (40-49) have 49 children (KNBS and ICF Macro 2015); Rwanda with a TFR of 4.6 in 2010, young women give 41 births while the older ones have 108 births per 1000 women (MOH NISR & ICF Macro 2015).

The lack of substantial fertility decline may be explained by the fact that schooling levels are low; the median amount of schooling completed for women is 2.5 years, compared to men's 3.5 years (NSO, 2010). Most women (89.4%) in Malawi had attained primary education and had high fertility (above six children in the three surveys). The high fertility among women with no education is partly due to low social

economic status of women in the country. Studies show that girls are marginalised, and either children in rural areas are either unable to remain in school, or parents withdraw their children from school on seeing the poor quality of education (Munthali 2004, Chisamya, DeJaeghere et al. 2012). In Malawi, Chisamya et al. (2012) found that girls' education was not supported by parents and community members, citing that girls were less safe at school and that education was not needed for girls' role as wives and carrying out domestic and household work.

Malawi's economy is predominantly agrarian, which makes parents want high numbers of children because they are needed for work. In addition, the country has no pension mechanism to help people in old age. The lack of income security means that more children are desirable to provide support to their parents in old age, a finding which resonates with Caldwell's (1982) theory of wealth flow. The theory proposes that fertility decisions in all societies are an economically rational response to familiar wealth flow (Caldwell 1982). The rationale for having more children, then, is that it would be advantageous to parents to have many children, as the more children they have the better off the parents will be (Caldwell, 1980).

The analysis of cohort-period age-specific fertility rates using DHS birth histories was twofold: firstly, to establish the historical trends in Malawi. The results show that, at national level, fertility started to decline in the 1980s—a finding which is in agreement with (Cohen 1998). Secondly, as a data quality measure, the analyses of cohort fertility did not support the commonly-held hypotheses that older women tend to omit some of their children (Hobcraft and Little 1984, Moultrie, Dorrington et al. 2013). These considerations suggest, on the one hand, that Malawi is in fertility transition, and on the other, that the lifetime fertility data was reasonably dependable. The study also found that fertility transition started in urban areas before continuing in rural areas. Fertility reduction was more pronounced among women aged 15–19 years in urban areas. Conversely, in rural areas, there were significant declines in ASFRs among women older than 35 years (20% to 46%), whereas for those younger, the declines ranged from 3% to 10%. The implication is that, since the majority of women in the reproductive age group are young, slow fertility decline is due to lack of substantial reductions in births among these women, which is sustaining high fertility rates across the country.

The findings from this research corroborate results from recent studies by (Guengant and May 2011) as well as earlier studies in Malawi (Kalipeni 1995, Cohen 1998). Other research in sub-Saharan Africa has also assessed the gap between rural and urban areas, demonstrating their lack of convergence (Guengant and May 2011, Teller, Hailemariam et al. 2011). Another phenomenon that could contribute to the observed inconsistency is that 85% of the population lives in rural areas (NSO 2009). According to Bongaarts, women who live in urban areas are more likely to use modern contraceptives than their rural counterparts (Bongaarts and Johansson 2002). Urban women, on average, are better educated than rural women, have better access to health and reproductive health services, and are engaged in economic opportunities that often compete with childbearing. Because the majority of the population in Malawi resides in rural areas, which are disadvantaged in terms of the amenities and opportunities more often found in urban areas and where cultural views are more traditional, this explains the rural-urban difference in TFR (4.2 children and 6.1 children, respectively) and modern contraceptive use (40.7% and 49.6%, respectively).

Examination of other socioeconomic and cultural factors, such as education, show that the relationship between fertility and education is well established, echoing (Kravdal 2002, Bongaarts 2010) studies based on national level survey data conducted in the region. The results from the current thesis confirm earlier findings (Bledsoe, Hill et al. (1994), which show the depressing effect education has on fertility. In this study, women who had attained primary education (primary 1–4) had lower TFR than women who had received no education.

There were not substantial differences among women belonging to different religious groups. Consistently, Muslim women showed higher TFR compared to the women affiliated with other religions. The explanation is that the difference may not correlate to differences in religion; rather, there are other moderating socioeconomic factors (Heaton 2011). Nevertheless, women affiliated to Catholicism showed slightly higher TFRs compared to CCAP (Presbyterian) women—partially supporting the view that Catholicism is pronatalist, and its teachings discourage use of artificial contraception. The TFR for women affiliated to Pentecostal groups was second highest after that for

Muslim women, with a TFR of 6.1 children per woman in 2010. The marginal change may be attributed to the fact that marriage institutions in Malawi have changed little over time and make it easy for individuals to marry. For example, until February 2015, the legal age for marriage was 14 years. However, individuals could marry and be legally accepted through statutory marriage, and needed only a consent from a court judge, a church representative to which either party was affiliated, or consent from the uncle or aunt of the individual. Even with the passing of a new law, which makes it illegal to marry before the age of 18 years, there are no punitive measures, meaning that people can still marry young.

These findings strongly underline the need for subgroup analyses. The changes over time, albeit slow, provide a strong support for the idea that transition to lower fertility in Malawi is underway. However, it is important to mention that fertility remains high, particularly in rural areas, suggesting that traditional pronatalist attitudes that support high fertility remain strong.

8.1.3   What are the Relative Contributions of the Individual Proximate Determinants to the Observed Fertility Levels in Malawi between 2000 and 2010?

A central tenet of the thesis is that use of modern contraception has long been identified as an effective determinant in reducing fertility (Bongaarts and Potter 1983, Tsui 2001, Bongaarts 2015) and that, despite an increasing trend in the recent past, contraception has not translated to a significantly reduced TFR in Malawi. Chapter 5 attempted to explore the reasons for the atypical relationship, with a view to answering the research question.

The findings show that the computation of the index of marriage using the revised Bongaarts' (2015) model in this study shows the index (Cm) over time did not change between 2000 (0.81) and 2004 (0.81), while little change was observed in 2010 (0.75). The high value of these indices indicate that marriage is a weak inhibiting influence on fertility in the country. This unchanged values of the index of non-marriage is attributable to the fact that marriage is universal in the country, and it starts early (the median age at marriage is 18 years), as other studies have shown in the region (Garenne 2008, Johnson, Noureddine Abderrahim et al. 2011).

Among the existing attempts to understand the slow fertility decline in Malawi, (Cohen 1998, Palamuleni 2008, Madhavan 2014) have examined and quantified the impact of proximate determinants of fertility. Palamuleni (2008) and (Cohen 1998) used the original (Bongaarts and Potter 1983) model of the proximate determinants of fertility to analyse change over time. For example, among the four proximate determinants marriage, contraception and post-partum infecundability, induced abortion, Palamuleni (2008) identified postpartum infecundability as the most powerful index in inhibiting fertility. A more recent study by (Madhavan 2014), which used the revised (Stover 1998) model, also reached a similar conclusion.

The study findings in this study are in stark contrast to earlier studies conducted in the country; the difference is that the current thesis employed the revised Bongaarts' (2015) model. Consequently, the findings of Palamuleni (2008) and Cohen (1998), who used the proportion of women in union as an index of marriage (cm), overestimated the influence of non-marriage on reducing the level of fertility. Similarly, Madhaven's (2014) study shows an overestimation on this index, despite using the proportion of women aged 15–49 who were sexually active in the last month added to women who are not now sexually active but are currently pregnant or practising postpartum sexual abstinence as proposed by (Stover 1998). These approximations would misestimate the effect of non-marriage on fertility because (United Nations Department of Economic and Social Affairs 2013, MacQuarrie 2014) show that sex is in fact occurring outside marriage. This in turn suggests that it may not be accurate to assume that sex is limited to marital relationships.

By using a more inclusive definition of the index of exposure, which includes most women who are in union, and have had sex in the last month, or are pregnant or abstaining or are using contraception (Bongaarts 2015), this thesis shows that the index of non-marriage on fertility was overestimated.

Given the rapid increase in the use of modern contraception between 2000 and 2010, representing a 30% change, the examination of the index of contraception in inhibiting fertility did not fully explain the puzzle of the TFR–CPR inconsistency in Malawi. A number of reasons can be explored to explain this mismatch.

There is a possibility of redundancy due to the fact that the proportion of contraceptive use that overlaps with postpartum infecundability has become significant in societies with long periods of breastfeeding or abstinence. The findings from Chapter 5 show that in Malawi, postpartum infecundability is long and averages 20.4 months. At the same time, there is an emphasis on family planning programmes that promote contraceptive use in the early postpartum months (Bongaarts 2011, The RESPOND Project 2012, Bongaarts 2014).

The historical association of family planning with child spacing partly explains the persistently high fertility rates despite high contraceptive use in Malawi. In the early 1980s, Malawian family planning cautiously promoted modern contraception for child spacing, justifying it both in terms of the health of the mother and the child, whilst emphasising that this was not culturally alien. At the time there was popular interest in child-spacing in Malawi (Chimbwete, Watkins et al. 2005). President Banda was convinced, and approved the Child Spacing Programme in 1982. It was only after 1992 that the Child Spacing Programme was reoriented towards a broader family planning programme to limit family size because of economic reasons. This was followed by the development of the National Family Planning Strategy 1994–1998. In 1994, the Child Spacing Programme was renamed the Malawi Family Planning Programme. The reorientation of the Child Spacing Programme, from one focusing on child spacing to one focusing on family welfare, is aligned to dramatic improvement in Malawi's modern CPR.

Despite this increase in CPR, the analysis in Chapter 6 shows that most women in Malawi continually use contraceptives largely for spacing children, and limiting the number usually becomes a consideration only after they have at least five children. The multivariate analyses in Chapter 6 found a strong positive association between the number of surviving children and contraceptive use; the predicted probability from multinomial logistic regression showed that the chance of using injection and sterilisation for women with 3–4 children was 70% and 14% respectively in 2000 and 2010. However, the chance of using injection and sterilisation declined to 41% and 49%, in the respective years, after having at least five children. This confirms that for the vast majority of women, especially the uneducated and those living in rural areas, more effective methods may not be adopted until the desired number of children has been born. This resonates with other studies which show that spacing appears to be a

more important reason for contraceptive use than stopping (Johnson-Hanks 2007, Moultrie, Sayi et al. 2012).

8.1.4 What are the Socioeconomic and Cultural Factors that Affect Family Size and how do these Factors Affect Contraceptives Use?

The study also explored some of the contexts which allow the dual conditions of using contraceptives and having a high number of children. The qualitative findings show that the context in which men and women use contraceptives was intermittent, because women would first start using contraceptives when they had at least one child, and use the contraceptives to achieve adequate spacing. The desire to prove one's fertility was strong, and appeared to influence contraceptive behaviour. The implication is that women may be captured as using contraceptives in a survey, but their use was only to space births—meaning that even if they were using contraceptives, they would stop using them when they wanted to have children again. Since childbearing starts early in Malawi, women may, for example, start having children at 19 years of age, and use injections for spacing as they continue to have six or more children. This means that a survey could record them as using contraception for a greater part of their reproductive lives than is strictly true, with a long reproductive span because they are spacing and not limiting.

The findings also showed that women perceived that sterilisation would limit their chance of having children with future prospective partner should their current partnership break down. In Malawi, between 40% and 60% of marriages end in divorce (Reniers 2003). Marriage instability in the country may be due to the fact that the majority of ethnic groups practise the matrilineal system, where the reproductive potential belongs to the wife (Mtika and Doctor 2002, Chimbiri 2006). In addition, there are fewer marriage transactions resources involved under the matrilineal system than the patrilineal system (Kaler 2001). It is likely that, living in an atmosphere of marital instability, such women are more likely to use temporary methods of contraception than permanent methods. It is possible that a reason sustaining high fertility in the country, among others, is the proliferation of unstable relationships. Facing threats of marital disruption, women in these relationships might use less effective methods or reversible methods of contraception that will allow them to have children with future partners.

From the narratives, another finding was that women deliberately did not want to limit the number of children they had because they were worried about marriage breakdown. Hence, they mulled over terminating childbearing altogether. This finding resonates with that of a committee of experts at the National Academy of Science (1993), who argued that there were reasons inhibiting adoption of contraceptives such as the high value attached to extending lineage; the importance of children as a means of gaining access to resources, particularly land; the use of kinship networks to share the costs and benefits of children, primarily through child fostering; and weak conjugal bonds.

From the narratives, the reasons women expressed for delaying limiting the number of children in this study were not demographic in nature; rather they looked at the context and circumstance surrounding their relationships. While the use of contraception in this context may delay births, the fact that these women are leaving their options open means that they are still at risk of becoming pregnant, and can continue to have children if the situation is right for them. The present findings indicate that family planning is seen as a way to space pregnancies, albeit that contextual factors mediate the way contraception methods are used.

Similarly, fear of marital dissolution was not only limited to women; men also feared to opt for male sterilisation because it was perceived as loss of power, and men would be the subject of ridicule if the community knew that they were sterilised. This again links to the understanding that, if marriage breaks down, men may not be able to have children in future. This has conceptual implications, because the Demographic and Health Survey captures women's fertility intentions as if they want a child now, later, or not at all. Thus, by understanding the context in which women make reproductive decisions, this study makes an original conceptual contribution, a finding that resonates well with Johnson-Hanks' (2007) study.

Another mediating factor, according to the qualitative data, that might offer a better understanding of the slow pace of fertility decline observed in the country is that both men and women wanted to have many children so that, in case some die, others should survive. This might be a rational response to the uncertain personal and institutional context in which the majority of Malawians find themselves. This finding

is in contradiction to the analyses presented in Chapter 4, which showed that infant mortality was not correlated to TFR. Even so, women in this study cited child mortality as a reason for not having fewer number of children or opting for sterilisation. There is a possibility that child mortality is still high in certain areas, which validates their fears.

The results show that the inhibiting influence of the index of postpartum infecundability on fertility has weakened over time, partly due to the decline in the durations of amenorrhea and sexual abstinence, which confirm that fertility transition in Malawi is underway. The results are in line with the findings of Bongaarts and Potter (1983), which show that when a country is in fertility transition, people give up old cultural practices, leading to a gradual reduction in the index's inhibiting influence on TFR. Nevertheless, it remains the most

As qualitative results show have shown, observance of sexual abstinence remains strong due to the strong cultural beliefs that prohibit early resumption of sexual intercourse. Breastfeeding practices could be seen as a careful consideration brought off by men and women who do not want to have more children than they can manage, but also want to consider the health of the child and mother as well as cultural sanctions (Bledsoe, 1996). Extended breastfeeding should be understood as a way of giving the woman who has given birth enough time to replenish elements lost during the child birth. Allowing such a space of extending breastfeeding increases the chances of survival for the mother. Studies (Bongaarts, 1983, Bledsoe, 2004, Bongaarts, 2010) show that as a country undergoes modernisation, forces such as urbanisation put pressure on the observation of sexual abstinence. Bledsoe (1994) argues individuals or couples reasons for refraining from early sex resumption may not only be linked to polluting the baby's milk, it is also in consideration of the mother's health, since when children are not adequately spaced, the mother does not have enough rest. Relatedly, it is also argued that if the woman becomes pregnant, she faces competition from both the born child and the unborn child for food.

8.1.5   What are the Factors are Associated with the Rapid Rise in Contraceptive Use Observed between 2000 and 2010?

The study revealed that besides spacing of births to allow a small family size (where the desired number of children was understood to be four), there were other factors that affected use of contraception. Dominant among them was that contraceptives made women look young. This finding may be understood that in the context of the marital relationship, especially in the matrilineal areas. This may be important to the woman because looking young may prevent the man from seeking sexual satisfaction from other women.

Another finding from the fieldwork which may be responsible for the increase in contraceptive use was that contraceptives were increasingly being used to achieve education goals. These goals included those for their children as well as for the women themselves. The repeated ideas concerning return to education were due to the Malawi government's implementation of the girl-child policy. Following the Beijing conference in 1995, the government made a commitment to improve girls' education in the country in 2000 through a policy known as the girl-child education policy (Malauwa-Banda, 2003). This was a policy that encouraged readmission of girls who dropped out of school due to pregnancy. In the past, any girl who was pregnant would immediately be expelled from school. However, the new policy allows the pregnant girl and the schoolboy responsible to return to school after the birth of the child. It is not clear how many girl-students were readmitted upon getting pregnant.

The study found that men and women in focus group discussions (FGDs) mentioned side effects that affected uptake of contraceptive methods. For example, common to women was the complaint of irregular and prolonged bleeding patterns associated with the use of the injection. Women repeatedly reported that use of the injection was responsible for their delays in return to conception, while others mentioned that it caused prolonged bleeding. Childbearing is the prime consideration of marriage, and so any delay in conception or fertility removes the value that the woman has in society. The fears of prolonged bleeding were rooted in the fact that it deprived their husbands of sex, and it was understood that if women were having prolonged bleeding, this would make men cheat on their spouses.

Although men and women in FGDs reported to be concerned about side effects arising from injection, it was the predominant method of contraception in both rural and urban areas. The findings from the quantitative analysis showed a higher probability of using injectable contraception (over 7 in 10 women from the 2000–2010 period) among women living in rural rather than urban areas. This may suggest that that women preferred longer-lasting methods due to difficulties in accessing health facilities. Thus, the injection was the most convenient method since it offers contraceptive protection for three months, meaning that women do not have to go to the clinic frequently. In addition, for some women who faced resistance from their partners, the dominant view was that injection offers a covert use of contraception, a finding which is not peculiar to this study. Also, it is possible that the high use of injectable contraception in rural areas is due to it being the providers' choice of method, as injections involve few follow-up services (Stephenson and Hennink 2004{Sutherland, 2011 #125).

8.2   Incorporating Theories of Fertility Change Present Study

The study has made use of ideas from various theories to explore the reasons for the little change in fertility level in Malawi, and to explain fertility decline in the country. In the review of the theories that attempted to explain variations in fertility, the principal contending approaches based on normative (or cultural) and rational choice (or economic) failed to reach agreement as regards why people continue to have children in developing societies, and fertility remains high.

As presented in the thesis, the demand for the availability of contraceptives has been increased by the government policy which has triggered off contraceptive prevalence rate. The Government of Malawi has made a number of policies to create a better environment to promote family planning. However, there are a number of mediating factors which may be preventing fast fertility decline given Malawi's CPR level.

The community-based approach of family planning has assisted the spread of contraception in rural areas by reducing the costs of fertilily control methods and exposing the people, especially in rural areas, to innovation and understanding of how contraception works. Thus, the findings from this study can be viewed as rendering further support to the suggestion of (Bongaarts and Watkins 1996) that fertility

change rests on removing the costs of fertility regulation. As uptake of contraceptives has increased, this study in many ways supports the classical expression in which fertility changes is summarized by (Coale and Watkins 1986) and rephrased by others (Cleland, Ndugwa et al. 2011) about being "ready, willing and able" as criteria for fertility decline.

Putting this in the context of Malawi, the increase in CPR has shown that the people are willing to use birth control. However, as a pre-condition of Coale's condition, fertility has not declined fast due to social and cultural institutions giving prominence to women who have children, particularly in the rural areas (Lesthaeghe 1989, Ratcliffe, Hill et al. 2001). In this study, women who choose sterilisation do so when they have five or more children, and when they are close to the end of their reproductive period. Others leave their reproductive options open for future partnering, which should lead to the idea that there is need to understand the context in which men and women, and the intentions surrounding certain behaviour ((Johnson-Hanks 2007).

In the African context, society and its institutions play an important role in fertility behaviour and the decision-making of individuals, and men cannod be sidelined (Bledsoe, Hill et al. 1994, de Bruijn 1999, Bledsoe and Banja 2002). Societal expectations that support large family size may pressurise individuals to conform to these norms. A woman or a couple actively seeking to limit the number of children may succumb to societal pressure that supports large family size (Bledsoe 1994). Men also play an imprtant role in in family size and the reproductive behaviour of woman (Ratcliffe, Hill et al. 2001). This may have an effect on whether the couple considers limiting childbearing, or on what method of contraception they use. Similarly, the institutions may play on some individuals to believe that the pregnancy is a gift from God (Redcliff, 2001).

The study also may borrow ideas from the demographic transition theory and can be viewed as still operating in Malawi. For instance, according to Malawi Demographic and Health Surveys (MDHS), between 2004 and 2010, Malawi experienced a significant reduction in the under-five child mortality rate, from 133/1,000 live births to 112/1,000. While the decline is promising, it may not be sufficiently low for the

people to perceive as such. As observed, fertility change have been been promising in the urban areas, but remain higher in the rural areas due to thhe cultural reaons that place value on children. The benefits for large family size are often greater in the rural areas than in the urban areas; children are are desired for economic, instrumental and psychological reasons Caldwell, 1992).

8.3   Limitation of the study

This study has some limitations. Cross-sectional data sets from independently drawn survey samples can show associations, but it is difficult to establish cause and effect. In addition, for studies of trends, longitudinal data that follow the same respondents over time would be better than comparisons of data from successive surveys. The results may also be biased because they are based on self-reporting by respondents, and thus may suffer from misreporting. It is also difficult using MDHS data to associate the rapid increase in contraceptive use between 2004 and 2010 in Malawi with specific family planning programmes carried out by governmental and non-governmental organisations.

Certain variables in the quantitative data were necessarily restricted by the nature of the data. It was not possible to understand the social and cultural value of the study; the Malawi Demographic and Health Surveys only asked for the participants' religion and region, and relied on the subjective knowledge of the author to draw matrilineal and patrilineal variables to understand contraceptive and fertility behaviour.

The methodology used in this study had several weaknesses that need to be taken into account when interpreting the data. First, the qualitative findings draw substantially on a limited number of interviews with male and female participants aged 18–54 years and 18–49 respectively. Both of these categories comprised married people. The recruitment of these participants was purposeful, introducing selection bias in the identification of the participants (Pannucci and Wilkins 2010, Willig 2013). This may have limited the extent to which these results can be generalised to the population under study. An alternative could have been to recruit participants using a random sampling which could have enabled the study to confidently draw inferences to the population involved in the study.

However, using purposeful sampling for recruiting participants had advantages considering that the research was dealing with a reproductive health topic, and some questions touched sensitive issues which could only be answered by married men and women. This means that it needed to target men and women who had experience with childbearing and use of contraception.

Overall, the thesis has demonstrated that it is possible to get meaningful results from integrating qualitative data into quantitative. Specifically, the exclusive use of quantitative methods alone would not have allowed to reveal enough information to understand the context in which women use contraception to reach their desired fertility. By combining both qualitative and quantitative analyses, this research approach suppresses limitations due to poor cultural coding inherent in quantitative MDHS data.

8.4   Conclusions

The research presented in this thesis has investigated factors that contribute to the slow fertility change in Malawi, which may be attributed to the fact that there has been a lack of change in median age at marriage; half of women still being married at the age of 18 years. Although the contraceptive prevalence rate is high, the predominant contraceptive method is injection, which is used for spacing and not for limiting, and can therefore hardly lower fertility if the motivations of women to have children are strong. In addition, women who choose sterilisation do so when they have five or more children, and when they are close to the end of their reproductive period. Total fertility rate is thus not declining, because the reproductive span is not being shortened by increasing age at marriage. Also, fertility is staying high because of the widespread idea of keeping options open, and women needing excess fertility in later years to secure marriage.

Injection accounts for over 60% of the modern methods of contraception used, which implies that there is limited choice available to couples. Making a wider choice of contraceptives available, especially long-acting methods, will allow couples to choose the methods that suit their situation. This can be achieved by expanding the availability of long-acting methods employed by health surveillance assistants (HSAs), to include implants among the methods they provide. Given adequate training, HSAs

can be utilised in task sharing to expand contraceptive provision. Furthermore, adequate counselling that provides clients with full information about a wider range of contraceptive methods is one of the most important strategies that would contribute more broadly to lowering fertility level in Malawi.

The conclusion is that a strong family planning distribution programme will work to drive up CPR but, without a multi-sectoral approach to address desired family size and reduce the number of children wanted, the increased CPR will have limited effect on TFR. This is because people will find ways for using contraception while still preserving large family sizes.

8.5   Policy Implication and Recommendations

The thesis has several important policy implications that should be considered within the broader post-Millennium Development Goals (MDGs) agenda. Family planning concerns with Social Development Goals number three and five, but if taken holistically, it is important in achieving all the 17 goals. As shown in Chapter one, family planning benefits families, women, communities and the government at large. However, as Chapters 6 and 7 have shown, increasing contraceptive use alone does not necessarily lead to fertility reduction. As shown in this study, programmes that focus on driving CPR up may have their desired effects, but may not lead to fertility reduction if they are not accompanied by efforts that focus on the benefits of smaller family size.

Men's positive mindset towards contraceptive use found in this study is encouraging, and demonstrates the need to include them in family planning programmes. This can be achieved by encouraging men to accompany their spouses to postnatal clinics, where men will also have the opportunity to get advice on family planning. The benefits of engaging men go beyond contraceptive use, since men in Africa play a crucial role in household decision-making.

Although there is an increase in CPR, available evidence in Malawi suggests that contraception is also accompanied by an increase in rates of induced abortion (Ministry of Health Malawi 2011). Since contraception and abortion are the main means of regulating fertility, it is likely that the increased use of contraception should

lead to the reduced demand for abortion. Evidence from the recent study by Vlassoff and Tsoka (2014) shows that almost half of women have an unintended pregnancy in Malawi. Given that abortion is the only available option to regulate fertility when contraception fails, there is need to relax rules regarding induced abortion. Some encouraging indications suggest that such developments have been taking place in Malawi, and might gain momentum in the future. For example, IPAS Malawi organises debates on the subject on the radio, and female parliamentarians are trying to raise awareness and influence policy on abortion. Consequently, a Special Law Commission on the Review of Abortion Law reviewed the laws regarding abortion, which previously could only be permitted to save the life of the pregnant woman, or if there was a malformation of the foetus which would affect its viability or compatibility with life. The new recommendations were passed in July 2015, and subject to the parliament's approval, now include situations where the pregnancy is as a result of rape, incest or defilement.

The persistently high fertility in Malawi is a big concern, and the government's immediate focus is to address high fertility. During the FP2020 London Summit in 2012, Malawi committed to increase CPR 60% by 2020 with a focused increase in those aged 15 to 24; to create a family planning budget line in the main drug budget by 2013/2014; and to raise the legal age of marriage to 18 by 2014. The progress made so far shows that Malawi has met or will meet these commitments in the next few years. Malawi created a budget line for contraceptive commodities in 2013/2014 and allocated US$ 80,000, which increased to US$ 133,000 in the 2014/2015 national budget. In addition, the country recently enacted the Divorce, Marriage and Family Relations Law that raises the minimum age of marriage from 16 to 18 years, and is expected to go a long way in reducing fertility.

8.6   Future Work

The study also brought to light an important element for further investigation, regarding the extent of contraceptive discontinuation rates. The 2010 Demographic and Health Survey did not collect calendar data, and it was not possible to establish discontinuation rates.

In the absence of calendar data, the study could only speculate that discontinuation rates are high such that, even with use of highly effective methods such as injection, some women discontinue the methods and become pregnant (Cleland, 2014). A calendar module on contraceptive use would have been appropriate to examine this relationship. This is because calendar data collects information in any month when a woman reported discontinuing a contraceptive method, and the primary reasons for discontinuation (Bradley, Schwandt et al. 2009, Bradley, Croft et al. 2011). One reason commonly given is method failure, or became pregnant while using. This would allow us to directly calculate failure rates.

It is also essential to undertake a study to establish whether high TFR might be attributed to contraceptive failure rates. Since the 2010 MDHS report shows that the percentage of women who attend antenatal clinics (ANCs) is nearly 100%, research should focus on these women and conduct a survey of how many women who were using contraceptives wanted the pregnancy, and for how many the method failed.

For some participants, child mortality was of great concern, in that it was not possible to limit childbearing in case some of the children die. Child replacement and hoarding are common demographic explanations as a response to child death (Preston, 1978). This may be true in Malawi, where child mortality rates have remained high and parents' fertility behaviour is moderated by anticipation of child death. As demonstrated in Chapter 4, there was no association between fertility and infant mortality at the national level. According to van de Walle (1986) who eaxmined fertility in the European Fertility Project's , at the provincial level, correlations between fetrtility and mortality are sometimes stronger and sometimes weaker than at the national level, but they are not always in the expected direction.

However, there is overwhelming evidence that child mortality has been reduced by almost 80% since 1990, with 85 deaths per 1,000 live births in 2013 compared to 234 deaths per 1,000 live births in 1990 (National Statistical Office 2015). This suggests that Malawi almost met the 2015 Millennium Development Goal target of reducing child mortality by 78%. The lag effect makes people perceive child mortality to be high, and that has an effect on their reproductive behaviour. Thus, there is need for detailed analysis to look at differentials of child mortality risks. It may be that the

perception of child mortality is still quite high, and people would want to have many children before they start thinking of using long and permanent methods. The effect can take a long time to dissipate, possibly even a generation, because it depends on the perception of mortality decline.

Appendix 3A: Study Protocol

1. Describe the rationale, study aims and the relevant research questions of your study

Introduction

In Malawi, a woman's average fertility (TFR) has declined by only one birth, from 6.7 (1992) to 5.7 (2010) children. The slow decline in fertility is not in line with the notable improvement in use of modern contraception among married women (CPR) which increased from 7.4% (1992) to 42.2% (2010) at par with countries such as Kenya where the average fertility per woman is at least two births lower. This increase in modern contraceptive use is not uniform across all women; it is lowest amongst the poorest and those with no education. Previous research, largely quantitative, identified several barriers to use of modern contraceptives common to developing countries which include husbands' opposition, fear of side effects, health concerns, and dissatisfaction with sexual sensation when using them.[10] While these cannot be ruled out, there is strong evidence to suggest that contraceptive use in Malawi is widely accepted, including in the rural areas. However, little is known about fertility intentions and aspiration among men and women on the use of contraception as well as contexts they use to control fertility.

Evidence from the Demographic and Health Surveys conducted in Malawi further highlight the conflicting reproductive intentions; currently married women and men's fertility aspirations indicate that they would want to have fewer children, yet they are not able to achieve their fertility desires and actual fertility rate remains high. It is impossible to get a full picture of why fertility remains high in the wake of increasing contraceptive use. Is it a question that the traditional values which favour a high number of children remain strong and have hardly changed?

According to the Malawi and Demographic and Health Survey, the increase in CPR is predominantly composed of the injectable which other studies have shown are mainly used to space rather than limit the number of children.[11] Possible reasons for the popularity of the injectable are that it is more convenient than other methods: does not need to be taken every day like the pill; it is only needed every three months and allows discreet use by women who do not wish their partners to know that they are

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[10] John Bongaarts, J. and J. Bruce (1995) The Causes of Unmet Need for Contraception and the Social Content of Services *Studies in Family Planning*, Vol. 26, No. 2 pp. 57-75

[11] Moultrie, T. A., V. Hosegood, N. McGrath, C. Hill, K. Herbst and M.-L. Newell (2008). "Refining the Criteria for Stalled Fertility Declines: An Application to Rural KwaZulu-Natal, South Africa, 1990–2005." Studies in Family Planning Vol. 39(No. 1): pp. 39–48.

practicing contraception.[12] The context within which the contraception is used is not easily known and for what reasons. From the perspective of supply, this may suggest that there is a limited range of contraceptive methods which restricts couples choice of a method that suits them. It may also indicate that women wish to space longer the births as they reach their fertility desires.

Quantitative data permit the observation of linkages between women's higher fertility outcomes and contraceptive use behaviour in Malawi. Qualitative research would enable understanding of how couples make their own fertility decisions in relation to their social cultural settings and how they negotiate contraceptive use. In order to have a greater insight both quantitative and qualitative research is necessary on this issue. The qualitative research focuses on uncovering the underlying mechanisms of how the social-cultural settings influence the choice of a high number of children. The factors which prevent women and couples from using modern contraception within the same social cultural setting are subject to a number of interventions. The understanding of the context within which a couple decides to have a child, use or not use modern contraception is very important for setting policy and family planning priorities.

A hand-full of studies employing qualitative research methods, such as in-depth interviews, focus group discussions and participant observation, have directly tackled contraceptive use in Malawi. Yet, overall, little qualitative research has directly addressed the problem of high fertility in Malawi in the wake of high contraceptive use in Malawi. Early work on contraceptive use in Malawi has focused on understanding of the barriers to use among adolescents[13] and on the impact that user fees would have on access and utilisation of family planning and reproductive health services if introduced.[14] Because such in-depth investigations have not been carried out to understand fertility dynamics in Malawi, most information on fertility have tended to rely on selected questions included in DHS surveys and the major sources[15] of data in Malawi which are reports mostly quantifying trends and levels of fertility without detailed analysis of the socio-economic and cultural factors which shape contraceptive behavior in Malawi. The proposed study makes a substantial empirical contribution to the understanding of attitudes, subtle practices regarding modern contraception that shape fertility behaviour in Malawi. Thus use of a qualitative study is important

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[12] Sutherland, E.G., Otterness, C., & Janowitz, B. (2011). What Happens to contraceptive use after Injectables are Introduced? An Analysis of 13 Countries. International Perspectives on Sexual and Reproductive Health, Vol. 34 (No. 4), pp. 202–208.

[13] Chimbwete, C. (2001) "Socio-demographic aspects of young people's reproductive behaviour in Malawi". Unpublished PhD thesis, University of Southampton.

[14] Hennink, M. and N. Madise (2005). "Influence of User Fees on Contraception Use in Malawi." African Population Studies Vol. (20) (No. 2)

[15] The Malawi Demographic Health Surveys and Malawi Population and Housing Censuses.

because it will help to understand, argue, explain or confirm results from the quantitative studies.

The rationale for using multiple methods is to access multiple perspectives and dimensions to improve our understanding of fertility in Malawi. This may allow parallel insights into the experiences of the participants. Using a quantitative approach alone raises certain objections. For instance it has been argued that the underlying assumption is that the meanings are common to the interviewer and interviewee, that the interviewee will talk about the chosen topic, and that the interviewee account will be more or less accurate[16]. Using qualitative methods satisfactorily addresses the objections by allowing phrasing questions in language and concepts used by the group under study. Furthermore, during the course of the research participants can clarify meaning with reference to the shared experiences.[17] Thus the findings of the quantitative and qualitative analyses will then be integrated to bring out how and in what context people achieve their fertility preferences. The two approaches will complement each other with qualitative research focusing on the context of people's everyday issues, where such decisions are made and enacted.

<u>Research aims</u>
Fertility decline in Malawi has been much slower than typically experienced in the past decades by other countries in Eastern Africa at similar levels of fertility and contraceptive prevalence, this qualitative study seeks to get a deeper understanding of the following research questions:
-   What is the understanding of men and women in Malawi regarding the concept of "family size"?

-   Why are fertility aspirations in Malawi still very high?

-   In what context do men and women practice family planning?

The specific research objectives are as follows:
-   To explore fertility preferences of men and women including both numerical and non-numerical expressions of family size

-   To explore the values placed on children

-   To explore the options which are available to men and women in controlling fertility?

-   Explore the attitude, perceptions towards contraceptive use

-   To understand the contexts that women use to achieve their desired fertility

[16] Mason, J. (2006). "Mixing methods in qualitatively driven way". Qualitative Research vol. (6) (1) pp. 9–25.
[17] Barbour, R. (2009) Introducing Qualitative Research: A Student Guide to the Craft or Doing Qualitative Research. Sage : London

2.   Describe the design of your study

The present study uses a qualitative methodology. The study will use a mix of semi-structured questions to collect information through focus group discussions (FGDs); key informant interviews (KIIs) and In-depth interviews (IDIs) which will permit to further probe emerging issues during the discussions.

<u>Study sites</u>

The interviews will be conducted in three districts namely; Machinga, Nkhata Bay and Lilongwe which will be purposively selected from the 28 districts in Malawi. Selection of the districts will be based on social and economic setting of the study areas which include: marriage type (patrilineal or matrilineal), ethnicity, kinship system, economic activity, and rural-urban contrast. I will use the 2008 Population and Housing Census to purposively sample the traditional authorities (TAs) from which villages will be selected. In terms of organisational structures, each village or ward falls under TA while the TAs fall under districts.

<u>Focus group discussions</u>
Two TAs will be selected from each Machinga and Nkhata Bay districts. Within each TA, two villages will be selected and within each village, two FGDs will be conducted separately for males and females. Thus, eight FGDs each will be conducted in rural areas of Machinga and Nkhata Bay while four, which will serve as a contrast, will be conducted in Lilongwe. Thus, I will conduct a total of 20 FGDs of men and women aged 18 to 49 years with the help of local research assistants. Although this is not statistically representative, it is suffice to illustrate the views and perceptions of rural and urban participants in Malawi.

Each focus group will be moderated by a facilitator and the note taker will jot notes and also ensure that the audio-recording will be in progress. They will both be of same sex as the discussants in each FGD. This is because the nature of the study will border on masculine or feminine aspects of sexual behaviour which has the potential to make the participants reluctant to speak if the moderators were of different sex. Further stratification by age remains flexible until after the results from pretesting the study tools. Hennink and Madise (2005) found that there was little variation in the issues raised by discussants when the participants were stratified by age.

<u>In-Depth Interviews</u>
Additionally, one in-depth interview (IDI) will be conducted in each selected village or ward where the FGD will be conducted. The RAs will interchange interviewing of users and non-users from one village (or ward) to another, so that if the first participant will be a user, the next will be non-user. Thus there will be a total of 10 in-depth interviews.

<u>Key Informant Interviews</u>

The study will also interview key informants (KIIs). The target group will be service providers and stakeholders in the family planning distribution system. The key institutions to be visited will include: *Banja la Mtsogolo* (BLM), Malawi's leading provider of sexual and reproductive health services, Ministry of Health and Malawi Government Central Medical Stores, United Nations Population Fund and those that will emerge during FGDs and IDIs. Thus, a full sample size for KIIs will be determined during data collection exercise.

<u>Recruitment and training of research assistants</u>

I will recruit qualified and experienced research assistants by employing the following procedures:

> a. Placement of an advertisement on notice boards of selected research institutions in Zomba notably Chancellor College, National Statistical Office (NSO) and the Centre for Social Research (CSR). The advertisement will, among other things, specify the academic qualifications and research experience.
>
> b. Short-listing of candidates who have basic interviewing and language communication skills, some knowledge of group dynamics and relevant research experience as assessed according to their curriculum vitae.
>
> c. Interviewing of short listed candidates

Prior to fieldwork RAs will undergo training where FGDs, IDIs and KIIs question guides will be rehearsed and interview techniques revisited. The aim of the training RAs is to ensure that data collection exercise will be done ethically and that social distance and power imbalance between the research team and the respondents will be minimised. Following these procedures will also ensure that data will be of high quality.

Thus, the RAs will provide a description about what it entails to participate and the uses of participants'' personal data in relation to the study during recruitment of participants and at the onset of interviews. The RAs will also receive ethics training and procedures which will include procedures to enhance anonymity and confidentiality of the participants, withdrawal from the study, and audio-recording. With regard to the right to withdrawal, I will stress to the RAs that they inform the participants that they will have the right to terminate the interview or discussion if they regard it inimical to their interests. Concerning language of communication, the discussions will be conducted in Chichewa in Machinga and Lilongwe, while Tonga language will be used in Nkhata Bay which are a commonly spoken language in the district. The need for prior research experience and knowledge in the local area is sufficient to bridge any power imbalance that may arise because they have familiarity with life, culture and expected norms of behaviour in the study areas. The RAs will lead the discussions in native languages of the study areas and this should not create

any social distance. While recruitment will be done in Zomba, the RAs will not have necessarily been born and grown up in Zomba.

In addition to use of audio-recording, notes will be taken to capture non-language signs in various forms of visual cues and symbolic information contained in grimaces, winces which cannot be captured by recording. In FGDs, the assistant moderator will be responsible for taking notes, noting time, date, and general description of the location for each interview.

The research assistants will be reasonably fluent in English and Chichewa or Tonga. The FGDs and IDIs will be conducted and recorded in local languages and transcribed in English. While for KIIs, the discussion may be conducted in English because the respondents are expected to have reasonable English knowledge given the posts they hold in their respective organisation.

3. Who are the research participants?

The participants will be men and women aged 18-49 years, married or in a stable union. At program level the participants will include service providers of family planning methods.

4. If you are going to analyse secondary data, from where are you obtaining it?

The quantitative part of the study uses the publicly available data which was sourced from the Measure DHS website.

5. If you are collecting primary data, how will *you identify* and *approach* the participants to recruit them to your study?

Please attach a copy of the information sheet if you are using one – or if you are not using one please explain why.

<u>Sampling</u>

I will use the enumeration areas (EAs) as listed in the 2008 Population and Housing Census (PHC) to purposively sample the villages and urban wards. The 2008 PHC has a list of all the traditional authorities (TAs) and sub chiefs including the basic demographic information of the villages. For the rural areas, I will visit the village chief or the gate keeper two or three days in advance before recruiting the participants to ask for a list of residents in the community which will be used as a sampling frame. While in the urban setting, I will visit a ward administrator known as 'mfumu', a vernacular for chief. H/she is responsible for organising community security, helps with making funeral arrangements, and marriages celebrations within their ward. He/she has a list of names in their ward.

Krueger and Casey (2009) recommend that listing is a fast and cost saving technique to identify participants.[18] Based on the researcher's local knowledge in the study areas, listing has been decided upon as the most practical relevance to the study. However, Mason (2002) notes that sometimes the existing lists do not have the key characteristics as the commonly defined variables such as age or gender thus may be of limited relevance to the study.[19] Thus it is important to visit the households and verify that the household members meet the characteristics of the study.

Households will then be sampled randomly. The chief will then be asked for directions to the selected household. It has to be noted that the chief or the ward administrator will not accompany the research assistant because literature suggest that the respondents may feel coerced to participate because of sheer influence or hierarchy of the chief in the community. Next, following the greetings, the research assistant will then make a self-introduction and explain the purpose of the visit to the head of the selected household. The general topic will be introduced to the head of the household and who would participate. It will be made clear that only men and women aged 18-49 years will be required to take part in the study.

Identification of the respondents for Focus group
The RA will ask the head of the household about name, gender and age of usual household members. Once the person who fits the characteristics of interest has been identified; they will be invited for a screening questionnaire. The RA will verbally explain to the potential participants what the study is about (please see Appendix 3C). A double consent will be adopted. First, the RA will read out consent to potential participants as to whether they are interested to give some information about themselves. If they consent, then a screening questionnaire will be administered (please see Appendix 3C). The RA will explain to the interested participants in advance that if agreed they will join other members from their community aged from 18 to 49 years. A potential participant will then be invited to an agreed meeting place and time. A second consent will be read out verbally before commencing the FGD (please see Appendix 3D).

Identification of the respondents for In-depth interviews

The selected participants involved in in-depth interviews will be briefed with the aims of the study and the characteristics of the people the study would like to interview, hence the need for certain personal information (please see Appendix E). The potential participant who will express interest will then be asked to consent (please see Appendix F) before giving their personal information. A screening questionnaire

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[18] Krueger, R.A. and M.A. Casey (2009) Focus group discussion: A practical guide to applied research (4th Edition) , Sage Publications Ltd: London
[19] Mason, J. (2002) Qualitative researching (2nd Edition), Sage Publications Ltd: London

will then be administered (please see Appendix 3C). The RA will then invite the participant to an interview at the agreed time and place of their choice. It is likely that interviews will be conducted at the respondent's house or they will be given the option to choose a place of their convenience. Another consent will also be administered before commencing the actual interview (please see Appendix 3D).

The use of a screening questionnaire is important to the researcher because it allocates the participants into distinct groups, users and non-users of modern contraception. Thus enabling the researcher obtains contrasting views regarding attitudes and perceptions towards contraceptive use.
Identification and Approach: Key Informant Interviews
The initial contacting of participants may occur by mail, telephone, or in person. An information sheet will be provided and an ideal participant to take part in the interview will be provided. When a positive response has been received, an appointment will be made to set up an interview.

The sample size for KIIs will be determined during data collection exercise. The key institutions to be visited will include: Banja la Mtsogolo (BLM) - Malawi's leading provider of sexual and reproductive health services, the United Nations Population Fund (UNFPA), Ministry of Health and Malawi Government Central Medical Stores.

6. **Will participants be taking part in your study without their knowledge and consent at the time (e.g. covert observation of people)? If yes, please explain why this is necessary.**

No, the study will not involve any covert research. Participants will be fully aware of their involvement in the study as their consent will be sought before taking part in the study.

7. **If you answered 'no' to question 13, how will you obtain the consent of participants?**

   Please attach a copy of the consent form if you are using one – or if you are not using one please explain why.

The RA will brief verbally the participants the description and objectives of the study during recruitment of participants into FGDs and IDIs, and at onset of discussion. The RA will assure the participants that all the information given will be confidential and used anonymously. Once participants understand the objectives of the study, the process of obtaining consent in each of the discussion shall be as follows:

The moderator will read out verbally the consent to all the participants of FGD before commencing the discussion. Each participant will then answer individually whether they consent or not. The assistant moderator will take note of the individual participant's verbal consent by ticking yes or no (please see Appendix 3D).

In IDIs, after providing information about the study, the RA will read out verbally the consent to the participant. Please see IDIs verbal consent forms which are presented as Appendices E and G.

Participants in KIIs are expected to be literate, a written sheet will be provided before commencing the interviews. The KII consent is provided as an Appendix 3I.

8. **Is there any reason to believe participants may not be able to give full informed consent? If yes, what steps do you propose to take to safeguard their interests?**

As noted in section 14, the process of obtaining consent may be affected by low education and literacy levels anticipated in the study sites. The information about the study, the purpose, risks and benefits of taking part in the study will be provided in participants' language which will be covered verbally with the participant before asking them to consent. The participants will be made aware that participation in the study will be voluntary. Respondents will have the possibility to refuse to participate in the study or to withdraw at any time at no cost at all. These elements will ensure that individuals freely and rationally determine that the research will be consonant with their interests.

9. **If participants are under the responsibility or care of others (such as parents/carers, teachers or medical staff) what plans do you have to obtain permission to approach the participants to take part in the study?**

The study will not recruit or involve any people under the responsibility or care of someone else's.

10. **Describe what participation in your study will involve for study participants. Please attach copies of any questionnaires and/or interview schedules and/or observation topic list to be used**

The interviewer with the aid of assistant moderator will meet the participants as a group of eight to ten members and discussions will take about 60-90 minutes (please see Appendix 3F). The focus group discussion will be conducted at a quiet place that will be free from interruption. This might be the community hall close to the participants' homes. The participants will not incur any transport costs.

During in-depth interviews, RA will involve a one-to-one interaction with the participant. An ideal time and convenient location to the participant which might be on the balcony of the participants' house will be chosen. Each interview will be expected to last about 60 minutes (please see Appendix 3G). While for the KII, the RA will visit the key informants at their workplaces. The discussion will be expected to take about 60 minutes and may be audio recorded. A discussion guide will be used during the interview.

11. **How will you make it clear to participants that they may withdraw consent to participate at any point during the research without penalty?**

The right to withdraw consent to participate is addressed in the consent form which is to be read by or explained to every participant. It is likely that the proposed time of study will coincide with the peak farming season in Malawi (August to October), the participants will receive a small useful gift or refreshments for participating in the

FGDs. The gifts will be given after the discussion in order to avoid affecting their willingness to participate. Individuals who decide to leave during the discussion will also receive a gift for their part contribution. This will not only compensate the subjects, but also as a reflection of gratefulness for the value placed on their time and effort to participate in the study, which would otherwise have been spent in farming or gainful activities.

12. Detail any possible distress, discomfort, inconvenience or other adverse effects the participants may experience, including after the study and how you will deal with this.

The interviewer will be looking out for signs of distress or discomfort in participants and will ensure that they are happy to carry on. In the event that someone is unhappy or upset, the interviewer will pause or break the discussion to allow establish the cause of the distress and whether the person wishes to continue or to stop.

The questions are semi-structured which allows the participant to refuse or change to another topic if they feel uncomfortable. The participants will talk about their opinions and perceptions on the study topic as opposed to revealing their personal experiences.

As already mentioned, the objectives of the study are to explore and provide an overall picture about reasons for high fertility, use or non-use of contraception. The participants will be made aware during the recruitment and at the onset of the interview that they may refuse to answer specific questions or disclose certain personal experiences if they wish.

In addition, the topics of fertility and contraception use are subject of many studies in Malawi[20] and are not sufficiently sensitive as to adversely affect the participants in this regard. The questions being asked are similar to what is asked in large-scale household surveys (Malawi Demographic and Health Surveys) as part of an effort towards obtaining fertility, mortality and morbidity estimates in both urban and rural areas.

One element that might cause participants to be less inclined to discuss freely is the presence of other participants they already know in the group. There are arguments in literature which show that participants in the rural areas are likely to meet each other in future, and it is practically impossible to arrange groups of people who do not know

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[20]http://measuredhs.com/publications/publication-FR247-DHS-Final-Reports.cfm
http://www.nsomalawi.mw/

each other in advance.[21,22] The researcher will explain to the participants during recruitment that they will be joining other people for discussion from the same community.

The moderator and their assistant will assure the participants that everything they share in the FGDs will be treated as confidential by the researcher. It has to be acknowledged that it cannot be promised to be the same with other members of the focus group. After the discussion, the moderators will emphasize at the end of each session that participants should respect each other's privacy and anonymity. Once outside the focus group setting, the participants should keep the contents and the identities of other participants who made specific comments during discussion confidential.

13. How will you maintain participant anonymity and confidentiality in collecting, analysing and writing up your data?

The research assistants to be recruited will undergo ethics training to enhance anonymity and confidentiality of the participants which will be applied throughout the process.

Confidentiality

Focus group discussion: An ideal location for example community school rooms will be identified to create a comfortable atmosphere for discussion. If an individual insists to be part of the group or there is an intrusion, the discussion will be paused instantly and the assistant moderator will ask the intruder politely to leave the group. Once led away, the assistant moderator will explain to the intruder the importance of respecting the privacy of the discussants.

In-depth interviews: In the case of the in-depth interviews where the interviews are most likely to occur near the participant's homes, the research team member will pause the interview for a while or move to another location. Similar remedies will be applied to in-depth interviews in case of third party disturbances or intrusions. During field work, the research assistants will be asked to work in private room when transcribing the notes and lock up for safe keeping of in the case they have not finished transcribing. Only members of the research team will have access to the recordings. The transcribed notes and recordings will be immediately handed over to

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[21] Hennink, M.M. (2007). International Focus Group Research: A Handbook for the Health and Social Sciences. London: Cambridge University Press
[22] Frisch, M. (2008). Three Dimensions and More: Oral History Beyond the Paradoxes of Method. In S. N. Hesse-Biber & P. Leavy (Eds), Handbook of Emergent Methods (pp. 221-238). London: The Guilford Press.

the researcher for safe keeping in a locked cabinet and all electronic files will be kept on password protected computers.

Key informant interviews: Interviews with service providers and programmers will be conducted in a private room. Where possible, the participant will be kindly requested to place a polite notice stating 'interviews in progress please do not disturb' on the door. This will ensure that there will not be disturbances or interferences from other people.

<u>Anonymity</u>

The transcripts will be anonymised and details that can be used to identify participants will be removed from transcripts or concealed in write-ups. Data collected through key informant and in-depth interviews which involve one-to-one discussion, only general identifiers, such as age, marital status and education, will be used. I will use generic job titles such as "Nurse", "Chief" and will use "Location A, B, C" etc., when quoting verbatim or paraphrasing information from KIIs so that these individuals and events described cannot be identified. In the report, the only identifying information in the data extracts from group discussion will be gender of the participants. In the event that names of the participants have been revealed during the discussion, personal identifiers will be removed and replaced with identities that are not connected to any identifying names or characteristics.

14. **How will you store your data securely during and after the study?**

> *The University of Southampton has a Research Data Management Policy, including for data retention. The Policy can be consulted at*
> *http://www.calendar.soton.ac.uk/sectionIV/research-data-management.html*

All interviews will be recorded using a digital sound recording device which stores the recordings as electronic files for easy playback and transferring to a computer. Immediately after the transcription, the files will be retrieved from the note takers and stored in the researcher's laptop whose logging credentials are password protected and only accessible by the researcher. The files once transferred, will be deleted from the recorder. This will also apply to the files kept by the typist. Likewise, any backup of the files will be password protected and stored in a secure environment such as locked up office drawers at University of Southampton to avoid breach of data security. The hard copies of consent forms will be kept in locked cabinet. Only the researcher will be the custodian of the data. The hard copies of transcribed notes will contain completely anonymised identification. These will be destroyed once the researcher is satisfied that they are no longer needed for cross checking.

15. **Describe any plans you have for feeding back the findings of the study to participants.**

The researcher will use posters to disseminate the study findings. The researcher also contributes articles to the national newspaper in the home country on population issues. This will be made clear to the participants before the consent. The findings will

be presented in bullet forms for easy reading and understanding. The consent form will have contact details to trace the researcher. Any individual wishing to get an update and feedback from the information will be provided with the summary findings.

16. What are the main ethical issues raised by your research and how do you intend to manage these?

The main ethical issues raised in this study are informed consent of the individuals to participate in the study, confidentiality of the information provided and anonymity. For research assistants when in their role as moderators of the FGD, the researcher will emphasize that they maintain strict confidentiality. A description about what it entails to participate and the uses of their personal data in relation to the study will be clearly explained to the prospective participants before the discussion begins. All data will be considered to be confidential and only available to the researcher. As already outlined in the preceding sections, the participants will have the right to terminate the interview or discussion if they regard it inimical to their interests. The prospective participants who will be interviewed as key informants to provide information will be treated in the same way as the focus group discussion participants.

17. Please outline any other information you feel may be relevant to this submission.

None

Appendix 3B: Participant Information Sheet

Researcher: Jesman Chintsanya

Ethics number: 6257

Introduction

Good morning/afternoon. My name is Jesman Chintsanya. I am a student at the University of Southampton in the United Kingdom. We have come into this community to conduct a research to explore how people are able to achieve their fertility preferences and use of modern contraception. The research is sponsored by the Commonwealth Scholarship Commission.

Study information

The aim of the study is to understand fertility preferences, knowledge, attitudes, values and practices regarding family planning. This study will also gather information regarding opinions, perceptions and beliefs pertaining to why couples have high number of children, the various ways in which a couple can delay or prevent another birth. Although the information collected may not be beneficial to you as an individual, the results of the study should help the government and other programme managers to formulate appropriate programmes to assist people to achieve the desired number of children. It may also help the government to come up with strategies that may scale up family planning services so that couples achieve their reproductive health goals.

Participation in the discussion is voluntary and you are free to withdraw from the discussion any time you feel uncomfortable to proceed without any recourse. The discussion will take about one and a half hours. We will treat any information you give us confidential, and your name will not be associated with anything you say in the focus group discussion. The same will be asked of other participants to respect each other's confidentiality.

We will be recording the discussion with an audio recorder which will be kept safely and which will not be provided to others outside the research team. Bearing in mind that your views are important we hope that you will participate in this study.

Before we proceed, I would like to ask some questions so that you are happy to continue with the discussion. Would you like to ask any questions? Okay so just to make sure that everyone is happy to carry on I'm going to ask you a few questions.

If you have any further questions about this study please contact the University of Southampton's Chair of Ethics Committee; Dr Martina Prude, Head of Research Governance on the following contacts by telephone: +442380 595058, and email: mad4@soton.ac.uk or locally, Dr. Mangani Katundu, Chairperson of Chancellor College Research and Ethics Committee. Tel: +265-1-524-222, email: mkatundu@cc.ac.mw

Appendix 3C: Screening Questionnaire

Hello, my name is Jesman Chintsanya. We have come into this community to conduct research to examine the extent to which people are able to achieve their fertility preferences and use of modern contraception. The aim of the study is to understand fertility preferences and knowledge, attitudes, values and practices regarding family planning. Is it okay for me to ask you a few questions to see if you would be suitable to participate in the study?

INTERVIEWER: READ OUT THE PARTICIPANT INFORMATION SHEET

Before I ask some questions, I would like to inform you that the questions will require your personal information such as age, education attainment, your knowledge and use of contraception. The questions will assist me to determine your suitability to participate in the interview. Before you make a give me your personal information, it is important for you to understand what it will involve. I would like you to answer if you agree to the five statements:

Do you understood what I have said about the research and the purpose of the research and have had the opportunity to ask questions about the study.

I agree to take part in this research project and agree for my data to be used for the purpose of this study.

I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected

It is okay for me to give the requested information for the purpose of the study

Do you understand what you are being asked to do?

Appendix 2 continued…

Data Protection

I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Name of participant (print name)………………………………………………

Date………………………………………………………………………………

INTERVIEWER: CHECK WITHOUT ASKING IF THE RESPONDENT IS A MAN OR A WOMAN

    [ ] Man
    [ ] Woman

1. How old were you in your last birthday? (age in completed years)
    [ ] Years

2. Have you ever attended school?
    [ ] Yes
    [ ] No   IF NO GO TO QUESTION 5

3. What is the highest level of school you attended: primary, secondary, or tertiary?
    [ ] Primary
    [ ] Secondary
    [ ] Tertiary

4. Have you ever heard about family planning and contraceptive use?
    [ ] Yes
    [ ] No   IF NO GO TO QUESTION 7

5. Have you ever used any family planning method before?

6. As I have explained, would you be interested to take part in the study?

    [ ] Yes   IF YES GO TO QUESTION 8
    [ ] No

7. If YES, make an appointment noting time and place for the interview AND THANK RESPONDENT

8. IF NO, END AND THANK RESPONDENT. RESPONDENT DOES NOT AGREE TO PARTICIPATE

Appendix 3D: Consent form for Focus Group Discussions

Introduction

Okay so just to make sure that everyone is happy to carry on I am going to ask you a few questions.

MODERATOR: Please write the name of each participant in the space provided and then make a mark in the box if that respondent verbally answers yes to the following questions:

1. Do you understand what I have said about the research and the purpose of the research?
2. Do you understand what you are being asked to do?
3. Is it okay for you to talk about this topic?
4. Do you feel like you have had a chance to ask any questions?
5. Do you understand that you can leave the study at any time without any problem?
6. Do you understand that you can refuse to answer any question and still stay in the study?
7. Do you understand that we will not use your name after the discussion and we will keep what you say private?
8. Is it okay that any information given by you may be used in future reports, articles or presentations by the researcher?
9. Is it okay that we ask you to keep the discussion private?
10. Dou you now feel comfortable to take part in this discussion?

Name of participant	Question number									
	1	2	3	4	5	6	7	8	9	10

NOTE: Moderator, please make sure that the all participants have given their consent to take part in the discussion and take note

If you have any further questions about this study please contact the University of Southampton's Chair of Ethics Committee; Dr Martina Prude, Head of Research Governance on the following contacts by telephone: +442380595058, and email: mad4@soton.ac.uk or locally, Dr. Mangani Katundu, Chairperson of Chancellor College Research and Ethics Committee. Tel: +265-1-524-222, email: mkatundu@cc.ac.mw

_____   _____

Signature of person obtaining consent   Date and Time

Appendix 3E: Letter of Introduction and Permission to Conduct a Study

referred Dr. Maria Murale

PRINCIPAL
Prof. Chris Kamlongera., B.A., DipTEO., M.A., Ph.D

Our Ref.: dps/5/45
Your Ref.:

CHANCELLOR COLLEGE
Department of Population Studies
P.O. Box 280, Zomba, Malawi
Telephone: (265) 524 222
Fax (265) 524 046
E-mail: popstudies@chanco.unima.mw

26th November, 2013

To whom it may concern

Dear Sir/Madam,

Letter of Introduction

I would like to introduce the bearer Jesman Chintsanya who is conducting a study on "Fertility Dynamics and Contraceptive Use in Malawi" on behalf of Department of Population Studies and the University of Southampton, United Kingdom. The overall objective of this study to get a deeper understanding of the barriers to contraception within marriage, specifically to explore the religious, cultural, and other barriers at the family level that can act as impediments to contraceptive use and assess the perceptions of women towards contraception.

The study is being conducted in four districts: Zomba, Machinga, Lilongwe and Nkhatabay. We therefore kindly request your assistance to assist the researcher and his team. In case you need further information, please contact the undersigned on 0888892970.

We sincerely thank you for your assistance.

Yours sincerely

PP

George Mandere
Head, Department of Population Studies
Chancellor College
University of Malawi

FHU/Mrs Chavula the please assist the bearer in the study!

LILONGWE DISTRICT HEALKT OFFICE
1. DEC 2013
DISTRICT HEALTH OFFICER
P.O. BOX 1274, LILONGWE

DHO 17/12/13

274

Appendix 3F: Focus Group Discussion Guide for women

Focus Group Discussion Guide (Women)

The aim of the section is to get a deeper understanding of the barriers to contraception within marriage, specifically to explore the religious, cultural, and other barriers at the family level that can act as impediments to contraceptive use and assess the perceptions of women towards contraception.

1. **Fertility preferences and ideal family size**
Communities in many parts of Malawi might be expected to have a particular number of children, in this community,

    1.1 People's expectation of ideal number of children in a family? (Should reach consensus)

    1.2 Reasons for having many children

    1.3 Why do you think other people have less number of children?

    1.4 For a family/woman/man that has less/more number of children, what does this mean to them?

2. **Family planning**
Let us now talk about use of family planning methods. Sometimes a couple can have more than the number of children they want.

    2.1 The ways women use in order to achieve the number of children they want
    2.2 Timing of use of contraception: parity, age (proof of a couple's fertility, after having how many children)

3. **Facilitators/barriers of contraception to complying with (or not) their chosen contraceptive** method:
    3.1 Accessibility of family planning methods for all age groups (under 40 and over 40 years).

    3.2 Availability of family planning methods (whether adequate or sporadic)

    3.3 If family planning services are not available, why is the situation like this?

    3.4 Infrastructure of health facility

    3.5 Availability of trained staff

    3.6 Provision of adequate information to the clients regarding family planning methods

    3.7 Interpersonal relations of staff and clients

4. **Attitudes, perceptions and beliefs towards contraceptive use**

    4.1 Some women do not want to use contraception,

    4.2 Why this is the case?

    4.3 Decision process regarding use (not to). (Who is involved, who decided?)

4.4 What the participants think of the experience of using contraception?

4.5 What participants think are advantages/disadvantages of using family planning methods?

4.6 How participants learn the advantages/disadvantages of using family planning methods?

4.7 The type of information/message participants learn and from whom?

4.8 Perception and attitudes and towards contraception (Sterilisation, Injection, Condom other methods)

4.9 Participants' approval/disapproval and opposition to use of contraception

5. **Relationship between reported side effects and provision of family planning service**

   5.1   Information about side effects for specific methods

   5.2   From whom they hear/learn about the side effects regarding the contraceptive methods (individuals, groups, institutions/networks).

   5.3   What to do if experienced problems using a particular method

   5.4   Alternative methods provided by the health service provider

   5.5   How are family planning services provided in this community

   5.6   Frequency of family planning service provision in the community

6. **Contexts for reaching the desired number of children**

During a woman's reproductive career when do you think a woman should start using modern contraception?

- Whether it is important to prove a couple's fertility before using contraception
- Attitudes towards family size, spacing
- Attitudes toward limiting the number of children
- Whether couples should decide beforehand how many children to have (planning)
- At what stage should one start using injection (after having how many children at what age)
- At what stage should one go for sterilisation (after having how many children at what age)
- The context in which other methods of contraception are used (Condom (M&F), pill, IUD, Traditional methods).
- What do you think of people who use sterilisation/injection as a method of contraception?
- How the participants use contraception to achieve desired number of children

Other ways (ways women use to prevent unwanted (unplanned) birth)

- Breastfeeding

- Postpartum sexual abstinence
- Participant's attitude towards abortion, whether it is practiced in their community.

7. Social and economic effects of high fertility rates

Consider the current situation now, what would happen in [5, 10 and 20] years' time, what do you think will happen in this community if people continue to have many children?

How do you think the following are likely to affect you?

At-risk of food insecurity, effect on land/forest/farming area on the following livelihood activities such as fishing, education, morbidity and mortality, migration (internal and international)

7.1   What should be done prevent this [impacts/effects of high population] from happening?

7.2   Who do you think should initiate this?

7.3   What change would like to see?

8. Concluding remarks

This marks the end of our discussion. Do you have any comments on what we have discussed?

Thank you for your time.

Probes

- Why is the case?
- Can you explain more?
- Could you illustrate more by giving an example?
- Could you make it clear?
- Please describe what you mean.

Appendix 3G: In-Depth Interview Guide with user[23]

IDI Guide with user

Section A: **Fertility preferences and ideal family size**

Research shows that many women are now using contraceptives yet women are still having six children on average. In this community, what do you think is people's understanding of an ideal family size?
- Why do you think people have many children?
- Why do you think other people have less number of children?
- For a family/woman/man that has less/more number of children, what does this mean to them
- What do you think would happen to the woman (couple) when this number is exceeded?

Section B: Let us now talk about use of modern contraception

- How do women achieve the number of children in order to have the number of children they want?
- Source of family planning methods
- Do they find the methods they want? Why is the case?
- What does the respondent do if method is unavailable?

Community influence
- Discussion of contraceptive use with spouse (why/why not)
- Community's support of use of contraception
- Reaction of community towards use of contraception (other community members/church leaders)

Section C: Ways of reaching the desired number of children

During a woman's reproductive career when do you think a woman should start using modern contraception?
- Whether it is important to prove a couple's fertility before using contraception
- Attitudes towards family size, spacing, and planning
- Whether couples should decide beforehand how many children to have
- Attitudes toward limit the number of children
- At what stage should one start using injection (After having how many children and age)
- At what stage should one go for sterilisation (After having how many children at what age)
- What do you think of people who use sterilisation/injection as a method of contraception?
- How the respondent uses contraception to achieve desired number of children

Other ways
- Abortion- Knowledge of anyone who has used abortion to prevent births
- Breastfeeding
- Postpartum sexual abstinence

---

[23] A modified interview guide was prepared for non-users of modern contraceptives

Section D: Let us talk more about your perceptions and attitudes toward contraception.

We have talked about methods of contraception, in this community where do men and women obtain family planning methods?

- Awareness of family planning services providers the community.
- Perceived advantages/disadvantages of using contraception
- How did you learn the advantages/disadvantages of contraception
- How did she learn from others to start practising contraception for the first time?
- How did the respondent know anybody who was practising contraception at that time she started?
- Suitability of the contraceptive method
- Perceived health effects with the current method of contraception
- Service provider's attention to side effects and their management with current method
- Ways in which services could be improved.

Section E: Barriers to contraceptive use: misconceptions and perceived barriers
Some women do not want to use contraception;
- Why this is the case?
- Do they get all the information they want from the service providers?
- Source of information about specific methods
- Alternative methods provided by the health service provider
- Whether she faces any opposition in using contraception (whether it is from husband, family members/community)
- Personal experience of using contraception
- Any effects of contraception that affect the respondent to comply with (or not) their chosen contraceptive method.

Section F: Social and demographic consequences of high fertility rate.

Consider the current situation now, what would happen in [5, 10 and 20] years' time, what do you think will happen in this community if people continue to have many children?

- Likely impact this would have on size of land/forest/farming area
- Effect on community livelihood activities such as fishing/rice.
- Personal wellbeing
- Food situation in this community
- Education
- Hospitals
- Access to social economic development amenities

What do you think should happen? Who do you think should initiate this? What change would like to see?

Do you think there is anything that could be done to prevent this [impacts/effects of high population] from happening?

Section 6: Ending discussion

I think we have discussed all the issues I wanted to know. Before we end our discussion, are there any comments you would like to make?

Okay this marks the end of our discussion and I am going to turn the voice recorder off. Thank you very much for giving me this opportunity to discuss with you.

Probes
- Why is the case?
- Can you explain more?
- Could you illustrate more by giving an example?
- Could you make it clear?
- Please describe what you mean.

Appendix 4A: Total fertility rates (TFR), ASFRs by highest education attained

Education by survey year	Age specific fertility rates (ASFR)							TFR
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
2000 MDHS								
No education	0.243	0.315	0.302	0.230	0.195	0.112	0.053	7.3
Primary 1-4	0.199	0.328	0.282	0.229	0.165	0.110	0.036	6.7
Primary 5-8	0.163	0.326	0.254	0.224	0.148	0.050	0.020	5.9
Secondary and higher	0.085	0.202	0.190	0.093	0.043	0.000	0.000	3.1
2004 MDHS								
No education	0.238	0.310	0.270	0.248	0.169	0.095	0.045	6.9
Primary 1-4	0.202	0.334	0.267	0.218	0.173	0.082	0.039	6.6
Primary 5-8	0.170	0.296	0.252	0.212	0.160	0.063	0.013	5.8
Secondary and higher	0.073	0.226	0.196	0.158	0.089	0.023	0.000	3.8
2010 MDHS								
No education	0.226	0.303	0.244	0.235	0.193	0.116	0.061	6.9
Primary 1-4	0.210	0.312	0.266	0.226	0.167	0.073	0.020	6.4
Primary 5-8	0.161	0.282	0.240	0.192	0.144	0.066	0.009	5.5
Secondary and higher	0.077	0.196	0.200	0.148	0.084	0.015	0.000	3.6

Appendix 6A: Relative Risk Ratios (RRRs) and 95% Confidence Intervals (CIs) of using sterilisation vs injection and pill/IUD/condoms vs injection in Malawi, 2000.

Background characteristics	Model I Sterilisation vs Injection RRR (95% C.I.)	Model II Pill/IUD/Condom vs Injection RRR (95% C.I.)
Place of residence		
Urban (ref)		
Rural	0.82 (0.57-1.17)	1.66 (1.16-2.37)**
Region		
South (ref)		
North	1.82 (1.03-3.22)*	2.72 (1.51-4.90)***
Centre	0.72 (0.50-1.04)	0.62 (0.42-0.93)**
Age group		
25-34 (ref)		
15-24	0.13 (0.08-0.21)***	0.55 (0.35-0.86)**
35-49	2.65 (1.82-3.86)**	0.99 (0.63-1.58)***
Education attainment		
No education (ref)		
Primary(1-4)	1.53 (1.00-2.35)**	1.16 (0.77-1.77)
Primary (5-8)	1.49 (0.97-2.29)	1.78 (1.20-2.65)***
Secondary+	2.00 (1.00-4.37)*	2.29 (1.38-3.81)***
Wealth index		
Poorest (ref)		
Poor	1.40 (0.80-2.46)	1.56 (0.97-2.53)
Middle	1.33 (0.73-2.43)	1.28 (0.81-2.06)
Rich	1.22 (0.64-2.35)	1.62 (1.02-2.57)*
Richest	1.51 (0.85-2.70)	1.82 (1.11-3.00)*
Religion affiliation		
Catholic (ref)		
CCAP	1.10 (0.74-1.63)	0.90 (0.61-1.32)
Pentecost	0.91 (0.62-1.35)	1.03 (0.70-1.51)
Muslim	0.46 (0.23-0.89)**	1.07 (0.64-1.79)
Other	0.70 (0.39-1.25)	1.19 (0.76-1.85)
Ethnicity		
Chewa (Ref)		
Tumbuka/Tonga	0.79 (0.45-1.39)	1.05 (0.54-2.05)
Lomwe	0.74 (0.46-1.20)	0.75 (0.47-1.20)
Yao	1.33 (0.71-2.48)	0.95 (0.53-1.68)
Ngoni	0.48 (0.30-0.78)***	0.70 (0.44-1.13)
Other	1.15 (0.72-1.84)	1.12 (0.71-1.79)
Source of FP message		
None		
Radio	1.03 (0.68-1.55)	1.05 (0.72-1.48)
Television	1.09 (0.61-1.96)	1.21 (0.80-1.83)
News	1.23 (0.62-2.47)	0.91 (0.50-1.67)
Living children		
0 (ref)		
1-2	0.06 (0.01-0.20)***	0.24 (0.07-0.86)*
3-4	0.06 (0.02-0.22)***	0.13 (0.04-0.47)***
5+	0.06 (0.02-0.19)***	0.08 (0.02-0.32)***

Appendix 6A: continued

Ideal number of children		
0-2 (ref)		
3-4	0.30 (0.12-0.76)**	0.45 (0.19-1.03)
5+	0.45 (0.18-1.12)	0.47 (0.21-1.07)
Unknown	0.56 (0.23-1.37)	0.53 (0.23-1.22)
Constant	4.23 (0.82-21.9)	1.71 (0.23-2.59)

Significance: *p<0.05, **p<0.01, ***p<0.005, ref: reference category

Appendix 6B: Relative Risk Ratios (RRR) and 95% Confidence Intervals (CIs) of using sterilisation vs injection and the pill/IUD/condom vs injection in Malawi, 2004

Background characteristics	Model I Sterilisation vs Injection RRR (95% C.I.)	Model II Pill/IUD/Condom vs Injection RRR (95% C.I.)
Place of residence		
Urban (ref)		
Rural	1.46 (0.92-2.30)	1.29 (0.81-2.07)
Region		
South (ref)		
North	2.26 (1.23-4.17)**	3.76 (2.23-6.33)**
Centre	1.60 (1.07-2.38)*	1.59 (1.04-2.43)*
Age group		
25-34 (ref)		
15-24	0.06 (0.03-0.12)***	0.76 (0.50-1.15)
35-49	3.34 (2.40-4.63)***	1.01 (0.50-2.03)
Level of education		
No education (ref)		
Primary(1-4)	0.92 (0.60-1.41)	1.39 (0.85-2.28)
Primary (5-8)	0.97 (0.62-1.51)	1.56 (0.96-2.54)
Secondary+	1.19 (0.58-2.41)	2.30 (1.18-4.49)**
Wealth index		
Poorest (ref)		
Poor	1.24 (0.64-2.41)	1.13 (0.65-1.95)
Middle	1.46 (0.81-2.64)	1.62 (0.91-2.86)
Rich	1.77 (0.95-3.29)	1.47 (0.87-2.49)
Richest	2.28 (1.13-4.60)*	1.34 (0.69-2.61)
Religion		
Catholic (ref)		
CCAP	0.98 (0.67-1.43)	0.68 (0.44-1.04)
Pentecost	1.15 (0.78-1.69)	0.77 (0.52-1.13)
Muslim	1.12 (0.56-2.25)	1.12 (0.57-2.20)
Other	0.99 (0.56-1.76)	1.14 (0.64-2.02)
Ethnicity		
Chewa (Ref)		
Tumbuka/Tonga	0.84 (0.41-1.73)	2.78 (1.70-4.55)***
Lomwe	1.38 (0.84-2.26)	1.03 (0.57-1.85)
Yao	0.67 (0.33-1.39)	1.00 (0.55-1.82)
Ngoni	1.11 (0.61-2.03)	1.23 (0.72-2.10)
Other	1.06 (0.63-1.79)	0.98 (0.56-1.73)
Source of Family Planning message		
None (ref)		
Radio	0.90 (0.61-1.32)	1.00 (0.69-1.46)
Television	0.96 (0.48-1.91)	1.85 (1.11-3.08)*
Newspaper	1.84 (0.93-3.66)	1.18 (0.59-2.39)
No. of living children		
0 (ref)		
1-2	1.14 (0.13-9.74)	0.07 (0.01-0.46)***
3-4	1.89 (0.22-15.9)	0.07 (0.01-0.40)***
5+	2.15 (0.25-18.7)	0.04 (0.01-0.20)***

Appendix 6B: Continued…

Ideal no. of children		
0-2 (ref)		
3-4	0.74 (0.35-1.58)	0.61 (0.23-1.62)
5+	0.68 (0.33-1.40)	0.50 (0.19-1.36)
Unknown	0.81 (0.40-1.63)	0.63 (0.23-1.72)
Constant	0.13 (0.01-1.29)	1.66 (0.16-17.1)

Significance: *p<0.05, **p<0.01, ***p<0.005, ref: reference category

Appendix 6C: Relative Risk Ratios (RRRs) and 95% Confidence
Intervals (CIs) of using sterilisation vs injection and the
pill/IUD/condoms vs injection in Malawi, 2010

Background characteristics	Model I Sterilisation vs Injection RRR (95% C.I.)	Model II Pill/IUD/Condom vs Injection RRR (95% C.I.)
Place of residence		
Urban (ref)		
Rural	0.69 (0.48-0.98)*	0.79 (0.59-1.05)
Region		
South (ref)		
North	1.85 (1.18-2.92)***	2.76 (1.87-4.06)***
Centre	1.62 (1.19-2.20)***	1.23 (0.91-1.66)
Age group		
30-39 (ref)		
15-29	0.15 (0.11-0.21)***	0.53 (0.41-0.68) ***
40-49	4.16 (3.35-5.16)***	1.09 (0.77-1.55) ***
Education attainment		
No education		
Primary(1-4)	0.83 (0.64-1.08)	0.99 (0.71-1.37)
Primary (5-8)	0.83 (0.62-1.10)	1.18 (0.85-1.63)
Secondary+	0.68 (0.46-1.02)	1.47 (0.99-2.17)
Wealth index		
Poorest (ref)		
Poor	1.18 (0.86-1.61)	0.97 (0.69-1.35)
Middle	1.40 (0.98-1.99)	1.06 (0.77-1.45)
Rich	1.60 (1.15-2.23)***	1.07 (0.76-1.49)
Richest	2.19 (1.47-3.26)**	1.48 (1.04-2.10)**
Religion Affiliation		
Catholic (ref)		
CCAP	1.16 (0.88-1.53)	0.91 (0.67-1.23)
Pentecost	1.31 (1.01-1.69)*	0.93 (0.73-1.17)
Muslim	0.72 (0.45-1.14)	0.67 (0.43-1.02)
Other	1.40 (0.98-2.01)	0.96 (0.67-1.39)
Ethnicity		
Chewa (Ref)		
Tumbuka/Tonga	1.35 (0.86-2.13)	1.89 (1.13-3.18)*
Lomwe	1.07 (0.74-1.55)	1.19 (0.83-1.70)
Yao	0.87 (0.55-1.39)	1.57 (0.98-2.52)
Ngoni	1.01 (0.71-1.43)	1.89 (1.39-2.57)***
Other	0.85 (0.57-1.26)	1.81 (1.26-2.60)***
Source of Family Planning message		
None (ref)		
Radio	0.94 (0.77-1.16)	0.94 (0.76-1.17)
Television	1.07 (0.77-1.48)	0.74 (0.54-1.01)
Newspaper	1.39 (0.90-2.15)	0.87 (0.54-1.39)
Number of living children		
0 (ref)		
1-2	0.17 (0.04-0.83)*	0.12 (0.04-0.31)***
3-4	0.37 (0.08-1.83)	0.10 (0.04-0.26) ***
5+	0.61 (0.12-3.05)	0.09 (0.03-0.24) ***

Appendix 6C: continued

Ideal no. of children		
0-2 (ref)		
3-4	0.98 (0.44-2.20)	2.05 (0.71-5.86)
5+	1.11 (0.53-2.34)	2.09 (0.73-6.00)
Unknown	1.18 (0.55-2.52)	2.04 (0.71-5.86)
Constant	0.78 (0.12-4.81)	1.06 (0.23-4.88)

Significance: *p<0.05, **p<0.01, ***p<0.005, ref: reference category

References

Addai, I. (1999). "Ethnicity and sexual behavior in Ghana." <u>Social Biology</u> **Vol. 46**(No. 1-2): pp. 17-32.

African Development Bank (2013). African Economic Outlook: Structural Transformation and Natural Resources.

Agadjanian, V. (2001). "Religion, Social Milieu, and the Contraceptive Revolution." <u>Population Studies</u> **Vol. 55**(No. 2): pp. 135-148.

Aghajanian, A. (1979). "Economic contribution of children and fertility in rural Iran: An overview." <u>Journal of South Asian and Middle Eastern Studies</u> **Vol. 3**(No. 1): pp. 21-30.

Ahanonu, E. L. (2014). "Attitudes of Healthcare Providers towards Providing Contraceptives for Unmarried Adolescents in Ibadan, Nigeria." <u>Journal of Family & Reproductive Health</u> **Vol. 8**(No. 1): pp. 33-40.

Akresh, R. (2009). "Flexibility of household structure child fostering decisions in Burkina Faso." <u>Journal of Human Resources</u> **Vol. 44**(No. 4): pp.976-997.

Alam, I. and B. Dinesen (1984). "Fertility in Pakistan: a review of findings from the Pakistan Fertility Survey." <u>International Statistical Institute. Voorburg: The Netherlands.</u>

Anglewicz, P. (2012). "Migration, marital change, and HIV infection in Malawi." <u>Demography</u> **Vol. 49**(No. 1): pp. 239-265.

Arnaldo, C. (2004). "Regional fertility trends in Mozambique." <u>Journal of Population Research</u> **Vol. 21**(No. 2): pp. 177-197.

Arnold, F. (1990). Assessment of the quality of birth history data in the Demographic and Health Surveys. <u>An Assessment of DHS-I Data quality. DHS Methodological Report, No.1</u>. Columbia, Maryland: Insitute for Resource Department/Macro Systmens, Inc.

Arnold, F. and J. T. Fawcett (1975). "The value of children: a cross-national study. Vol. 3. Hawaii."

Arriaga, E. E., et al. (1994). <u>Population analysis with microcomputers</u>, United States Bureau of the Census.

Askew, I., et al. (2009). Kenya's Fertility Transition: Trends, Determinants and Implications for Policy and Programmes. Population Council. Nairobi.

Attree, P. and B. Milton (2006). "Critically appraising qualitative research for systematic reviews: defusing the methodological cluster bombs." <u>Evidence & Policy: A Journal of Research, Debate and Practice</u> **Vol. 2**(No. 1): pp. 109-126.

Awusabo-Asare, K. and J. K. Anarfi (1997). "Postpartum sexual abstinence in the era of AIDS in Ghana: prospects for change." <u>Health Transition Review</u> **supp. Vol. 7**: pp. 257-270.

Banja La Mtsogolo (2009). Programme of Work II 2009-2015: A Malawi where sexual and reproductive health, choice and wellbeing is attainable by all. Blantyre.

References

Barbour, R. (2007). <u>Introducing Qualitative Research: A Student Guide to the Craft or Doing Qualitative Research</u>. London, SAGE.

Barot, S. (2013). "Abortion restrictions in US foreign aid: the history and harms of the Helms Amendment." <u>Guttmacher Policy Review</u> **Vol. 16**(No. 3): pp. 9-13.

Basten, S. (2009). Mass media and reproductive behaviour: serial narratives, soap operas and telenovelas. <u>The Future of Human Reproduction</u>. Working Paper no. 7. Oxford, England: University of Oxford; Vienna, Austria: Vienna Institute of Demography, Austrian Academy of Science. **:** pp. 1-18.

Basu, A. M. (2002). "Why does Education Lead to Lower Fertility? A Critical Review of Some of the Possibilities." <u>World Development</u> **Vol. 30**(No. 10): pp. 1779-1790.

Basu, A. M. and S. Amin (2000). "Conditioning factors for fertility decline in Bengal: History, language identity, and openness to innovations." <u>Population and development review</u> **Vol. 26**(No. 4): pp. 761-794.

Basu, A. M. and R. Stephenson (2005). "Low levels of maternal education and the proximate determinants of childhood mortality: a little learning is not a dangerous thing." <u>Social Science & Medicine</u> **Vol. 60**(No. 9): pp. 2011-2023.

Basu, D. and R. de Jong (2010). "Son targeting fertility behavior: some consequences and determinants." <u>Demography</u> **Vol. 47**(No. 2): pp. 521-536.

Bawah, A. A., et al. (1999). "Women's Fears and Men's Anxieties: The Impact of Family Planning on Gender Relations in Northern Ghana." <u>Studies in family planning</u> **Vol. 30**(No. 1): pp. 54-66.

Bearinger, L. H., et al. (2007). "Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential." <u>The Lancet</u> **Vol. 369**(No. 9568): pp. 1220-1231.

Becker, G. S. (1960). An economic analysis of fertility. <u>Demographic and economic change in developed countries</u>, Columbia University Press**:** pp. 209-240.

Becker, G. S. and R. J. Barro (1988). "A reformulation of the economic-theory of fertility." <u>Quarterly Journal of Economics</u> **Vol. 103**: pp. 1-25.

Becker, G. S. and H. G. Lewis (1974). Interaction between quantity and quality of children. <u>Economics of the family: Marriage, children, and human capital</u>, UMI**:** pp. 81-90.

Bigombe, B. and G. M. Khadiagala (2003). "Major trends affecting families in Sub-Saharan Africa." <u>UN (ed.), Major Trends Affecting Families: A Background Document</u>: pp. 164-187.

Blanc, A. K., et al. (2009) Patterns and Trends in Adolescents' contraceptive Use and Discontinuation in Developing Countries and Comparisons with Adult Women. <u>International Perspectives on Sexual and Reproductive Health </u>**35**, 63-71

Bledsoe, C. H. and F. Banja (2002). <u>Contingent lives: Fertility, time, and aging in West Africa</u>. London, University of Chicago Press.

Bledsoe, C. H. and A. Gage (1987). "Child fostering and child mortality in Sub-Saharan Africa: some preliminary questions and answers."

Bledsoe, C. H., et al. (1994). "Constructing natural fertility: The use of Western contraceptive technologies in rural Gambia." <u>Population and development review</u> **Vol. 20**(No. 1): pp.81-113.

Bleek, W. (1987). "Lying Informants: A Fieldwork Experience from Ghana." <u>Population and development review</u> **Vol. 13**(No. 2): pp. 314-322.

Bloor, M., et al. (2001). Focus groups in social reserach. <u>Introducing Qualitative Research</u>. in David Silverman (ed). London, SAGE Publications Ltd

Boileau, C., et al. (2009). "Sexual and marital trajectories and HIV infection among ever-married women in rural Malawi." <u>Sexually Transmitted Infections</u> **Vol. 85**(Suppl 1): pp. i27-i33.

Bongaarts, J. (1978). "A Framework for Analyzing the Proximate Determinants of Fertility." <u>Population and development review</u> **Vol. 4**(No. 1): pp. 105-132.

Bongaarts, J. (1982). "The Fertility-Inhibiting Effects of the Intermediate Fertility Variables." <u>Studies in family planning</u> **Vol. 13**: No. 6/7.

Bongaarts, J. (2006). "The Causes of Stalling Fertility Transitions." <u>Studies in family planning</u> **Vol.37**(No. 1): pp. 1-16.

Bongaarts, J. (2010) The Causes of Educational Differences in Fertility in sub-Saharan Africa. <u>Vienna Yearbook of Population Research 2010</u> **Vol. 8**, pp. 31-50

Bongaarts, J. (2011). "Can family planning programs reduce high desired family size in Sub-Saharan Africa?" <u>International perspectives on sexual and reproductive health</u> **Vol. 37**(No. 4): pp. 209-216.

Bongaarts, J. (2014). "The impact of family planning programs on unmet need and demand for contraception." <u>Studies in family planning</u> **Vol. 45**(No. 2): pp. 247-262.

Bongaarts, J. (2015). "Modeling the fertility impact of the proximate determinants: Time for a tune-up." <u>Demographic Research</u> **Vol. 33**: pp. 535-560.

Bongaarts, J. and J. Bruce (1995). "The causes of unmet need for contraception and the social content of services." <u>Studies in family planning</u> **Vol. 26**: pp. 57-75.

Bongaarts, J. and J. Casterline (2013). "Fertility Transition: Is sub-Saharan Africa Different?" <u>Population and development review</u> **Vol. 38**: pp. 153-168.

Bongaarts, J. and B. Cohen (1999). <u>Adolescent reproductive behaviour in the developing world</u>, Population Council.

Bongaarts, J. and G. Feeney (1998). "On the Quantum and Tempo of Fertility." <u>Population and development review</u> **Vol. 24**(No. 2): pp.271-291.

Bongaarts, J., et al. (1990). Population Conditions in Mainland sub-Saharan Africa in Population Growth and Reproduction in sub-Saharan Africa: Technical Analysis of Fertility and Its Consequences. G. T. F. Ascadi, G. Johnson-Acsadi and R. A. Bulatao. Washington D.C. , The World Bank.

References

Bongaarts, J. and E. Johansson (2002). "Future Trends in Contraceptive Prevalence and Method Mix in the Developing World." <u>Studies in family planning</u> **Vol. 33**(No. 1): pp. 24-36.

Bongaarts, J. and R. G. Potter (1983). <u>Fertility, biology, and behavior: An analysis of the proximate determinants</u>, Academic Press New York.

Bongaarts, J. and S. C. Watkins (1996). "Social Interactions and Contemporary Fertility Transitions." <u>Population and development review</u> **Vol. 22**(No. 4): pp. 639-682.

Booth, H. (2001). "Trends in mean age at first birth and first birth intervals in the Pacific Islands." <u>Genus</u> **Vol. 57**(No. 3-4): pp. 165-190.

Bradley, S. E., et al. (2011). <u>The impact of contraceptive failure on unintended births and induced abortions: estimates and strategies for reduction</u>, ICF Macro.

Bradley, S. E., et al. (2009). "Levels, Trends, and Reasons for Contraceptive Discontinuation." <u>DHS analytical studies</u> **Vol 20**.

Brass, W. and C. L. Jolly (1993). <u>Population dynamics of Kenya</u>, National Academies Press.

Bryant, J. (2007). "Theories of Fertility Decline and the Evidence from Development Indicators." <u>Population and development review</u> **Vol. 33**(No. 1): pp101-127.

Bulatao, R. A. (1982). "The Transition in the Value of Children and the Fertility Transition."

Caldwell, J. (1986). "Routes to low mortality in poor countries." <u>Population and Development Review</u>
 Vol. 12(No. 2): pp. 171-220.

Caldwell, J. C. (1982). <u>Theory of Fertility Decline</u>. London, Academic Press.

Caldwell, J. C. (2006). <u>Demographic Transition Theory</u>. Dordrecht, Springer.

Caldwell, J. C. and P. Caldwell (1987). "The Cultural Context of High Fertility in sub-Saharan Africa." <u>Population and development review</u> **Vol. 18**(No. 3): pp. 409-437.

Caldwell, J. C. and P. Caldwell (1990). "High fertility in sub-Saharan Africa." <u>Scientific American</u> **Vol. 262**(No. 5): pp. 118.

Caldwell, J. C., et al. (1992). "Fertility Decline in Africa: A New Type of Transition?" <u>Population and development review</u> **Vol. 18**(No. 2): pp. 211-242.

Canning, D. (2011). "The Causes and Consequences of Demographic Transition." <u>Population Studies</u> **Vol. 65**(No. 3): pp. 353-361.

Canning, D. and T. P. Schultz (2012). "The economic consequences of reproductive health and family planning." <u>The Lancet</u> **Vol. 380**(No. 9837): pp. 165-171.

Caselli, G., et al. (2005). <u>Demography: Analysis and Synthesis, Four Volume Set: A Treatise in Population</u>, Academic Press.

Casterline, J. B. (2001). The Pace of Fertility Transition: National Patterns in the Second Half of the Twentieth Century. <u>Population and development review</u>. in *Global Fertity Transition*

eds. Rodolfo A. Bulatao & John B. Casterline. New York, Population Council. **Supplement to Vol. 27:** pp. 17-52.

Casterline, J. B. (2010). Determinants and Consequences of High Fertility: A Synopsis of the Evidence. Washington, DC: World Bank.

Cetorelli, V. and T. Leone (2012). "Is fertility stalling in Jordan?" <u>Demographic Research</u> **Vol. 26**(No. 13): pp. 293-318.

Channon, M., et al. (2015). "A longitudinal population-based analysis of relationship status and mortality in KwaZulu-Natal, South Africa 2001–2011." <u>Journal of Epidemiology and Community Health</u>: pp. 2014-2054.

Chikhungu, L. C. (2013). Modelling under-nutrition in under-five children in Malawi. <u>School of Social Sciences</u>. Southampton, Unpublished Thesis. Univeristy of Southampton. **Doctor of Philosophy**.

Chikhungu, L. C., et al. (2014). "How important are community characteristics in influencing children′ s nutritional status? Evidence from Malawi population-based household and community surveys." <u>Health & place</u> **Vol. 30**: pp. 187-195.

Chimbiri, A. M. (2006). Development, Family Change, and Community Empowerment in Malawi. <u>African Families at the Turn of the 21st Century</u>. Y. Oheneba-Sakyi and B. K. Takyi. London, Greenwood Publishing Group.

Chimbiri, A. M. (2007). "The condom is an 'intruder' in marriage: Evidence from rural Malawi." <u>Social Science & Medicine</u> **Vol. 64**(No. 5): pp. 1102–1115.

Chimbwete, C. (2001). Socio-Demographic Aspects of Young People's Reproductive Behaviour in Malawi. unpublished Ph.D. thesis, University of Southampton. .

Chimbwete, C., et al. (2005). "The evolution of population policies in Kenya and Malawi." <u>Population Research and Policy Review</u> **Vol. 24**(No. 1): pp. 85-106.

Chinsinga, B. (2008). Exploring the Politics of Land Reforms in Malawi: A Case Study of the Community Based Rural Land Development Programme (CBRLDP). Manchester, University of Manchester.

Chintsanya, J., et al. (2010). Current and Expected Trends in Demographic Composition and Poverty Characteristics of Rural Households. Zomba, Department of Population Studies, University of Malawi.

Chirwa, M., et al. (2013). "Promoting universal financial protection: contracting faith-based health facilities to expand access–lessons learned from Malawi." <u>Health Research Policy System</u> **Vol. 11**(No. 1): pp. 27.

Chisamya, G., et al. (2012). "Gender and Education for All: Progress and problems in achieving gender equity." <u>International Journal of Educational Development</u> **Vol. 32**(No. 6): pp. 743-755.

Christian Health Association of Malawi [CHAM] (2009). Advocacy Strategy. Lolongwe: Malawi.

References

Cleland, J. (2001). Potatoes and pills: An overview of innovation-diffusion contributions to explanations of fertility decline. Diffusion processes and fertility transition: Selected perspectives. J. B. Casterline. Washington DC, National Academy Press**:** pp. 39-65.

Cleland, J., et al. (2006). "Family planning: the unfinished agenda." The Lancet **Vol. 368**(No. 9549): pp. 1810-1827.

Cleland, J. and C. Wilson (1987). "Demand theories of the fertility transition: An iconoclastic view." Population studies **Vol. 41**(No. 1): pp. 5-30.

Cleland, J. G., et al. (2011). "Family planning in sub-Saharan Africa: progress or stagnation?" Bulletin of the World Health Organization **Vol. 89**(No. 2): pp. 137-143.

Coale, A. J. and R. Treadway (1986). A Summary of the Changing Distribution of Overall Fertility, marital Fertility, Provinces of Europe. The Decline of Fertility in Europe. A. J. Coale and S. C. Watkins. Princeton, Princeton University Press.

Coale, A. J. and S. C. Watkins (1986). The decline of fertility in Europe, Princeton University Press.

Coast, E. (2014). The role of induced abortions in fertility transitions. The Fertility Transition in the South, Oxford Insitute of Population Ageing, Oxford (23-25 April, 2014).

Coast, E., et al. (2007). "Disciplining Anthropological Demography." Demographic Research **Vol. 16**(No. 1): pp. 493-518.

Cohen, B. (1998). "The Emerging Fertility Transition in Sub-Saharan Africa." World Development **Vol. 26**(No. 8): pp. 1431-1461.

Cohen, B. (2000). "Family planning Programs, Socioeconomic Characteristis, and Contraceptive Use in Malawi." World Development **Vol. 28**(No. 5): pp. 843-860.

Colbourn, T., et al. (2013). "Maternal mortality in Malawi, 1977–2012." BMJ Open **Vol. 3**(No. 12): e004150.

Creswell, J. W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches. Thousands Oaks California, Sage publications Ltd.

Culwell, K. R., et al. (2010). "Critical gaps in universal access to reproductive health: contraception and prevention of unsafe abortion." International Journal of Gynecology & Obstetrics **Vol. 110**: pp. S13-S16.

Darlington, Y. and D. Scott (2003). Qualitative research in practice: Stories from the field. Crows Nest, Taylor & Francis.

Davis, K. and J. Blake (1956). "Social Structure and Fertility: An Analytic Framework." Economic Development and Cultural Change **Vol. 4**(No. 3): pp.211-235.

de Bruijn, B. (1999). Foundations of demographic theory. Choice, process, context. Amsterdam, Thela Publishers.

Debpuur, C., et al. (2002). "The impact of the Navrongo Project on contraceptive knowledge and use, reproductive preferences, and fertility." Studies in family planning **Vol. 33**(No. 2): pp. 141-164.

DeLancey, V. (1990). Socioeconomic consequences of high fertility for the family. <u>Population Growth and Reproduction in Sub Saharan Africa: Technical Analyses of Fertility and its Consequences</u>. Acsadi G. T. F. and Bulatao R. A. Washington, DC, The World Bank**:** pp. 115-130.

deMarrais, K. B. and S. D. Lapan, Eds. (2004). <u>Foundations for Research Methods of Inquiry in Education and the Social Sciences</u>. Mahway NJ, Lawrence Erlbaum Associates Inc.

Denzin, N. K. and Y. S. Lincoln (2011). <u>The SAGE Handbook of Qualitative Research</u>, Sage Publications, Inc.

Diamond, I., et al. (1999). "Female education and fertility: examining the links." <u>Critical perspectives on schooling and fertility in the developing world</u> **Vol. 1999**: pp. 23-45.

Dionne, K. Y. and B. Dulani (2013). "Constitutional provisions and executive succession: Malawi's 2012 transition in comparative perspective." <u>African Affairs</u> **Vol. 112**(No. 446): pp. 111-137.

Doctor, H. V. (2008). "Has the Navrongo Project in northern Ghana been successful in altering fertility preferences?".

Dodoo, F. N.-A. and M. Tempenis (2002). "Gender, Power, and Reproduction: Rural-Urban Differences in the Relationship Between Fertility Goals and Contraceptive Use in Kenya." <u>Rural Sociology</u> **Vol. 67**(No. 1): pp. 46–70.

Dowling, R. (2010). Power, Subjectivity, and Ethics in Qualitative Research <u>Qualitative Research Methods in Human Geography</u>. I. Hay. Oxford, Oxford University Press**:** pp. 26-39.

Dube, A. L., et al. (2012). "Fertility intentions and use of contraception among monogamous couples in northern Malawi in the context of HIV testing: a cross-sectional analysis." <u>PLoS One</u> **Vol. 7**(No. 12): e51861.

Dyson, T. (2011). "Demographic Transition and the Process of Urbanization." <u>Population and development review</u> **no. 37 (Supplement)**: pp. 34-35.

Easterly, W. (2005). "What did structural adjustment adjust?: The association of policies and growth with repeated IMF and World Bank adjustment loans." <u>Journal of development economics</u> **Vol. 76**(No. 1): pp. 1-22.

Eaterlin, R. A. and E. M. Crimmins (1985). <u>The Fertility Revolution: a Supply-demand Analayis</u>, University of Chicago Press.

Eltigani, E. E. (2003). "Stalled fertility decline in Egypt, why?" <u>Population and Environment</u> **Vol. 25**(No. 1): pp. 41-59.

Fan, S., et al. (2008). "Public spending in developing countries: trends, determination and impact." <u>Public expenditures, growth and poverty: Lessons from developing countries</u>.

Fatusi, A. O. and M. J. Hindin (2010). "Adolescents and youth in developing countries: health and development issues in context." <u>Journal of adolescence</u> **Vol. 33**(No. 4): pp. 499-508.

References

Fawcett, J. T. (1988). "The value of children and the transition to parenthood." Marriage & Family Review Vol. 12(No. 3-4): pp. 11-34.

Feldman, M. S., et al. (2003). Gaining Acess: A Practical and Theoretical Guide for Qualitative Researchers. Walnut Creek, California, Altamira Press.

Fielding, N. and J. Fielding (1986). Linking data. Beverly Hills, California:, Sage.

Finlay, L. and C. Ballinger (2006). Qualitative research for allied health professionals: challenging choices, John Wiley & Sons.

Frejka, T. (2001). "Fertility Theory: Caldwell's Theory of Intergenerational Wealth Flows." International Encyclopedia of the Social & Behavioral Sciences (pp. 5557-5561).

Frisch, M. (2008). Three Dimensions and More: Oral History Beyond the Paradoxes of Method. Handbook of Emergent Methods S. N. Hesse-Biber and P. Leavy. New York, The Guildford Press: pp. 221-238.

Gage, A. J. and D. Meekers (1994). "Sexual activity before marriage in sub-Saharan Africa." Social Biology Vol. 41(No. 1-2): pp. 44-60.

Garenne, M. and V. Joseph (2002). "The Timing of the Fertility Transition in Sub-Saharan Africa." World Development Vol. 30(No. 10): pp. 1835-1843.

Garenne, M. M. (2008). Fertility Changes in Sub-Saharan Africa. DHS Comparative Reports No. 18. Calverton, Maryland, USA: Macro International Inc.

Gebreselassie, T. (2011). The Fertility Transition in Sub-Saharan Africa, 1990–2005: How Unique Is Ethiopia? The Demographic Transition and Development in Africa: The Unique Case of Ethiopia. C. Teller and A. Hailemariam. London, Springer.

Gebreselassie, T., et al. (2008). Contraceptive use breastfeeding amenorrhea and abstinence during the postpartum period: an analysis of four countries. DHS Analytical Studies No. 14. Calverton, Maryland, USA: Macro International Inc.

Gibbs, G. R., et al. (2002). "The Use of New Technology in Qualitative Research. Introduction to Issue 3(2) of FQS." Forum Qualitative Sozialforschung / Forum: Qualitative Social Research. Retrieved 26th March, 2014, from http://www.qualitative-research.net/index.php/fqs/article/view/847/1840.

Government of Malawi (2004). "Malawi National Health Plan 1999-2004-National Health Facilites." Vol. 2.

Government of Malawi (2011). Malawi Health Sector Strategic Plan 2011-2016. Lilongwe: Malawi.

Grant, M. J. and S. Yeatman (2014). "The Impact of Family Transitions on Child Fostering in Rural Malawi." Demography Vol. 51(No. 1): pp. 205-228.

Greene, J. C. (2008). "Is mixed methods social inquiry a distinctive methodology?" Journal of mixed methods research Vol. 2(1): pp. 7-22.

Greene, M. E., et al. (2006). Involving men in reproductive health: Contributions to development. Background paper prepared for the UN Millennium Project to contribute to

the report Public Choices, Private Decisions: Sexual and Reproductive Health and the Millennium Development Goals., Millennium Project.

Gribble, J. and J. Bremner (2012). The challenge of attaining the demographic dividend. New York, Population Reference Bureau.

Grieser, M., et al. (2001). "Reproductive decision making and the HIV/AIDS epidemic in Zimbabwe." Journal of Southern African Studies **Vol. 27**(No. 2): pp. 225-243.

Grix, J. (2010). The foundations of research, Palgrave Macmillan.

Guba, E. G. and Y. S. Lincoln (1989). Fourth generation evaluation, Sage.

Guba, E. G. and Y. S. Lincoln (1994). "Competing paradigms in qualitative research." Handbook of qualitative research **Vol. 2**(No. 163-194): pp. 105.

Guengant, J.-P. and Y. Kamara (2012). "How Can We Capitalize on the Demographic Dividend." A Savoir Collection.

Guengant, J.-P. and J. F. May (2011). Proximate determinants of fertility in sub-Saharan Africa and their possible use in fertility projections. United Nations Department of Economic and Social Affairs, Population Division Expert Papaer No. 2011/13.

Gyimah, S. O., et al. (2008). "Denominational affiliation and fertility behaviour in an African context: An examination of couple data from Ghana." Journal of Biosocial Science **40**(03): 445-458.

Gyimah, S. O., et al. (2008). "Denominational affiliation and fertility behaviour in an African context: an examination of couple data from Ghana." Journal of Biosocial Science **Vol. 40**(No. 3): pp. 445-458.

Haines, M. R. (1989). "Social class differentials during fertility decline: England and Wales revisited." Population Studies **Vol. 43**(No. 2): pp. 305-323 Retrieved from http://www.jstor.org/stable/2174269.

Halperin, D. T. (2013). "Scaling up of family planning in low-income countries: lessons from Ethiopia." The Lancet **Vol. 383**(No. 9924): p1264–1267.

Harper, D. and A. R. Thompson, Eds. (2012). Qualitative Research Methods in Mental Health and Psychotherapy A Guide for Students and Practitioners. Chichester,West Sussex, JohnWiley & Sons.

Harwood-Lejeune, A. (2000). "Rising Age at Marriage and Fertility in Southern and Eastern Africa." European Journal of Population **Vol. 17**: pp. 261–280.

Heaton, T. B. (2011). "Does religion influence fertility in developing countries." Population Research and Policy Review **Vol. 30**(No. 3): pp. 449-465.

Hendriksen, E. S., et al. (2007). "Predictors of condom use among young adults in South Africa: the reproductive health and HIV research unit national youth survey." American Journal of Public Health **Vol. 97**(No. 7): p1241-1248.

References

Hennink, M. and N. Madise (2005). "Influence of User Fees on Contraceptive Use in Malawi." African Population Studies **Vol. 20**(no. 2).

Hennink, M. M. (2007). International Focus Group Research: A Handbook for the Health and Social Sciences. Cambridge, Cambridge University Press.

Hesse-Biber, S. N. (2010). Mixed methods research: Merging theory with practice. New York, Guilford Press.

Hesse-Biber, S. N. and R. B. Johnson, Eds. (2015). The Oxford handbook of multimethod and mixed methods research inquiry. Oxford, Oxford University Press.

Hilbe, J. M. (2009). Logistic Regression Models. Cambridge, Chapman and Hall.

Hinde, A. (1998). Demographic methods, Routledge.

Hindin, M. J., et al. (2014). "Misperceptions, misinformation and myths about modern contraceptive use in Ghana." Journal of Family Planning and Reproductive Health Care **Vol. 40**(No. 1): pp. 30-35.

Hirschman, C. (1994). "Why fertility changes." Annual Review of Sociology **Vol. 20**: pp 203-233.

Hobbs, F. (2004). Age and sex composition. The methods and materials of demography. Elsevier Academic Press: London. J. Siegel and D. Swanson. San Diego, California, Elsevier Academic Press**:** pp. 125-173.

Hobcraft, J. and R. J. A. Little (1984). "Fertility Exposure Analysis: A New Method for Assessing the Contribution of Proximate Determinants to Fertility Differentials." Population Studies **Vol. 38**(No. 1): pp. 21-45.

Hoffmann, V. (2011). Knowledge and Innovation Management, Hohenheim University.

Holden, S. and R. Lunduka (2010). Impacts of the Fertilizer Subsidy Programme in Malawi: Targeting, household perceptions and preferences, Noragric Report.

Hollos, M. and U. Larsen (2004). "Which African men promote smaller families and why? Marital relations and fertility in a Pare community in Northern Tanzania." Social Science & Medicine **Vol.58**(No. 9): pp.1733-1749.

Homsy, J., et al. (2010). "Breastfeeding, mother-to-child HIV transmission, and mortality among infants born to HIV-Infected women on highly active antiretroviral therapy in rural Uganda." JAIDS Journal of Acquired Immune Deficiency Syndromes **53**(1): 28-35.

Hosegood, V. and I. Timaeus (2006). Household composition and dynamics in KwaZulu Natal, South Africa: mirroring social reality in longitudinal data collection in Etienne van de Walle Etienne (ed.). African Households: Censuses and Surveys. New York, Sharpe**:** pp. 58-77.

Hossain, M. B., et al. (2005). The Impact of Childhood Mortality on Fertility in Six Rural Thanas of Bangladesh, The Population Council.

International Monetary Fund (2014). "Malawi: Selected Economic Indicators 2006/07-20010/11." from http://www.imf.org/external/np/sec/pr/2008/pr08309.htm.

IPAS (2009). The abortion ban in U.S. foreign assistance: How U.S. policy obstructs efforts to save women's lives and fulfill women's human rights. Chapel Hill, USA, IPAS Organisation.

Iyer, S. (2002). "Religion and the decision to use contraception in India." Journal for the scientific study of religion **Vol. 41**(No. 4): pp. 711-722.

Jackson, E., et al. (2011). "A strategic assessment of unsafe abortion in Malawi." Reproductive health matters **Vol. 19**(No. 37): pp. 133-143.

Jacobstein, R., et al. (2013). "Meeting the need for modern contraception: Effective solutions to a pressing global challenge." International Journal of Gynecology & Obstetrics **Vol. 121**: pp.S9-S15.

Jass, K. (2013). Donors Freeze Aid to Malawi. The Daily Times. Blantyre, Times Media.

Jeffery, P., et al. (2008). "Disputing Contraception: Muslim Reform, Secular Change and Fertility." Modern Asian Studies **Vol. 42**(No. 2/3): pp.519-548.

Jensen, R. and E. Oster (2009). "The Power of TV: Cable Television and Women's Status in India." The Quarterly Journal of Economics **Vol. 124**(No. 3): pp. 1057-1094.

Johnson-Hanks, J. (2007). "Natural Intentions: Fertility Decline in the African Demographic and Health Surveys1." American Journal of Sociology **112**(Vol. 4): pp. 1008-1043.

Johnson, K., et al. (2011). Changes in the Direct and Indirect Determinants of Fertility in Sub-Saharan Africa. DHS analytical studies. Calverton Maryland, USA: ICF Macro. .

Johnston, H. B. and K. H. Hill (1996). "Induced Abortion in the Developing World: Indirect Estimates." International family planning perspectives **Vol. 22**(No. 3): pp. 108-137.

Jolly, C. L. and J. N. Gribble (1993). "The proximate determinants of fertility." Demographic change in sub-Saharan Africa: pp. 68-116.

Kabiru, C. W. and A. Ezeh (2007). "Factors associated with sexual abstinence among adolescents in four Sub-Saharan African countries." African Journal of Reproductive Health **Vol. 11**(No. 3): pp.111.

Kadir, M. M., et al. (2003). "Do mothers-in-law matter? Family dynamics and fertility decision-making in urban squatter settlements of Karachi, Pakistan." Journal of Biosocial Science **Vol. 35**(No. 4): pp.545-558.

Kaler, A. (2001). ""Many Divorces and Many Spinsters": Marriage as an Invented Tradition in Southern Malawi, 1946-1999." Journal of Family History **Vol. 26**(No. 4): pp. 529-556.

Kalipeni, E. (1995). "The fertility transition in Africa." Geographical Review **Vol. 85**(No. 3): pp. 286-300.

Kanbur, R. (2005). "Q-SQUARED?" Q-Squared-Qualitative and Quantitative Poverty Appraisal: Complementarities, Tensions and the Way Forward: 1.

Kaplan, H. (1994). "Evolutionary and wealth ⁻ows theories of fertility: Empirical tests and new models." Population and development review **Vol. 20**: pp. 753-791.

References

Kaplan, H. (1994). "Evolutionary and wealth flows theories of fertility: Empirical tests and new models." Population and development review **Vol. 20**(No. 4): pp. 753-791.

Kavinya, T. (2012). "Opinions on Directives by Authorities to Ban Traditional Birth Attendants: Should Malawi be done with traditional birth attendants?" Malawi Medical Journal **Vol. 24**(No. 2): pp. 45-45.

Kazembe, L. N. (2007). "Modelling individual fertility levels in Malawian women: a spatial semiparametric regression model." Stat Methods Appl (2009) **Vol. 18**: pp 237-255.

Ke Xua, Ã., et al. (2006). "Understanding the impact of eliminating user fees: utilization and catastrophic health expenditures in Uganda." Social Science & Medicine **Vol.62**(No. 4): pp.866-876.

Kessides, C. (2005). The Urban Transition in Sub-Saharan Africa: Implications for Economic Growth and Poverty Reduction. A. Region**:** pp. 1-116.

Khan, M. E. and L. Manderson (1992). "Focus groups in tropical diseases research." Health policy and planning **Vol. 7**(No. 1): pp. 56-66.

Kinfu, Y. (2001). "The Quite [sic] Revolution: An analysis of the change toward below-replacement-level fertility in Addis Ababa."

Kinoti, S. N., et al. (1996). Monograph on complications of unsafe abortion in Africa, Commonwealth Regional Health Community Secretariat for East, Central and Southern Africa.

Kleinbaum, D. G. and M. Klein (2010). Logistic Regression A Self-Learning Text. New York, Springer.

KNBS and ICF Macro (2015). "Kenya Demographic and Health Survey; Key Indicators 2014."

KNBS and ICF Macro. (2010). Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: KNBS and ICF Macro.

Knodel, J. (1998). Using Qualitative Data fr Understanding Old-Age Security and Fertility. The Methods and Uses of Anthropological Demography. A. M. Basu and P. Aaby, Oxford University Press**:** pp.57-76.

Kodzi, I. A., et al. (2010). "The time dynamics of individual fertility preferences among rural Ghanaian women." Studies of Family Planning **Vol. 41**(No. 1): pp. 45-54.

Kohler, H.-P., et al. (2007). "Social networks and HIV/AIDS risk perceptions." Demography **Vol. 44**(No. 1): pp. 1-33.

Kok, M. C. and A. S. Muula (2013). "Motivation and job satisfaction of Health Surveillance Assistants in Mwanza, Malawi: an explorative study." Malawi Medical Journal **Vol. 25**(No. 1): pp 1-7.

Kravdal, Ø. (2002). "Education and fertility in sub-Saharan Africa: Individual and community effects." Demography **Vol. 39**(No. 2): pp. 233-250.

Krueger, K., et al. (2011). "Scaling up community provision of injectables through the public sector in Uganda." <u>Studies in family planning</u> **Vol. 42**(No. 2): pp.117-124.

Kumwanje-Sibande, M. and I. Hutter (2012). Participatory Approach and Community Empowerment in Safe Motherhood in rural Mangochi, Malawi. Urban and Regional Studies Institute. Goningen, University of Groningen, The Netherlands.

Lapan, S. D. (2003). <u>Foundations for research: Methods of inquiry in education and the social sciences</u>, Routledge.

Laski, L. and S. Wong (2010). "Addressing diversity in adolescent sexual and reproductive health services." <u>International Journal of Gynecology & Obstetrics</u> **Vol. 110**: pp.S10-S12 DOI: 10.1016/j.ijgo.2010.1004.1011.

Lesthaeghe, R. (1983). "A century of demographic and cultural change in Western Europe: An exploration of underlying dimensions." <u>Population and development review</u> **Vol. 9**(No. 3): pp. 411-435.

Lesthaeghe, R. (1989). "Production and reproduction in sub-Saharan Africa: an overview of organizing principles."

Lesthaeghe, R. and C. Vanderhoeft (2001). "Ready, willing, and able: a conceptualization of transitions to new behavioral forms." <u>Diffusion processes and fertility transition: Selected perspectives</u>: 240-264.

Lewins, A. and C. Silver (2007). <u>Using Software in Qualitative Research: A Step-by-Step Guide</u>. London, Sage.

Lindstrom, D. P. and Z. Woubalem (2000). "The demographic components of fertility decline in Addis Ababa, Ethiopia: a decomposition analysis." <u>Genius</u> **Vol.59**(No. 3-4): pp.147-158 http://www.jstor.org/stable/29788778.

Lindstrom, D. P. and Z. Woubalem (2000). "The demographic components of fertility decline in Addis Ababa, Ethiopia: a decomposition analysis." <u>Genius</u> **3-4**: 147-158.

Loaiza, E. and M. Liang (2013). Adolescent pregnancy: a review of the evidence. New York, UNFPA.

Lockwood, M. (1995). "Structure and Behavior in the Social Demography of Africa." <u>Population and development review</u> **Vol. 21**(No. 1): pp. 1-32.

Lumala, R., et al. (2012). "CD4 testing at clinics to assess eligibility for Antiretroviral therapy." <u>Malawi Medical Journal : The Journal of Medical Association of Malawi</u> **Vol. 24**(No. 2): pp. 25-28.

Machiyama, K., et al. (2015). "An assessment of childbearing preferences in northern Malawi." <u>Studies in family planning</u> **Vol. 46**(No.2): pp.161-176.

Mack, N., et al. (2005). <u>Qualitative Research Methods: A Data Collector's Field Guide</u>. Research Triangle Park, North Carolina, Family Health International.

MacQuarrie, K. (2014). Unmet Need for Family Planning among Young Women: Levels and Trends. <u>DHS Comparative Reports</u>. Rockville, Mary land, USA: ICF International.

References

MacQuarrie, K. (2014). "Unmet need for family planning among young women: levels and trends."

Madhavan, S. (2014). An Analysis of the the Proximate Determinants of Fertility in Sub-Saharan Africa with a Focus on Induced Abortion. School of Public Health Baltimore, Maryland, Johns Hopkins University.

Magadi, M. A. and S. L. Curtis (2003). "Trends and determinants of contraceptive method choice in Kenya." Studies in family planning **Vol. 34**(No.3): pp.149-159.

Maharaj, P. and J. Cleland (2004). "Condom Use Within Marital and Cohabiting Partnerships in KwaZulu-Natal, South Africa." Studies in family planning **Vol.35**(No.2): pp.116-124.

Makinwa-Adebusoye, P. (2001). "Sociocultural factors affecting fertility in sub-Saharan Africa." United Nations (2001). Prospects for Fertility Decline in High Fertility Countries, Population Bulletin of the United Nations, Special Issue(No. 46/47): pp. 55-69.

Makinwa-Adebusoye, P. (2001). Sociocultural factors affecting fertility in sub Sharan Africa.

Malawi Government (2012). Malawi - Second Growth and Development Strategy for 2011-2016. Ministy of Finance and Development Planning. Lilongwe, Department of Development Planning.

Malawi Human Rights Commission (MHRC) (2006). Cultural Practices and Human Rights: A Study into Cultural Practices and Their Impact on the Enjoyment of Human Rights, Particularly the Rights of Women and Children in Malawi. Lilongwe: MHRC.

Malawi Law Commission (2006). Report of the Law Commission on the Review of the Laws on Marriage and Divorce. Lilongwe, Malawi, Government Printer.

Malawi Parliament (2015). "The Marriage, Divorce and Family Relations Act (Marriage Act) of 2015. Cap. 26:04.".

Maleta, M., Judith (2011). Health Services Commission-Malawi: An Evaluation of Its Human Resources for Health 2006 Recruitment Gala. Lilongwe.

Manda, S. and R. Meyer (2005). "Age at first marriage in Malawi: a Bayesian multilevel analysis using a discrete time-to-event model." Journal of the Royal Statistical Society **Vol. 168**(No.2): pp. 439–455.

Mason, K. O. (1997). "Explaining fertility transitions." Demography **Vol. 34**(No. 4): pp. 443-454.

May, J. F. (2012). World population policies: their origin, evolution, and impact, Springer.

Mbizvo, M. T. and S. Zaidi (2010). "Addressing critical gaps in achieving universal access to sexual and reproductive health (SRH): the case for improving adolescent SRH, preventing unsafe abortion, and enhancing linkages between SRH and HIV interventions." International Journal of Gynecology & Obstetrics **Vol. 110**(Suppl.S3-S6).

McCoy, D., et al. (2008). "The double burden of human resource and HIV crises: a case study of Malawi." Human Resources for Health **Vol. 6**(No. 1): pp. 1-13.

McNay, K., et al. (2003). "Why are uneducated women in India using contraception? A multilevel analysis." <u>Population Studies</u> **Vol. 57**(No. 1): pp.21-40.

McQuillan, K. (2004). "When does religion influence fertility? ." <u>Population and development review</u> **Vol. 30**(No. 1): pp. 25-56.

Measure DHS/ICF International (2013). Standard Recode Manual For DHS6 <u>Calverton, MD: ORC Macro</u>. Caverton, Maryland, Measure DHS/ICF.

Mensch, B. S., et al. (2005). Trends in the timing of first marriage among men and women in the developing world, Citeseer. **No. 202**.

Merli, M. G. and A. E. Raftery (2000). "Are births underreported in rural China? Manipulation of statistical records in response to China's population policies." <u>Demography</u> **Vol. 37**(No. 1): pp. 109-126.

Mertens, D. M. (2014). <u>Research and Evaluation in Education and Psychology: Integrating Diversity With Quantitative, Qualitative, and Mixed Methods: Integrating Diversity With Quantitative, Qualitative, and Mixed Methods</u>. London, Sage Publications.

Miles, M. B. and A. M. Huberman (1994). <u>Qualitative data analysis: An expanded sourcebook</u>, Sage Publication Ltd.

Ministry of Health - Planning Department (2004). A Joint Programme of Work for a Health Sector Wide Approach (SWAp) [2004-2010]. Lilongwe, Malawi.

Ministry of Health (2004). Young People health Strategy and implementation framework M. o. Health. Lilongwe, Minstry of Health, Government of Malawi.

Ministry of Health (2007). Human Resources / Capacity Development within the Health Sector Needs Assessment Study. Lilongwe: Malawi.

Ministry of Health (2007). Malawi Health SWAp Donor Group. Human resources/capacity development within the health sector needs assessment study. Malawi Governement: Government Press, Zomba.

Ministry of Health & Population (2002). The Malawi Essential Health Package - 2002/3 FY Plan of Action - ''Reaching an EHP Implementation Plan''. M. o. H. Population. Lilongwe: Republic of Malawi.

Ministry of Health (Reproductive Health Unit) (2007). National Standards on Youth Friendly Health Services. Lilongwe.

Ministry of Health Malawi (2011). Abortion in Malawi: Results of a study of Incidence and Magnitude of complications due to unsafe abortion Report. R. H. Unit. Lilongwe, MoH and UNFPA.

MOH, et al. (2015). Rwanda Demographic and Health Survey 2014-2015; Key Indicators.

MOH NISR & ICF Macro (2015). "Rwanda Demographic and Health Survey 2014-2015; Key Indicators."

References

Mokomane, Z. (2006). "Cohabiting Unions in Sub-Saharan Africa: Explaining Botswana's Exceptionality." Journal of Comparative Family Studies **Vol. 37**(No. 1): pp.25-42 http://www.jstor.org/stable/41604053

Montagu, D., et al. (2011). "Where do poor women in developing countries give birth? A multi-country analysis of demographic and health survey data." PLoS One **Vol. 6**(No. 2): e17155.

Montgomery, M. R., et al. (2001). Social Networks and the Diffusion of Fertility Control. Policy Research Division Working Paper. New York, Population Council Policy Research Disivion online at http://www.demogr.mpg.de/Papers/workshops/010221_paper04.pdf accessed 16/12/2015.

Morgan, D. L. and R. A. Krueger (1993). When to use focus groups and why. Successful Focus Groups: Advancing the State of the Art. in D.L. Morgan (ed). Thousand Oaks, Sage.

Moultrie, T., et al. (2013). "Tools for demographic estimation." Paris: International Union for the Scientific Study of Population.

Moultrie, T. A., et al. (2008). "Refining the Criteria for Stalled Fertility Declines: An Application to Rural KwaZulu-Natal, South Africa, 1990–2005." Studies in family planning **Vol. 39**(No. 1): pp. 39–48.

Moultrie, T. A., et al. (2012). "Birth intervals, postponement, and fertility decline in Africa: A new type of transition?" Population Studies **Vol. 66**(No. 3): pp. 241-258.

Mtika, M. M. and H. V. Doctor (2002). "Matriliny, Patriliny, and Welath Flow Variations in Rural Malawi." African Sociological Review **Vol. 6**(No. 2): pp. 71-97.

Mturi, A. J. and W. Moerane (2001). "Premarital childbearing among adolescents in Lesotho." Journal of Southern African Studies **Vol. 27**(No. 2): pp. 259-275.

Mueller, D. H., et al. (2011). "Constraints to implementing the essential health package in Malawi." PLoS One **Vol. 6**(No. 6): e20741.

Munthali, A., et al. (2006). Adolescent sexual and reproductive health in Malawi: results from the 2004 National Survey of Adolescents, Alan Guttmacher Institute New York.

Munthali, A. C., et al. (2004). Adolescent Sexual and Reproductive Health in Malawi: A Synthesis of Research Evidence. The Alan Guttmacher Institute. New York Washington.

Munthali, J. (2004). "The education of girls in Malawi: Access and retention." Scottish Educational Review **Vol. 36**(No. 1): pp. 45-61.

Munthali, T. (2014). The Impact of Structural Adjustment Programmes (SAPs) on Manufacturing Growth in Malawi. Leeds, Leeds University. PhD Thesis.

Muula, A. S. and F. C. Maseko (2006). "How are health professionals earning their living in Malawi?" BMC Health Service Research **Vol. 6**: pp. 97.

Nalwadda, G., et al. (2010). "Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives." BMC Public Health **Vol. 530**(No. 10): doi: 10.1186/1471-2458-1110-1530.

National AIDS Commission (2011). Malawi National HIV and AIDS Response: National Strategic Plan for HIV and AIDS (2011 – 2016). Lilongwe: Malawi, Office of the President and Cabinet.

National Statistical Office (2010). "2008 Malawi Population and Housing Census."

National Statistical Office (2012). Integrated Household Survey 2010-2011: Household Socio-economic Characteristics Report. Zomba, National Statistical Office.

National Statistical Office (2015). Malawi MDG Endline Survey 2014. Zomba, Malawi: National Statistical Office.

National Statistical Office (NSO) and ICF Macro (2011). Malawi Demographic and Health Survey 2010. Zomba, Malawi, and Calverton, Maryland, USA: NSO and ICF Macro.

National Youth Council of Malawi, G. o. M. (2010). Report of the 2010 Youth Friendly Health Services (YFHS) National Monitoring. M. o. Y. a. Sports. Lilongwe, Ministry of Health (RHU) and the United Nations Population Fund (UNFPA).

Ngalinda, I. (1998). Age at first birth, fertility, and contraception in Tanzania, Humboldt-Universität zu Berlin, Philosophische Fakultät III.

Ní Bhrolcháin, M. (2008). Five reasons for measuring period fertility Working Paper A08/05. University of Southampton: Southampton Statistical Sciences Research Institute.

Nightingale, D. and J. Cromby, Eds. (1999). Social Constructionist Psychology. Buckingham Open University Press.

Notestein, F. (1953). "Economic Problems of Population Change." *Proceedings ofthe Eighth International Conference of Agricultural Economics*. London, Oxford University Press.

Notestein, F. W. (1945). Populationn - the long view. Food for the World. T. W. Schultz. Chicago, University of Chicago Press**:** 36-57.

NSO (2009). 2008 National Housing and Population Census. Zomba, Malawi.

Ntata, P. and C. Sinoya (1999). Customary Law and the UN Convention on Women and Children's Rights, Unpublished.

Ntozi, J. P. M. (2002). "Impact of HIV/AIDS on fertility in sub-Saharan Africa." African Population Studies **Vol. 17**(No. 1): pp. 103-124.

Ntozi, J. P. M., et al. (2001). Has HIV/AIDS epidemic changed the sexual behaviour of high risk groups in Uganda? . Paper presented at the IUSSP General Population Conference, Salvador, Brazil, 18-24 August 2001.

Nyarko, P., et al. (2003). "Child loss and fertility behaviour in Ghana."

Obare, F., et al. (2012). "Factors associated with unintended pregnancy, poor birth outcomes and post-partum contraceptive use among HIV-positive female adolescents in Kenya." BMC women's health **12**(1): 34.

References

Okeke, E. and S. Godlonton (2015). "Does a ban on informal health providers save lives? Evidence from Malawi." Journal of development economics **Vol. 10**(No. 1): pp. 112-132.

Page, H. J., et al. (1982). Illustrative analysis: breastfeeding in Pakistan. World Fertility Survey Scientific Reports. Voorburg, International Statistical Institute.

Palamuleni, M. (2008). "Fertility decline in Malawi: An analysis of the proximate determinants." Journal of Social Development in Africa **Vol. 25**(No. 1).

Palamuleni, M. E. (2011). "Socioeconomic determinants of age at marriage in Malawi." International Journal of Sociology and Anthropology **Vol. 3**(No. 7): 224-235.

Palloni, A. (2001). "Diffusion in sociological analysis." Diffusion processes and fertility transition: Selected perspectives: Committee on Population. National Research Council: pp. 67-114.

Pannucci, C. J. and E. G. Wilkins (2010). "Identifying and Avoiding Bias in Research." Plastic and reconstructive surgery **Vol. 126**(No. 2): pp. 619-625.

Parker, I. (2005). Qualitative Psychology: Introducing Radical Research. Maidenhead, Berkshire, Open University Press.

Paz Soldan, V. A. (2004). "How family planning ideas are spread within social groups in rural Malawi." Studies in family planning **Vol. 35**(No. 4): pp.275-290.

Phiri, K. M. (1983). "Some Changes in the Matrilineal Family System among the Chewa of Malawi since the Nineteenth Century." The Journal of African History **Vol. 24**(No. 2): pp. 257-274.

Pope, C., et al. (2007). Synthesizing qualitative and quantitative health evidence: A guide to methods. Maidenhead Berkshire, OUP.

Prata, N., et al. (2013). "Meeting the need: youth and family planning in sub-Saharan Africa." Contraception **Vol. 88**(No. 1): pp. 83-90.

Pullum, T. (2011). 2011 DHS Fellows Program in Population and Health for University Faculty from Kenya, Tanzania, Ethiopia, Malawi, or Uganda. Further Analysis of Demographic and Health Surveys Workshop, Calverton, Maryland, ICF International and USAID.

Pullum, T. W. (2006). An assessment of age and date reporting in the DHS Surveys 1985-2003. Methodological Reports No. 5. Calverton, Maryland.

QSR International Pty Ltd. (2012). NVivo qualitative data analysis software; QSR International Pty Ltd. Version 10.

Rabe-Hesketh, S. and B. Everitt (2007). A Handbook of Statistical Analyses using Stata 2nd Ed. Boca Raton, CHAPMAN & HALL/CRC.

Randall, S., et al. (2015). "UN census "Households" and local interpretations in Africa since independence." Sage Open **Vol. 5**(No. 2): 2158244015589353.

Randall, S., et al. (2013). "The power of the interviewer: a qualitative perspective on African survey data collection." Demographic Research **Vol. 28**(No.27): pp.763-792.

Randall, S., et al. (2011). "Cultural constructions of the concept of household in sample surveys." Population Studies **Vol. 65**(No. 2): pp.217-229.

Rangiah, J. (2012). The experiences of pregnant teenagers about their pregnancy. MSc dissertation. Stellenbosch: University of Stellenbosch. Stellenbosch:, University of Stellenbosch.

Ratcliffe, A. A., et al. (2001). "The Ignored Role of Men in Fertility Awareness and Regulation in Africa/Le Rôle Ignoré des Hommes dans la Sensibilisation à la Fécondité et le Règlement en Afrique." African Journal of Reproductive Health **Vol. 5**(No. 1): pp. 13-19.

Record, R. and A. Mohiddin (2006). "An economic perspective on Malawi's medical" brain drain"." Globalization and health **Vol. 2**(No. 1): pp.1.

Reniers, G. (2003). "Divorce and remarriage in rural Malawi." Demographic Research **Vol. 6**(No. 1): pp. 176-202.

Reniers, G. and R. Tfaily (2012). "Polygyny, Partnership Concurrency, and HIV Transmission in Sub-Saharan Africa." Demography **Vol. 49**(No. 3): pp. 1075-1101.

Reserve Bank of Malawi (2012). Financial and Economic Review. Lilongwe, Reserve Bank of Malawi. **Vol. 44**.

Richardson, F., et al. (2009). 2009. Community-based Distribution of Injectable Contraceptives in Malawi. Washington, DC: Futures Group International Health Policy Initiative, Task Order 1.

Rodrigues, G. (2015). "Demographic Methods: Application of Current Status Life Tables to Nuptiality and Breastfeeding." from http://data.princeton.edu/eco572/cstatus.html Accessed 14th January, 2015.

Roelen, K. and L. Camfield, Eds. (2015). Mixed Methods Research in Poverty and Vulnerability: Sharing Ideas and Learning Lessons. London, Palgrave Macmillan.

Rogers, E. M. (2003). Diffusion of Innovations. New York, The Free Press.

Ross, J. (2004). Understanding the demographic dividend. Policy Project [online] www.policyproject.com/pubs/generalreport/Demo_Div.pdf.

Ross, J. and E. Smith (2011). "The Family Planning Effort Index: 1999 2004 and 2009." International perspectives on sexual and reproductive health **Vol. 37**(No. 3): pp. 125-133.

Ross, J., et al. (2005). Profiles for Family Planning and Reproductive Health Programs (116 Countries), 2nd Edition Glastonbury, CT:.

Ross, J. A. and W. L. Winfrey (2001). "Contraceptive use, intention to use and unmet need during the extended postpartum period." International family planning perspectives: 20-27.

Rossier, C. and J. Hellen (2014). "Traditional Birthspacing Practices and Uptake Of Family Planning During the Postpartum Period In Ouagadougou: Qualitative Results." International perspectives on sexual and reproductive health **Vol. 40**(No. 2): pp. 87-94.

References

Rossman, G. B. and B. C. Wilson (1985). "Numbers and words: combining qualitative and quantitative methods in a single large-scale evaluation study." Evaluation Review **Vol. 9**(No. 5): pp. 627-643.

Rutenberg, N., et al. (2000). "Reproductive decision-making in the context of HIV and AIDS: a qualitative study in Ndola, Zambia." International family planning perspectives **Vol. 26**(No. 3): pp. 124-130.

Rutenberg, N. and S. C. Watkins (1997). "The buzz outside the clinics: conversations and contraception in Nyanza Province, Kenya." Studies in family planning **Vol. 28**(No. 4): pp.290-307.

Rutstein, S. O. and G. Rojas (2006). "Guide to DHS statistics." Calverton, Maryland: ORC Macro.

Ryan, J. H., et al. (2014). "Why do women deliver with traditional birth attendants and not at health facilities?: A qualitative study in Lilongwe, Malawi." Annals of Global Health **Vol. 80**(No. 3): pp. 229-230.

Schoenmaeckers, R., et al. (1981). "The child-spacing tradition and the postpartum taboo in tropical Africa: anthropological evidence." Studies in Population.

Schoumaker, B. (2011). Omissions of births in DHS birth histories in sub-Saharan Africa: Measurement and determinants. Population Association of America Washington, DC.

Schoumaker, B. (2013). "A Stata module for computing fertility rates and TFRs from birth histories: tfr2." Demographic Research **Vol. 28** (No. 38): pp.1093-1144

Schoumaker, B. (2013). "A Stata module for computing fertility rates and TFRs from birth histories: tfr2." Demographic Research **Vol. 28**(No.38): pp. 1093-1144.

Sedgh, G., et al. (2012). "Induced abortion: incidence and trends worldwide from 1995 to 2008." Lancet **Vol. 379**(No. 9816): pp. 625-632.

Seiber, E. E., et al. (2007). "Changes in contraceptive method mix in developing countries." International family planning perspectives **Vol.33**(No.3): pp. 117-123.

Shapiro, D. and T. Gebreselassie (2008). "Fertility Transition in Sub-Saharan Africa: Falling and Stalling." African Population Studies **Vol. 22**(No. 2).

Shapiro, D., et al. (2010). Stalling of Fertility Transitions and Socioeconomic Change in the Developing World: Evidence from the Demographic and Health Surveys, Pennsylvania State University, University Park, PA 16802.

Sharif, M. (2007). Poverty Reduction - An Effective Means of Population Control Theory, Evidence and Policy. Aldershot, Ashgate Publishing Limited.

Shreffler, K. M. and F. N.-A. Dodoo (2009). "The role of intergenerational transfers, land, and education in fertility transition in rural Kenya: the case of Nyeri district." Population Environment **Vol. 30**: pp. 75-92.

Sibanda, A., et al. (2003). "The proximate determinants of the decline to below-replacement fertility in Addis Ababa, Ethiopia." Stud Family Planning **Vol. 34**(No. 1): pp.1-7.

Sibanda, A. and T. Zuberi (1999). Contemporary fertility levels and trends in South Africa: evidence from reconstructed census birth histories. <u>Third African Population</u>. Johannesburg, South Africa, Union of African Population Studies.

Silver, C. and A. Lewins (2010). Computer Assisted Qualitative Data Analysis. <u>International Encyclopedia of Education</u>. P. Peterson, E. Baker and B. McGaw. Oxford, Elsevier. **Vol. 6**.

Silverman, D. and A. Marvasti (2008). <u>Doing Qualitative Research: A Comprehensive Guide</u>. Los Angels, SAGE Publications.

Sinunu, M. A., et al. (2014). "Evaluating the impact of prevention of mother-to-child transmission of HIV in Malawi through immunization clinic-based surveillance." <u>PLoS One</u> **Vol. 9**(No. 6): e100741.

Siyabu, C. (2011). Malawi Engagement Ceremonies. <u>Travel Word</u>. Blantyre: http://www.explore-malawi.com/travel-info/traditional-ceremonies-malawi.

Smith, T. W. (2003). Developing Comparable Questions in Cross-National Surveys. <u>Cross-Cultural Survey Methods</u>. J. A. Harkness, Fons J.R. van de Vijver and P. P. Mohler. New York, John Wiley and Sons**:** pp.69–92.

Sneeringer, S. E. (2009). Fertility Transition in Sub-Saharan Africa: A Comparative Analysis of Cohort Trends in 30 Countries. <u>DHS Comparative Reports No. 23</u>. ICF Macro Calverton, Maryland.

Solo, J., et al. (2005). Repositioning family planning—Malawi case study: Choice, not chance.

StataCorp. (2011). <u>Stata Statistical Software: Release 12</u>. College Station, TX: StataCorp LP.

Stephenson, R. and M. Hennink (2004) Barriers to Family Planning Service use among the Urban Poor in Pakistan. International Family Planning Perspectives.

Stover, J. (1998). "Revising the proximate determinants of fertility framework: What have we learned in the past 20 years?" <u>Studies in family planning</u> **Vol. 29**(No. 3): pp. 255-267.

Sutherland, E. G., et al. (2011). "What Happens to Contraceptive Use After Injectables Are Introduced? An Analysis of 13 Countries." <u>International perspectives on sexual and reproductive health</u> **Vol. 34**(No. 4): pp. 202–208.

Swanson, D., et al. (2004). <u>The methods and materials of demography</u>, Elsevier Academic Press.

Syamala, T. S. (2001). "Relationship between infant and child mortality and fertility--an enquiry into goan women." <u>Indian J Pediatr</u> **Vol. 68**(No. 12): pp. 1111-1115.

Tabachnick, B. G. and L. S. Fidell (2007). <u>Using Multivariate Statistics</u>. Boston, Pearson.

Tabutin, D. and B. Schoumaker (2004). "The Demography of Sub-Saharan Africa from the 1950s to the 2000s: A Survey of Changes and a Statistical Assessment." <u>Population</u> **Vol. 59**(No. 3): pp 455-555.

References

Taulo, F., et al. (2009). "Fertility intentions of HIV-1 infected and uninfected women in Malawi: a longitudinal study." <u>AIDS and Behavior</u> **Vol. 13**(No. 1): pp.20-27.

Teller, C., et al. (2011). The Nature, Pace and Determinants of the Incipient Fertility Transition in Ethiopia, 1984–2007: Can the 4.0 TFR Target for 2015 be Met? <u>The Demographic Transition and Development in Africa</u>, Springer**:** pp.45-68.

The RESPOND Project (2012). Making family planning acceptable, accessible, and affordable: The experience of Malawi. New York, The RESPOND Project/EngenderHealth **RESPOND Project Brief No. 6.**

The RESPOND Project (2012). "Three Successful Sub-Saharan Africa Family Planning Programs: Lessons for Meeting the MDGs." Retrieved 19/10/, 2014, from <u>http://phe-ethiopia.org/admin/uploads/attachment-1383-AfricaBureauCaseStudyReport.pdf</u>.

Thirtle, C., et al. (2003). "The impact of research-led agricultural productivity growth on poverty reduction in Africa, Asia and Latin America." <u>World Development</u> **31**(12): 1959-1975.

Thompson, W. S. (1929). "Population." <u>American Journal of Sociology </u>(No. 34): pp. 959-975.

Tilahun, M., et al. (2012). "Health workers' attitudes toward sexual and reproductive health services for unmarried adolescents in Ethiopia." <u>Reprod Health</u> **Vol. 9**(No. 19): pp. 19.

Trinitapoli, J. (2006). "Religious responses to aids in sub-saharan Africa : An examination of religious congregations in rural Malawi." <u>Review of Religious Research</u> **Vol. 47**(No. 3): pp. 253-270.

Trussell, J. (2011). "Contraceptive failure in the United States." <u>Contraception</u> **Vol. 83**(No. 5): pp. 397-404.

Tsoka, M. G. (2013). "A Tale of Two Presidents: Assessments of 'Chitsulo Cha Njanje'and 'Amayi'in Malawi." <u>Afro-Barometer Info</u> **No. 121**.

Tsui, A. O. (2001). "Population policies, family planning programs, and fertility: The record in Global Fertility Transition, eds. Rodolfo A. Bulatao and John B. Casterline, ." <u>Population and development review</u> **Suppliment to Vol. 27**: New York: Population Council, pp. 184-204.

Tuman, J. P., et al. (2007). "The effects of education on fertility in Colombia and Peru: implications for health and family planning policies." <u>Global Health Governance</u> **Vol. 1**(No. 2).

Ueyama, M. and F. Yamauchi (2009). "Marriage Behaviour Response to Prime-Age Adult Mortality: Evidence from Malawi." <u>Demography</u> **Vo. 46**(No. 1): pp. 43-63.

Ulin, P. R., et al. (2005). <u>Qualitative Methods in Public Health</u>. San Francisco, Jossey-Bass.

UNDESA (2010). Handbook on Population and Housing Census Editing Revision 1 Series F No. 82/Rev.1.

UNFPA-Malawi (2010). Adolescents Reproductive Health for Young People - Ministry of Youth OYS 2015 Annual Work Plan, UNFPA (Malawi).

UNFPA (2012). "The Status Report on Adolescents and Young People in Sub-Saharan Africa: Opportunities and Challenges."

UNFPA (2012). United Nations Population Fund Final Country Programme Document for Malawi. P. a. Development. New York, Executive Board of the UNFPA, the UNFPA and the UN Office for Project Services.

UNICEF (2005). Early Marriage A Harmful Traditional Practice A Statistical Exploration 2005, Unicef.

United Nations (2014). Probabilistic Population Projections based on the World Population Prospects: The 2012 Rvsion.

United Nations (2014). World Urbanization Prospects: The 2014 Revision, Highlights (ST/ESA/SER.A/352). New York, Department of Economic and Social Affairs, Population Division.

United Nations Department of Economic and Social Affairs (2013). Adolescent Fertility since the International Conference on Population and Development (ICPD) in Cairo. Cairo, United Nations publication.

United Nations Department of Economic and Social Affairs (2013). World Fertility Report 2013: Fertility at the Extremes. New York, Department of Economic and Social Affairs Population Division.

USAID (2014). Results of USAID's Family Planning and Reproductive Health spending: Malawi.

USAID (2014). USAID Malawi Family Planning and Reproductive Health Fact Sheet.

Van de Walle, E. and A. Foster (1990). Fertility Decline in Africa: Assessment and Prospects. Washing D.C., The World Bank.

Vlassoff, M. and M. Tsoka (2014). Benefits of meeting the contraceptive needs of Malawian women. In Brief. New York, Guttmacher Institute.

Wanda, B. P. (1988). "Customary family law in Malawi: Adherence to tradition and adaptability to change." The Journal of Legal Pluralism and Unofficial Law Vol. 20(No. 27): pp.117-134.

Weeks, J. R. (1990). How to influence fertility: the experience so far (1990). NPG Forum Papers online http://dieoff.org/page35.htm accessed 5/2/2016.

Weeks, J. R., et al. (2010). "Neighborhoods and Fertility in Accra, Ghana: An AMOEBA based Approach." Ann Assoc Am Geogr Vol. 100(No. 3): pp. 558-578.

Westoff, C., et al. (1994). Marriage and Entry into Parenthood. DHS Comparative Studies No. 10. Calverton, Maryland: Macro International Inc.

Westoff, C. F. (2003). Trends in marriage and early childbearing in developing countries. D. C. R. N. 5), Calverton, MD: ORC Macro, MEASURE DHS.

References

Westoff, C. F. (2013). "The Recent Fertility Transition in Rwanda." <u>Population and development review</u> **Vol. 38**: pp. 169-178.

Westoff, C. F. and A. Bankole (2001) The Contraception – Fertility Link in Sub-Saharan Africa and in Other Developing Countries. <u>DHS Analytical Studies</u>

Westoff, C. F. and D. A. Koffman (2011). "The Association of Television and Radio with Reproductive Behavior." <u>Population and development review</u> **Vol. 37**(No. 4): pp. 749-759.

White, M. J., et al. (2008). "Urbanisation and Fertility: an Event History Analysis of Coastal Ghana." <u>Demography</u> **Vol. 45**(No. 4): pp. 803-816.

WHO (2011). A global handbook for providers: A Global Handbook for Providers (2011 update). Baltmore and Geneva, CCP and WHO.

WHO and UNICEF (2012). Building a future for women and children: the 2012 report. <u>Washington, DC: World Health Organization and UNICEF</u>.

Willig, C. (2013). <u>Introducing Qualitative Research in Psychology</u> Maidenhead, Berkshire, Open University Press.

World Health Organisation (2014). Country Cooperation Startegy at a glance <u>Brief</u>, WHO.

World Health Organisation (WHO) (2010). WHO Guidelines Approved by the Guidelines Review Committee. <u>Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a Public Health Approach: 2010 Revision</u>. Geneva, World Health Organization.

World Health Organization (2011). Unsafe Abortion: Global and Regional Estimates of the Incidence of Unsafe Abortion and Associated Mortality in 2008. Geneva, Switzerland, WHO.

Wusu, O. (2006). "Interconnections among changing family structure, child rearing and fertility behaviour among the Ogu, Southwestern Nigeria: A qualitative study." <u>Demographic Research</u> **Vol. 14**(No. 8): pp. 139-156.

Yeatman, S., et al. (2013). "Young women's dynamic family size preferences in the context of transitioning fertility." <u>Demography</u> **Vol. 50**(No. 5): pp.1715-1737.

Yeatman, S. E. (2008). Childbearing in an AIDS Epidemic. <u>Sociology and Demography</u>. Texas at Austin, University of Texas at Austin.

Yeatman, S. E. and J. Trinitapoli (2011). "Beyond denomination: The relationship between religion and family planning in rural Malawi." <u>Demographic Research</u> **Vol. 19**(Article 55): pp. 1851-1882.

Yusuf, F., et al. (2014). <u>Methods of Demographic Analysis</u>. New York, Springer.

ZIMSTAT and ICF International (2012). Zimbabwe Demographic and Health Survey 2010-11 Calverton, Maryland, ZIMSTAT and ICF International Inc.

Zulu, E. (2014). Demographic Dividend: Six Key Investments Will Bring About Economic Transformation in Africa, AFIDEP.

Zulu, E. M. (1996). Sociocultural factors affecting reproductive behavior in Malawi. University of Pennsylvania. Philadelphia, University of Pennsylvania. **Ph.D. Dissertation**.

Zulu, E. M. (2001). "Ethnic Variations in Observance and Rationale for Postpartum Sexual Abstinence in Malawi." Demography **Vol. 38**(No. 4): pp. 467-479.