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THE CRITICAL ROLE OF A NON-HEALTHCARE APPROACH TO MATERNAL MORTALITY REDUCTION

Qualitative insights from Rwanda's success

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Abstract

Maternal mortality is one of the most critical contemporary development challenges as it accounts for a substantial number of deaths every year, despite the fact that we today have the medical knowledge to prevent it. Sub-Saharan Africa is the most affected region, accounting for more than half of the world's maternal deaths. Research is highly skewed towards healthcare sector aspects of maternal mortality, while there is an obvious lack of focus on the non-health sector determinants. Merely healthcare sector interventions are not sufficient to inform policy-making aiming to reduce maternal mortality and achieve the UN's Sustainable Development Goal target 3.1. This thesis aims to address this research gap and identify efforts outside of the healthcare sector that have the potential to contribute to maternal mortality reduction. This is conducted through a qualitative process tracing study of Rwanda, having made great advances in reducing maternal deaths. Burundi serves as a comparative shadow-case. The empirical analysis suggests that additional state efforts complementing medical interventions are vital. These include incorporating direct governmental investment in the problem, for example through oversight procedures such as auditing medical facilities for maternal deaths; tailoring efforts to combat maternal mortality to specific contexts, and complying with international targets. These non-medical state efforts also include incorporating indirect governmental investment through gender equality promotion and effective administrative and financial decentralization.

Keywords: Burundi, maternal health, maternal mortality, policy, Rwanda, Sub-Saharan Africa

Contents:

Abbreviations and acronyms

ARR	Annual Rate of Reduction
CHW	Community Health Worker
DHS	Demographic and Health Survey
GDP	Gross Domestic Product
GNI	Gross National Income
GoB	Government of Burundi
GoR	Government of Rwanda
ICPD	International Conference on Population and Development
LMIC	Low- and middle-income country
MDA	Maternal Death Audit
MDG	Millennium Development Goal
MDGR	Millennium Development Goal Progress Report
MMEIG	the United Nation's Maternal Mortality Estimation Inter-Agency Group
MMR	Maternal Mortality Ratio (in maternal deaths/100,000 live births)
P4P	Payment for Performance
PBF	Performance-based Financing
SBA	Skilled birth attendant
SDG	Sustainable Development Goal
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health and Rights
TBA	Traditional (unskilled) birth attendant
UN	the United Nations
UNDP	the United Nations Development Program
UNPD	the United Nations Population Division
WHO	the World Health Organization

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"Women are not dying because of diseases we cannot treat. They are dying because societies have yet to make the decision that their lives are worth saving."[1]

1. Introduction

"*Today we have both the knowledge and the opportunity to end preventable deaths among all women*", that is how the Every Woman, Every Child Global Strategy for Women's Children's and Adolescent's Health 2016-2030 starts. As professor Fathalla says in the introductory quote, it is a fact that women are dying although we today have the medical and technical knowledge to prevent the majority of maternal deaths (van den Broek & Falconer, 2011).

Despite this, complications during pregnancy and childbirth are major causes of death and disability among women of reproductive age[2] in the developing world. Around 300,000 women die from maternal causes every year, of which 99% occur in low- and middle-income countries (LMICs) and more than half in Sub-Saharan Africa alone. Ending preventable maternal mortality remains one of the most critical global development challenges, despite significant improvement in the last decades (Godal & Quam, 2012; Bazile et al., 2015; Miller, 2016; WHO, 2015c; 2016).

The United Nations' *Millennium Development Goal* (MDG) target 5A, aimed to reduce the maternal mortality ratio (MMR) by 75% between 1990 and 2015. A significant global reduction in maternal mortality followed the MDGs, but progress was inconsistent and the global target was not achieved (Graham et al., 2016). Assessment of country progress has been conducted of 95 countries with an MMR of 100 or higher in 1990. Nine countries[3] achieved the target (WHO, 2015; MMEIG, 2016). For the exhaustive list, see Appendix 1.

Today, the MDGs have been replaced by the *Sustainable Development Goals* (SDGs), where target 3.1 aims to reduce the global MMR from 216 to 70 deaths per 100,000 live births by 2030, with no country exceeding 140. While the MDGs required a global average annual rate of reduction (ARR) of 5.5%, and only reached 2.3%, the SDGs require an ARR of at least 7.5% -

[1] Quote by professor Mahmoud Fathalla, previously President of the International Federation of Gynecology and Obstetrics (FIGO) (in Arulkumaran, 2013:4).
[2] *Women of reproductive age* refers to women aged 15-49 years.
[3] Bhutan, Cambodia, Cape Verde, the Islamic Republic of Iran, the Lao People's Democratic Republic, Maldives, Mongolia, Rwanda and Timor-Leste.

and even higher for countries with MMRs of 432 and above (WHO, 2015b; c; 2016; MMEIG, 2016).

Given the transition from the MDGs to the SDGs, it is imperative to assess areas of success and challenges in MMR reduction, in order to critically inform policy debates and resource allocation (Kuruvilla et al., 2014; Kassebaum, Steiner, Murray, Lopez & Lozano, 2016; MMEIG, 2016).

As previously mentioned, maternal deaths are strongly linked to LMICs. Sub-Saharan Africa is the most challenged region in the world in regards to maternal mortality; progress is especially slow in comparison to the global average. Seeing to the global distribution of maternal deaths, Sub-Saharan Africa has had an upward trend in the relative number of maternal deaths, from 42% in 1990 to 66% in 2015 (Graham et al, 2016).

Because of the critical state of maternal mortality in the region, Holm Hansen and Armstrong Schellenberg (2016) among others call for studies particularly on Sub-Saharan Africa in order to inform countries striving towards the 2030 target. Mbizvo and Say (2012:S10) claim that knowledge about what policies have led to MMR reductions in resource-scarce settings is insufficient: "*Documentation of such progress is critical in the global effort to curb maternal mortality. Useful lessons can be drawn to inform policies and programs elsewhere, and to ensure a sustained effort in their implementation.*"

Further, research on maternal mortality reduction is skewed towards medical factors, for instance qualified personnel and better medical facilities. This focus on technical factors has left a research gap regarding non-medical determinants of maternal deaths.

In order to address this gap and contribute to research on successes in MMR reduction in Sub-Saharan Africa, this thesis conducted a qualitative study of Rwanda, including a comparative element with the shadow-case Burundi. While the two countries are similar in many important aspects, they experienced very different developments of MMR during the MDG era 2000-2015. While Rwanda achieved MDG 5A, Burundi did not and has currently one of the highest MMRs in the region. This thesis analyzed state action in order to determine what efforts aside from the narrow focus on medical determinants seem to contribute to MMR reduction.

The findings of this study indicated that non-medical determinants of maternal mortality deserve increased attention in policy-making. The empirical analysis suggests that additional state efforts complementing medical interventions are vital. These include incorporating direct governmental

investment in the problem, for example through oversight procedures such as auditing medical facilities for maternal deaths; tailoring efforts to combat maternal mortality to specific contexts, and complying with international targets. These non-medical state efforts also include incorporating indirect governmental investment through gender equality promotion and effective administrative and financial decentralization.

2. Research aim

Women's health is commonly analyzed from a medical perspective, although women's own perceptions of their health are often rooted in social factors (Avorti & Walters, 1999). As indicated in the introduction, the bulk of research on maternal mortality reduction is situated within the field of medicine, where there are extensive studies on the medical aspects of maternal deaths (Gill, Pande & Malhotra, 2007; Wang, 2013). In reaction, recently, scholars have highlighted the need for research specifically on political determinants of maternal mortality in Sub-Saharan Africa (Atti & Gulis, 2017). Experience implies that limiting efforts to medical factors are not sufficient to reduce MMR and achieve SDG target 3.1. Therefore, this study wishes to take a wider approach including policy efforts in a broader sense.

This thesis aims to contribute to the research on how maternal mortality can be efficiently reduced, particularly in Sub-Saharan Africa. In so doing, the thesis strives to contribute to policy making on maternal mortality reduction. Based on this aim, the empirical analysis focuses on identifying non-medical state efforts made to reduce maternal mortality in Rwanda over the MDG period, from 1990-2015, and what bundle of efforts appear to be most important through a comparison to Burundi over the same period.

The empirical study will be conducted as a comparative case study of the main case Rwanda and the shadow-case Burundi. The study is guided by the following research questions:

> *What non-medical state efforts were used by Rwanda to reduce maternal mortality over the MDG period?*
>
> *How did the non-medical efforts adopted by Rwanda to reduce maternal mortality differ from Burundi?*

3. Disposition of the thesis

This thesis proceeds with a review of academic research on maternal mortality in Chapter 4. For the sake of clarity, it begins by defining central concepts. Subsequently, it demonstrates the external relevance of the research area by accounting for the consequences of maternal mortality, providing a global overview and explaining the intersectionality of the issue. It then accounts for the causes of maternal deaths and obstacles to maternal health. Finally, in line with the research aim, it identifies the relative gap in research on non-medical state driven efforts and derives a set of non-medical factors that need further evaluation from the scant literature that currently exists.

In Chapter 5, the previously suggested non-medical state efforts are organized and form the theoretical framework that will guide this thesis' empirical analysis. These efforts are separated into direct state investment targeting maternal mortality, and state efforts that indirectly contribute to MMR reduction.

Chapter 6 presents the research design and the logic of case selection. It also discusses matters of data selection, reliability and generalizability.

The empirical analysis and results account for Chapter 7, starting with an overview of the progress in MMR reduction, followed by investigating non-medical efforts contributing to maternal mortality reduction in the main case Rwanda,. The analysis follows the theoretically anticipated efforts derived from the literature review and illustrated by the analytical framework. It closes by providing an illustration of the empirical findings of Rwanda in relation to the analytical framework, and extended with additional inductive findings from the case study. Chapter 8 then proceeds with a comparative analysis of the shadow-case of Burundi, following the same theoretical structure.

Chapter 9 begins by presenting the comparative findings illustrated by a table based on the extended theoretical framework. It then discusses some important empirical findings and possible alternative factors. Chapter 10 concludes the thesis, guided by the research questions. It also presents limitations of this thesis and provides implications for further research and policy-making.

4. Literature overview

4.1 Defining and measuring maternal mortality and morbidity

Maternal health gained increased attention with the global campaign the Safe Motherhood Initiative in 1987, and has since then become a significant indicator of countries' general health status (Miller & Bélizan, 2015). Maternal health is considered part of the wider cluster of sexual and reproductive health and rights (SRHR) (Germain, Sen, García-Moreno & Shankar, 2015). It is closely linked with sociocultural factors, gender roles and human rights (WHO, 2004). Before turning to the literature on maternal mortality, this section accounts for some central concepts.

Maternal death refers to the death of a woman during pregnancy or within 42 days after the termination of the pregnancy, "*from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes*" (WHO, 2017a).

The *maternal mortality ratio* (MMR) is measured by maternal deaths per 100,000 live births (WHO, 2017a). The MMR generally refers to the age interval of 15-49 years old, neglecting many maternal deaths, especially among girls under the age of 15 (WHO, 2015c).

Illustrating the diversity of the maternal health problems, the WHO defines *maternal morbidity* as *"any health condition attributed to and/or aggravated by pregnancy and childbirth that has a negative impact on the woman's wellbeing"* (Graham et al, 2016:2167).

Accurate measurements of MMR remain a challenge, especially in LMICs and environments where data on births and deaths are lacking and where maternal deaths are taboo. Inadequate civil registration systems and hospital records, unregistered maternal deaths, under-reporting, and misclassification are some problems (Cross, Bell & Graham, 2010). MMR estimates are often based on a range of methods including household surveys, 'sisterhood' methods[4],

[4] Sisterhood methods are conducted by interviewing a representative sample of respondents about the survival or deaths of their adult sisters (van den Broek & Falconer, 2011).

reproductive age mortality studies (RAMOS)[5], censuses and the Demographic and Health Survey (DHS) (van den Broek & Falconer, 2011).

Nevertheless, the message is clear: hundreds of thousands of women are still dying as a result of complications of pregnancy and childbirth every year (WHOs, 2015c).

4.2 Consequences of maternal mortality

Maternal deaths are widely considered individual tragedies and are followed by large societal costs (Miller & Bélizan, 2015). Maternal mortality has negative impacts on the economic situation of families and communities (Yamin, Boulanger, Falb, Shuma & Leaning, 2013).

The WHO (2004) declares that maternal deaths can seriously compromise children's survival. Numerous studies have proven the correlation between maternal mortality and morbidity and deaths among infants and children (Bazile et al., 2015; Miller & Bélizan, 2015). For example, a statistical study from Ethiopia found that children of women dying from maternal causes are much more likely to die than to survive (Moucheraud, Worku, Molla, Finlay, Leaning & Yamin, 2015). Also, maternal deaths impede children's education, status and opportunities in life and entail deep intergenerational impacts (Bazile et al., 2015).

Maternal mortality has a significantly negative impact on countries' gross domestic product (GDP) per capita (Kirigia, Oluwole, Mwabu, Gatwiri & Kainyu, 2005). Women constitute almost half of the global labor force, and maternal morbidity and mortality thus lead to economic losses. Since women are responsible for the major part of domestic work, it often entails family related problems and harms girls' education (Grépin & Klugman, 2013; Bazile et al., 2015).

Considering the implications of maternal mortality and the critical role of women in families, societies and economies, reducing MMR is an essential aspect of global sustainable development. Focusing on maternal health could imply long-term social and economic returns (WHO, 2015b).

[5] RAMOS examine all causes of deaths of women of reproductive age in a population through interviews, public records and information from e.g. traditional birth attendants (ibid., 2011).

4.3 Recent developments and the current situation of maternal mortality

As mentioned in the introductory chapter, maternal mortality is one of the most critical contemporary development challenges. The WHO estimates that 303,000 women died of reasons related to pregnancy or childbirth in 2015. Almost all (99%) occur in LMICs, 66% of them occur in Sub-Saharan Africa – and most could have been prevented (Godal & Quam, 2012; WHO, 2015c). The risk for a woman to die in relation to childbirth is 1 in 3,700 globally, but 1 in 38 in Sub-Saharan Africa (WHO, 2015a).

The MMR is widely considered a main indicator of maternal health, yet only constitutes a small share of maternal morbidity. It is estimated that for every maternal death, 20-30 women experience acute or chronic morbidity such as fistula and depression (Firoz et al., 2013; WHO, 2015b). Deaths and disabilities related to sexual and reproductive health is estimated to account for 32% of the disease burden among women of reproductive age (Chou, Cottler, Khosla, Reed & Say, 2015). Maternal deaths are therefore often recognized as "*the tip of the iceberg beneath which lies the true diversity of the burden or consequences of pregnancy-related health problems – i.e. poor maternal health*" (Graham et al., 2016:2165).

The challenge of maternal mortality and morbidity is dynamic, varying in magnitude, cause and distribution over time (Graham et al., 2016). Between 1990 and 2015, the global MMR decreased from 385 to 216 – a near 44% reduction[6]. The approximate global lifetime risk of maternal death fell from 1 in 73 to 1 in 180 (WHO, 2015c; MMEIG, 2016).

The trend is encouraging, but progress is irregular and too slow (Mbizvo & Say, 2012; Chou et al., 2015; MMEIG, 2016). Only nine countries managed to achieve the MDG and reduce their MMR with 75% 1990-2015 (WHO, 2015c). Since 1990, the gap between the countries with the

[6] A systemic analysis of the Global Burden of Diseases (GBD) Study 2015 estimated a global decline in MMR on 30% 1990-2015: from 282 to 196. The differing estimates are due to data selection and processing, and illustrate the importance and difficulty of accurately reporting on maternal mortality. Both sets of estimates have incorporated large and geographically precise datasets and advanced statistical models. While the WHO (2015c) estimates are based on data from 203 units covering 2,636 site years, the GBD estimates are based on 519 subnational geographical units in 195 countries and territories, covering 12,052 site years (Kassebaum et al., 2016). Despite of this, the WHO estimates and analyses are recognized as the most accurate and by far the most commonly used, and therefore will be used in this thesis as well.

highest MMR and the lowest has doubled its size (McDougall, Campbell & Graham, 2016; Koblinsky et al., 2016).

4.3.1 Regional development

Maternal mortality declined across all regions between 1990 and 2015, but progress has been skewed and geographical disparities widened during the same time period (Kassebaum et al., 2016). The greatest decline was experienced by Eastern Asia, leading to a regional shift in the burden of maternal mortality (Mbizvo & Say, 2012; WHO, 2015c). The Sub-Saharan regional decline between 1990 and 2015 was 45%, compared to 72% in Eastern Asia, 67% in Southern Asia and 59% in Northern Africa (see Appendix 2).

Sub-Saharan Africa thus has had a much slower relative progress and reached a 2015 median MMR of 546, as the only region having "very high" MMR. Oceania, Southern Asia and South-Eastern Asia had moderate MMR; 187, 176 and 100 respectively. The remaining five regions were considered having low MMR (WHO, 2015c; MMEIG, 2016).

High MMR is often associated with poverty, however countries with very similar GDPs per capita show varying MMRs. Hence, national economic development does not automatically reduce MMR (De Brouwere, Tonglet & Van Leberghe, 1998).

4.4 The intersectionality of maternal mortality

Maternal mortality correlates with economic, geographic and social factors. The MMR is higher in rural areas than in urban and in low-income settings than in high-income settings, reflecting socioeconomic inequalities in health access. In all countries, women in vulnerable groups, such as indigenous and migrants, are disproportionately affected by an increased risk of maternal mortality (Miller et al., 2016; WHO, 2016). Poverty is fundamentally related to restricted access to health services, and maternal health is particularly out of reach for many in poverty (WHO, 2004). Inequality in maternal health services is however not only economic, but has multiple dimensions including (but not limited to): age, class, ethnicity or caste, migrant status, sexual orientation and gender identity, and disability or HIV (Sen, 2014; WHO, 2015b). Indicators of socioeconomic status, women's empowerment and culture are all independently associated with maternal mortality (Ariyo, Ozodiegwu & Doctor, 2017).

4.5 Obstacles to maternal health

4.5.1 Medical causes of maternal deaths

Maternal deaths are commonly categorized as direct or indirect. Direct deaths result from obstetric complications during pregnancy, delivery and post-partum; e.g. hemorrhage and complications of unsafe abortions. Indirect deaths result from a previously existing disease or one that developed and/or is aggravated by the pregnancy, e.g. anemia, HIV/Aids and malaria (Cross et al., 2010). There is a consensus that most of the main causes of maternal deaths are preventable or manageable (WHO, 2004).

Globally, about 73% of total maternal deaths between 2003 and 2009 were due to direct obstetric causes and 27% to indirect causes. The primary direct causes are hemorrhage (27.1%), hypertensive disorders (14%), sepsis (10.7%), unsafe abortion (7.9%) and obstructed labor. The proportion of different causes varies between regions (Say et al., 2014).

4.5.2 The 'Three Delays Model'

Knowing that the majority of maternal deaths derive from direct obstetric causes, and thus could have been prevented with adequate and timely care, delays in treatment become a crucial factor. Thaddeus and Maine's (1994) '*Three Delays Model*' describes factors affecting delays in women's access to emergency care. It is the most commonly used framework for analyzing causes of maternal deaths. The delays often interplay, but any one can be fatal on its own (van den Broek & Falconer, 2011; Mgawadere, Unkels, Kazembe & van den Broek, 2017).

The three delays are:

i. Delay in decision to seek care,
ii. Delay in reaching the healthcare facility, and
iii. Delay in receiving care once the facility is reached (Thaddeus & Maine, 1994).

The first delay involves factors influencing women's decision to seek maternal care, such as women's status, illness characteristics, considerations regarding distance and economic factors, and previous experiences of health care. Also perceptions of childbirth as "natural", and not demanding medical attention play in (Thaddeus & Maine, 1994). Social and cultural factors such as taboos concerning reproduction and sexuality, lack of information, women's limited decision-making power, low value of women's health, attitudes of family and health personnel are some further examples (WHO, 2004; 2016). Restrictive sociocultural gender norms

negatively affect women's use of maternal health services (Adjiwanou & LeGrand, 2014; WHO, 2016; Okonofua, Ntoimo & Ogu, 2018).

The second delay regards the physical transport to a healthcare facility, such as facility coverage, distance, transportation costs and road condition. Here, e.g. distance is not a consideration delaying the decision to seek care, but an actual obstacle hindering women from reaching the facility (Thaddeus & Maine, 1994). Also restrictive legislation and policies hinder women's access to health services (WHO, 2004).

The large part of scholarly attention has been directed towards the first and second delay as being the main problems. Still, the third delay is indicated to account for substantial inequity in developing countries, since many health facilities are "*chronically under-resourced*" and unable to address complications (Knight, Self & Kennedy, 2013:7; Mgawadere et al., 2017)

The third delay regards receiving care upon arrival to a facility. Long waiting time; inadequate referral systems and accountability mechanisms; lack of supplies, equipment or trained personnel; inadequate facilities; low staff motivation; lacking services in emergency obstetric care and complications of unsafe abortions are commonly associated with maternal deaths in LMICs (Thaddeus & Maine, 1994; Knight et al., 2013; Sen, 2014; Mathai, Dilip, Jawad & Yoshida, 2015; WHO, 2016; Mgawadere et al., 2017; Okonofua et al., 2018).

To sum up, inadequate access to skilled personnel and quality care are main obstacles. These factors affect whether women receive timely and adequate care, and also reflect back to the first delay. That is, if women associate maternal care facilities with poor quality and unmotivated or even abusive personnel – it is likely to negatively influence their decision to seek care in the first place.

4.5.3 Non-medical determinants of maternal health

Evidently, maternal mortality and morbidity is not only an outcome of medical causes, but also of a variety of gender based practices and discrimination violating women's human rights, such as early and forced marriage, intimate partner violence and constrained decision-making power regarding sexual and reproductive issues (Sen & Mukherjee, 2014).

It is also a result of insufficient political prioritization of investments in maternal health (Grépin & Klugman, 2013). For example, the common lack of equipment and medicine is often due to wider economic problems or arrangements, which must be solved at a higher level than through

health programs (Thaddeus & Maine, 1994). As previously mentioned, research on non-medical determinants of maternal mortality is inadequate.

4.6 What seems to be efficient in reducing maternal mortality?

In order to reduce maternal mortality, it is crucial to identify and address barriers limiting women from accessing care. Evidence from countries that have managed to reduce MMR can provide strategies to accelerate progress (Mbizvo & Say, 2012; WHO, 2016). This section accounts for some frequently emphasized efficient efforts in MMR reduction. First, it presents medical efforts, being the most commonly studied, and subsequently the less researched non-medical efforts, which will be at the center of this thesis.

4.6.1 Medical interventions

As mentioned, research on MMR reduction is largely focused on strictly medical interventions, meaning that emphasized efforts are limited to addressing the medical expertise and technology in health facilities. Among the by far most frequently studied measures to reduce maternal morbidity and mortality revolve *medical expertise*, *adequate health facilities* and *contraceptives* (WHO, 2016; Mgawadere et al., 2017).

Medical expertise

10-15% of all women experience unexpected complications that could be fatal without emergency obstetric care. Since these events are unforeseeable, it is crucial that all women have access to skilled birth attendants[7] who are able to recognize and respond to such complications (van den Broek & Falconer, 2011).

Skilled birth attendance increased from 57% to 70% globally 1990-2015 (Miller et al., 2016). Yet, despite increased skilled birth attendance facility deliveries, the MMR decline has not kept the same pace, indicating that additional interventions are needed for continued progress (Mathai et al., 2015; Miller et al., 2016; Mgaw2adere et al., 2017).

[7] "*Skilled birth attendant*" or "*skilled health personnel*" refer to a medical professional who is trained and competent in managing childbirth and can identify complications and provide or refer to emergency care (WHO, 2004).

Accessible and adequate medical facilities

As seen in the previous chapter, low quality care is a serious factor behind maternal deaths. Often suggested policy priorities concern the quality of and access to maternal care. For example, Koblinsky et al. (2016) propose prioritization of quality and context-specific maternal health services; universal coverage of quality maternal care; strengthened health systems, staff and facility capability; sustainable maternal health financing; and acceleration of progress through evidence, advocacy and accountability. Increased maternal health service and midwife availability in rural areas are likely to contribute to significant MMR reduction (Fujita, Abe, Rotem, Rathavy, Keat, Robins & Zwi, 2013).

Universal access to quality care remains difficult. In many LMICs, richer urban women use maternal services to a much larger extent than poorer rural women. Improved quality of maternal care in local healthcare facilities is recommended to improve geographical access (Campbell et al., 2016).

Family planning consultation and contraceptive technology

A large share of maternal deaths is related to increased risks of "*too early, too late, too many or too frequent*" pregnancies, which can be averted through family planning and contraceptives (Ahmed, Li, Lui & Tsui, 2012:111). Alike most research on maternal mortality, also family planning and contraception has been studied in a medicalized manner, focusing on training of health personnel and contraceptive technology.

Family planning and contraceptives enable women to control the number and timing of pregnancies and births, and reduce or delay the chance of pregnancy and thus also risks of complications of pregnancy and abortion. This can benefit women, families and societies and also improve child survival by lengthening birth intervals (Ahmed et al., 2012; Darroch & Singh, 2013). Furthermore, family planning offers an opportunity for women's empowerment through making informed choices and participating in education, labor and public life (WHO, 2018).

Many developing countries with high MMR have a low level of contraceptive use. In 2013, the unmet need for contraceptives in Sub-Saharan Africa was estimated to 60% of all women of reproductive age – the highest proportion of all regions. Despite an increased global use of modern contraceptives, the global unmet need had only decreased from 29% to 26% since 2003. Satisfying the unmet need for contraception in developing countries could entail a 29% reduction in MMR (Ahmed et al., 2012). Therefore, policies should ensure increased allocation of

resources to improve contraceptives access; improve quality and range of services; and expand public information (Darroch & Singh, 2013).

4.6.2 Non-medical efforts

Obviously, medical efforts are crucial in order to achieve a maternal health provision that can safeguard women. But despite medical and technological interventions being largely known and wide-spread, maternal mortality remains a major problem (van den Broek & Falconer, 2011). This suggests that additional policies are needed alongside medical interventions in order to accelerate progress.

Indeed, scholars have signaled the risk of overlooking the impact of social and political determinants of health, and called for a multi-sector approach incorporating non-medical determinants (Gil-González, Carrasco-Portiño & Ruiz, 2006; Gill et al., 2007; Karlsen et al., 2011; Mbizvo & Say, 2012; Wang, 2013; Atti & Gulis, 2017). This section will now account for non-medical state efforts that have been suggested in the literature to have the potential to reduce MMR.

For the sake of analytical clarity, this thesis distinguishes between *direct* and *indirect* among the non-medical state efforts. *Direct state efforts* refer to efforts directly targeting maternal mortality, such as government investment and leadership in combating maternal mortality, while *indirect state efforts* are those indirectly reducing MMR through e.g. gender equality promotion and civil society integration. This section thus proceeds by accounting for identified direct non-medical state efforts, followed by indirect non-medical state efforts.

Direct non-medical state efforts

State investment and leadership in maternal health

Political commitment provides incentive and continuity to ongoing efforts, and failure to provide maternal care has become a political responsibility along with a more critical civil society (Van Lerberghe et al., 2014). There is an evident correlation between lower levels of state investment in health care and higher MMR (Karlsen et al., 2011). Good governance, e.g. through evidence-based policy and accountability, has been identified as a key enabler for MMR reduction (Kuruvilla et al., 2014).

Research indicates the importance of strong and continuous political commitment and high-level leadership (De Brouwere et al., 1998; Fujita et al., 2013). Also the overall investment in maternal health service delivery plays a crucial role (Van Lerberghe et al., 2014).

Prohibitive legislation and government reluctance to implement a rights based approach to sexual and reproductive health (SRH); lack of political leadership and commitment in funding of SRH; and a dominant negative cultural framing of women's issues have been major obstacles to operationalizing SRHR in Sub-Saharan Africa (Oronje, Crichton, Theobald, Lithur and Ibisomi, 2011). Atti and Gulis (2017) conclude that in order to address maternal mortality in Sub-Saharan Africa, strong political will and effort is required.

Multi-sector approach on maternal mortality

Alongside political leadership and prioritization of maternal health, research suggests that a comprehensive multi-sector approach to maternal health contributes to MMR reduction (De Brouwere et al., 1998; Mbizvo & Say 2012; Fujita et al., 2013; Kuruvilla et al., 2014; Miller et al., 2016). Virtually all LMICs who made rapid progress towards MDG target 5A adopted a multi-sector approach. Countries that made progress towards MDG 5 also made progress towards most other MDGS such as decreasing poverty and hunger, and increasing education and gender equality (Kuruvilla et al., 2014; WHO, 2015b)

Miller et al. (2016) declare that the maternal health community has largely focused on LMICs through efforts addressing the direct causes of death, increased skilled birth attendance, promotion of facility births and universal access to maternal care. They argue that these efforts have been partly successful, but that MMRs nevertheless have not declined as rapidly as anticipated. This indicates that health sector efforts of course are important to combating MMR – but not sufficient, and suggests that efforts must be multi-sectorial.

Context tailored maternal health efforts

The academic and policy debate revolving MMR is often based on global frameworks. An alternative perspective is that global strategies imposed on countries risk ignoring crucial characteristics and differences within and between settings. Freedman (2016:2069) emphasizes that global policies aren't inherently wrong, but when "*drowning out voices and signals coming from the ground, they distort both understanding and action*".

Fast progress in reducing MMR is related to adopting strategies that are tailored to their specific situation (Kuruvilla et al., 2014). The WHO (2017b) recommends the provision of culturally appropriate skilled maternity care. Koblinsky et al. (2016) and Ariyo et al. (2017) similarly conclude that maternal health services and efforts aiming at MMR reduction should implement evidence-based and context-specific programs that address barriers to maternal health in regards to cultural beliefs and attitudes.

Indirect non-medical state efforts

Gender equality and women's empowerment

For women's health and survival to become a priority, recognition of women's value is required. Advancing gender equality and the empowerment of women includes strategies of ensuring equal access to resources, education and information, and efforts to eliminate gender-based violence and discrimination (Sen & Mukherjee, 2014; WHO, 2015b).

For instance, in a quantitative study of aspects affecting MMR in 137 developing countries, Wang (2013) found that gender equality efforts were statistically significant, alongside strengthened maternal care.

As mentioned, research is gravely tilted towards medical aspects of MMR, but there is an unbalance also within the non-medical research. Socioeconomic variables are the most studied among non-medical determinants of maternal mortality, while there is a lack of publications on cultural and political determinants (Gil-González et al., 2006; Atti & Gulis, 2017). Recent research has indicated that political participation was a strong predictor in achieving MDG target 5A, and thus needs further attention (Atti & Gulis, 2017). The by far most emphasized aspect of gender equality and women's empowerment in the literature on maternal mortality is education (see the below section), while women's political participation is largely absent. One exception to this nonexistence is Kuruvilla et al. (2014) who identified women's political and socioeconomic participation together with good governance as key enablers of MMR reduction.

Women's education

Women's education is an important indicator of women's autonomy, inclusion and social status (Magadi, Agwandab & Obarec, 2007; Tunçalp et al., 2014). It serves as a proxy for institutional mechanisms that may represent women's status and access to resources in a country (McTavish, Moore, Harper & Lynch, 2010).

There is a correlation between maternal mortality, women's education and socioeconomic status; the higher the education and socioeconomic status, the less risk of dying of maternal causes (Karlsen et al., 2011; EWEC, 2015). This correlation is true both on the individual level and on the community level, where women from communities where a large proportion of women had attained at least secondary schooling were less likely to die maternal deaths (Ariyo et al., 2017).

Even among women who access facility care, the impact of educational level on health and mortality persists, and those with lower levels of education face a greater risk for severe maternal outcomes, i.e. near miss[8] or death; women with a lower level of education seek care later and with worse health status than women. Also, some interventions were more likely to be provided to women with higher levels of education (Karlsen et al., 2011; Tunçalp et al., 2014).

Education has the potential of impacting MMR both directly and indirectly. Women's ability to access health information and make informed decisions is likely to increase with the level of education. Indirectly, increased educational levels among women are likely to increase women's social status and autonomy (Karlsen et al., 2011). Efforts should therefore identify and address the gender gap in educational attainment in LMICs (Ariyo et al., 2017; Choe, Cho & Kim, 2017).

Civil society integration

Women's organizations are key drivers of social change and the advancement of gender equality and women's human rights (Sen & Mukherjee, 2014). Public pressure has been an integral part of historical experiences of MMR reduction (see De Brouwere et al, 1998). The state partnering with civil society, could thus play the role of strengthening health systems and reducing MMR in Africa (Ray, Madzimbamuto & Fonn, 2012). If integrated, civil society can play an important role in state action targeting maternal health coverage and quality.

This chapter has illustrated the unbalance between medical and non-medical aspects of maternal mortality reduction, not least since it is evident that research on the non-medical aspects remains scarce. The following chapter consists of this study's theoretical framework, which directly derives from the above- reviewed literature.

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[8] A maternal *near miss* refers to a pregnant woman who comes close to maternal death, but survives.

5. Theoretical framework

As emphasized in the above review, medical interventions dominate the literature on efforts to combat maternal mortality in LMICs. This study aims to contribute to the limited research on non-medical state efforts reducing MMR, which are relatively neglected. Scholars have called for expanded evaluation as well as suggestions on key areas in which such evaluation should expand. Based on existing literature on non-medical state efforts reducing MMR, the theoretical framework of this thesis consists of the following non-medical state efforts:

Direct non-medical state efforts
• Direct state investment and leadership targeting maternal mortality • Multi-sectorial approach on maternal mortality • Tailoring efforts to the specific context
Indirect non-medical state efforts
• Promotion of gender equality and women's empowerment • Civil society integration

Table 1. Theoretical framework,

The theoretical framework constitutes the basis of the subsequent analytical framework, which will guide the empirical analysis of Rwanda and the comparison to Burundi; test previous suggestions and potentially identify additional efforts that seem to have contributed to maternal mortality reduction. The framework is instrumental in ensuring a systematic analysis. Importantly, the analysis will remain open for potentially successful measures outside of the framework – in particular non-medical efforts.

6. Research design

The empirical analysis will be conducted as a qualitative case study of Rwanda, with the comparative element of the shadow-case Burundi. The analysis revolves around maternal mortality reduction, aiming to extract specific non-medical state efforts that seem to be important in reducing MMR and thus inform policy-making towards the SDGs in LMICs.

A case study can be understood as "*an attempt to understand and interpret a spatially and temporally bounded set of events*" (Levy, 2008:2). This method is appropriate when seeking to explain a phenomenon in depth, as opposed to e.g. quantitative statistical methods (Yin, 2014:16). While the advantage of large-N quantitative studies is breadth, their problem is depth – and the opposite goes for small-N case studies (Flyvbjerg, 2006:26). Taking a *nomothetic approach*, the case study can be seen as an instance of a larger phenomenon. A case study is thus conducted by studying one or a number of cases with the aim of understanding the bigger picture. With a structured use of theory, case studies can provide well-founded understandings of key aspects of the cases (Gerring, 2004; George & Bennett, 2005; Levy, 2008). As Levy (2008:5) explains: "*case studies can help refine and sharpen existing hypotheses in any research strategy involving an ongoing dialogue between theory and evidence. A theory guides an empirical analysis of a case, which is then used to suggest refinements in the theory, which can then be tested on other cases*".

This study offers a comprehensive evaluation of the non-medical state efforts that were key to MMR reduction in Rwanda. The study also employs a shadow-case comparison of Burundi. The comparative element serves an important analytical role, and as Lijphart (1975:159 in Levy, 2008), says: "*the primary function of the comparative method is to test empirical hypotheses*" but also that "*a comparative perspective […] can be a helpful element in discovery*". The added value of the shadow-case is that it contributes with further insights of different efforts, based on the experiences of this less successful shadow-case. The comparative element thus has an instrumental value, strengthening the conclusions of the empirical findings.

Some scholars who oppose qualitative methods in general and case studies in particular claim that qualitative research is more at risk to be affected by subjective biases, and that qualitative methods are less scientific than quantitative. It is important to take this critique seriously and counter these risks (see '6.2 Data and operationalization', p. 25). However, other scholars have

found that case studies have their own rigor, and also the advantage of studying a specific phenomenon in practice (Flyvbjerg, 2006:19).

6.1 Case selection

The logic of case selection is based on Przeworski and Tuene's (1970) *most similar systems design* (MSD), which involves choosing cases that are "*similar on a wide range of explanatory variables but different on the value of the dependent variable*" (in Levy, 2008:10). In this study, the cases were chosen based on different outcomes in similar environments, in order to compare the respective processes and identify what seem to be efficient in reducing MMR. Also, atypical or extreme cases are often richer in information than average cases. When aiming for a deeper understanding of a phenomenon, it may therefore be more fruitful to select cases based on their validity or relevance than on their representativeness (Flyvbjerg, 2006:13).

The focus area of this study is non-medical state efforts contributing to maternal mortality reduction, and the starting point of the case selection was countries' performance in relation to MDG target 5A on maternal mortality (see Appendix 1). The case selection process then took into account the particular relevance of Sub-Saharan Africa having the world's highest MMR, and previous scholars' call for studies on successes in LMICs in general and in this region in particular. This systematic process based on MSD led to selecting the cases of Rwanda and Burundi.

Rwanda can be perceived as a so-called "*critical case*", meaning that it has a strategic importance to the studied phenomenon (see Flyvbjerg, 2006:14). This strategic importance derives from Rwanda having reduced its MMR by 79%, from 1,400 to 290, between 1990 and 2015, being one of only nine countries achieving the 75% reduction target, and also being a successful country in an otherwise challenged region. Rwanda had an ARR of 8.4%, and was the country with the highest ARR in 2012: 9% (WHO; 2015c; Assaf, Staveteig & Birungi, 2018).

The less-performing shadow-case Burundi only achieved a 45% reduction in MMR, from 1,300 to 712, and remains on an exceptionally high MMR. Although there were Sub-Saharan African countries who performed worse, Burundi is the most suitable shadow-case based on MSD. Burundi and Rwanda are commonly comparatively studied (see e.g. Lemarchand, 1994; Uvin, 1999; Bonfrer, Van de Poel & Van Doorslaer, 2014; Vandeginste, 2014), being formerly one country and still similar in several key aspects (see Table 2). They share colonial history, ethnic composition and a similar history of violent conflict.

Further, they share features such as being landlocked, resource-poor and having an underdeveloped manufacturing sector, and also economic features. For example, both countries are heavily dependent on subsistence agriculture (Indexmundi, 2018). Both countries are also dependent on international aid. The general trends in levels of foreign aid is relatively similar in the two countries, with the exception of aid spikes associated to their respective conflicts – especially Rwanda in 1994. Pre-1994 and post-2002, Burundi however has had higher levels of received aid as share of GNI (see World Bank, 2018c).

The case selection is based on the 1990 figures since they were the MDG baseline. Essential is also that the two cases' MMRs were similar in 1990 and 2000, but thereafter experienced very different developments (see Table 3 on p. 23).

	Burundi			Rwanda		
	1990	2000	2015	1990	2000	2015
Country size	27,830 km²			26,338 km²		
Population	5,415,415	6,400,706	11,466,756 (July 2017 est.)	7,235,789	8,025,703	11,901,484 (July 2017 est.)
Religious composition	Roman Catholic 62%, Protestant 5%, Muslim 1%, indigenous beliefs, other and unspecified 32%	Roman Catholic 62%, Muslim 10%, Protestant 5%, indigenous beliefs 23% (2004 est.)	Roman Catholic 62.1%, Protestant 23.9%, Muslim 2.5%, other 3.6%, unspecified 7.9% (2008 est.)	Roman Catholic 65%, Protestant 9%, Muslim 1%, indigenous beliefs and other 25%	Roman Catholic 56.5%, Protestant 37.1%, Muslim 4.6%, indigenous beliefs 0.1%, none 1.7% (2001 est.)	Protestant 50.2%, Roman Catholic 44.3%, Muslim 2%, other 0.9%, none 2.5%, unspecified <.1 (2002 est.)
International aid (Net ODA received, % of GNI)	23.5	10.5	12.0	11.3	18.7	13.5
Democracy Score (Polity IV)	-7	-1	6	-7	-4	-3
Human Development Index (HDI)	0.25	0.245	0.404	0.232	0.313	0.498
Gender Development Index (GDI)	0.274 (1995)	0.832	0.919	n/a	0.987	0.992
Women's mean years of education as % of men (ages 25-34)	64.3	70.2	77.9	71.9	80.5	88.4
Maternal mortality ratio (deaths per 100,000 live births)	1,220	1,000	712	1,300	1,000	290

Table 2. Case comparison. Sources: CIA (2018b; c); Gapminder (2018a; b), UNDP (2018); World Bank (2018a).

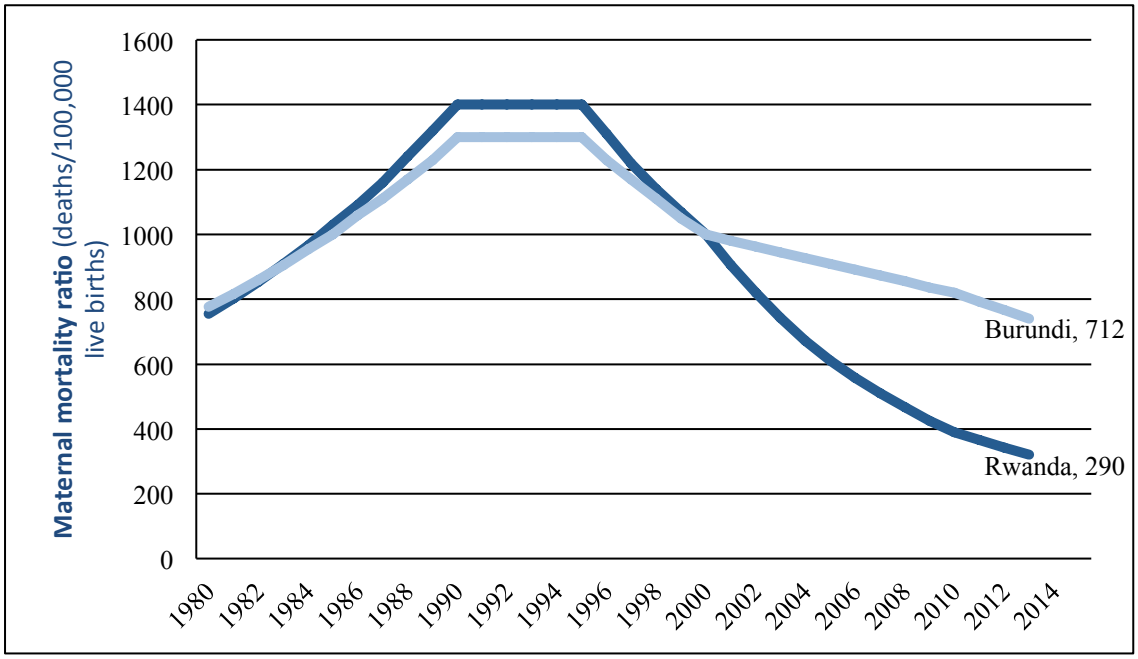

Table 3. MMR over time. Burundi, Rwanda. Source: Gapminder (2018b), CIA (2018b; c).

However, one potential issue in terms of comparability is the variation in conflicts between the two cases, and Rwanda's very particular experience of genocide. While the Rwandan civil war and genocide was much more concentrated in time (1990-1994) and resulted in enormous loss of lives (ca. 520,000[9]), the Burundian has been stretched over time (1993-2005) but resulted in less humanitarian losses (ca. 16,000). Burundi relapsed into violence in 2015 while Rwanda has remained stable (UCDP, 2018a; b).

While both Rwanda and Burundi have a history of violence and conflict along ethnical divides, Rwanda has seen a faster recovery and is a rare case in terms of gender equality indicators. This could be considered a limitation of the study, but might also prove to be a strongpoint. The relation between the Rwandan genocide and subsequent successes in gender equality and women's empowerment is worth noting as it makes out an entire research field of its own, for which it is outside the scope of this thesis to account for. In a quantitative study, Patesh (2013:1) found that "*many women assume larger public presence in their communities*" during conflict and post-conflict. Research has shown that experiences of such mass atrocities not only dissolve

[9] According to Uppsala Conflict Database Program. Other sources estimate the loss of lives during the Rwandan genocide to a million (see e.g. Påfs, 2016).

a country's systems of rule of law and state institutions, but also social – and gender – norms. It has been suggested that such breaches may create a temporary space where women gain access to public spheres. Rwanda stands out in this matter since it was not temporary, as Rwanda did not relapse into pre-genocide patriarchal structures. Rwanda is thus claimed by to provide an example of how conflict can catalyze positive change (Brown, 2016). Research on women in conflict and post-conflict, including women fighters, the gendered dimension of disarmament, demobilization and reintegration (DDR) and gender roles in post-conflict societies is important and broad-ranging, which is however not within the aim of this thesis to account for. While Rwandan women exercised agency in a variety of different ways during the genocide, it is important to remember the complete devastation that atrocities such as the genocide imply - not least in terms of maternal mortality.

The specifics of Rwanda in terms of gender equality was of course not only an effect of the genocide, but also of international actors introducing – or imposing – "Western" norms. The involvement of international donors is obviously not unique to Rwanda, but Brown (2016:238) suggests that the timing of international intervention parallel to "*larger events occurring in the international sphere with respects to gender norms and women's rights*" was significant, giving a gender-specific international donor agenda. The international context comprised of the UN Decade on Women 1975-1985 heavily influencing the 1990's where two landmark achievements took place, namely the 1995 Fourth World Conference on Women and the 2000 adoption of the UN Security Council Resolution 1325 on Women, Peace and Security where women's participation in decision-making is recognized as crucial for lasting peace and stability. In this context, approximately 130 NGOs alongside a number of government aid agencies worked with Rwanda's rebuilding where a large share of funding was allocated to the most vulnerable – among them women and girls. However, alongside international involvement, the Rwandan government put the responsibility on the Rwandan people, which implied wide-spread grass root mobilization, not least among women (Brown, 2016).

The specific timing of the beginning of Rwanda's reconstruction thus differs from that of Burundi, and is likely to have influenced Rwanda's progress in gender equality and women's empowerment, currently having the highest share of women in parliament in the world. The impact of women's political participation on MMR however seems to be under-emphasized, as seen in the literature review, and thus offers theory-building potential. Nevertheless, it is important to remember that women's political participation in Rwanda makes it a unique case in the world.

Despite this distinctive position of Rwanda, I have assessed Burundi to be the most appropriate shadow-case based on the research design and the above discussion. As previously stated, the aim of this study is to analyze state efforts rather than contextual factors, although contextual factors of course strongly interplay and thus are important to keep in mind.

As seen in Appendix 1, two Sub-Saharan African countries achieved the MDG 5A target: Rwanda and Cape Verde. The reason for not choosing Cape Verde is that it has some very specific features in being an island nation outside of the continent, highly dependent on tourism, and a very small country both areal and population wise. These features were assessed to imply difficulties in finding a suitable comparative case and also in the generalizability of results.

Since Rwanda has experienced a more successful development in MMR, it will be at the center of this study, using Burundi as a shadow comparison in order to identify non-medical state efforts that were present in Rwanda's success, but weak or absent in Burundi.

6.2 Data and operationalization

This case study of Rwanda's MMR reduction will be based on available and relevant documents such as policy documents, MDG progress reports (2003, 2007, 2010 and 2014), Demographic and Health Surveys[10] (DHS) (1992, 2000, 2005, 2010 and 2014) and secondary research. For the shadow-case Burundi, MDG progress reports (2004, 2010 and 2012) and DHS (1987 and 2010) and secondary research will be used. See Appendices 3 and 4 for the full lists of case study material. The collected material will be subjected to directed qualitative content based on the theoretical framework, although remaining open for other potentially important factors, especially among non-healthcare sector determinants. Secondary sources consisting of previously published research will complement the analysis and increase the triangulation of findings.

Policy documents reflect state intentions and constitute an implementation framework. As always, it is important to keep in mind that they may also be biased as governments may have a

[10] DHS is commonly recognized as the most important source of high quality data on social and health factors in developing countries (Adjiwanou & LeGrand, 2014).

vested interest in appearing to adhere to the will the international community. While there are 17 ministries in Rwanda, I assessed documents from 3 of them to be relevant to this study[11]. In total, this policy analysis incorporates 11 relevant documents. Additionally, the 2003 constitution and the development strategy Vision 2020 (2000-2020) is included, forming the overarching policy framework. The MDG progress reports and the DHS alongside previous published research are instrumental in countering the potential biases of policy documents. Findings will be triangulated and thus be supported by several different sources.

Since this study focuses on the factors behind the achievement of the MDG on maternal mortality reduction, it wishes to investigate material within the time period 1990-2015. A particular point of interest is the year 2000, from where the trends in Rwanda and Burundi clearly developed in different directions.

Qualitative directed content analysis has the strengths of being a more structured form of content analysis than the conventional approach and being able to support and strengthen existing theory. Previous research helps to identify key factors, which are theoretically anticipated to be found in the successful case and thus guide the operationalization, analysis and subsequently the discussion of the findings (Hsieh & Shannon, 2005). Here, this process takes the form of the below analytical framework (Table 4).

[11] Ministry of Education, Ministry of Gender and Family Promotion, Ministry of Local Governance.

Non-medical state efforts reducing MMR	
State-driven efforts *directly* targeting MMR	
Category	Examples of state actions
State investment and leadership in maternal health	• Political recognition of the burden of maternal mortality • Prioritization of accessible and quality maternal health care • Prioritization of maternal health care in public investment/allocation of resources • Abolition of restrictive legislation regarding reproductive health (e.g. abortion and contraceptives)
Multi-sector integration of maternal health concerns	• Inclusion of maternal health in other policy areas than the health sector
Context tailoring of maternal health efforts	• Maternal health related efforts tailored to context-specific features
State-driven efforts *indirectly* reducing MMR	
Category	Examples of state actions
Gender equality and women's empowerment	• Advance women's education • Increase women's school enrolment ratio and mean years of schooling.
Civil society integration	• Ensure space for civil society • Partner with civil society actors

Table 4. Analytical framework.

6.3 Reliability, validity and generalizability

Challenges to case studies are the risks of drifting away from the original aim or being affected by selection bias. In order to reduce these risks I employ strategies recommended by case study scholars in order to ensure reliability and validity.

Firstly, I consistently return to the thesis' original purpose and remain open for alternative explanations (Yin, 2014:76, 150). Secondly, I use multiple data sources and conduct data triangulation. This strengthens the findings and increases the consistency and certainty of results (Yin, 2014:241). Thirdly, I create a case study database listing all data used, which enables review of the material behind the conclusions and thus increases reliability. Lists of all case

study material are found in Appendix 3 and 4. Fourthly, the above framework guides the analysis of the material to ensure reliability and systematic analysis (see e.g. Yin, 2014:17, 135).

Case studies are generalizable to theoretical propositions rather than to populations, i.e. the aim is to make analytical generalizations and not statistical (Yin, 2014:21). Likewise, this study aims to extrapolate successful non-medical state efforts to reduce maternal mortality in order to generate wider policy implications. Flyvbjerg (2006) holds that formal generalization is overrated as the main source of science. That data cannot be formally generalized does not necessarily entail that it cannot be part of the accumulated knowledge. Although being mindful regarding the generalizability, I claim that this study will be able to make a relevant contribution to the cumulative knowledge on non-medical efforts reducing maternal mortality in LMICs, and in Sub-Saharan Africa in particular.

7. Empirical analysis: Case study of Rwanda

Rwanda is a land-locked low-income country plagued by the history of the genocide that killed more than a million people in 1994. Today, Rwanda is characterized by a young population and high fertility rate, low levels of crime and corruption, and a regime that has both been praised for its achievements and criticized for its authoritarianism (Påfs, 2016).

President Paul Kagame is known for ruling a repressive regime, but at the same time admired for being one of the most effective leaders in Africa (Rosenberg, 2012, July 3). In a few decades, Kagame has turned the country around from ruins to growth. For example, Rwanda has a zero-tolerance to corruption and is one of the least corrupt countries in Africa (Transparency International, 2018). In regards to gender equality, the Rwandan government has proactively addressed gender norms, and Kagame has been credited for regularly speaking out about women's rights which is claimed to have had an impact on gender norms (Påfs, 2016).

This chapter proceeds with narrowing in on the focus of this thesis, namely maternal mortality, providing an overview of Rwanda's development towards MDG target 5A, illustrated by commonly used maternal health indicators (7.1). It then proceeds by accounting for the non-medical state-driven efforts that have been implemented, starting with non-medical efforts directly addressing maternal mortality, followed by indirect efforts contributing to MMR reduction, in accordance with the analytical framework (7.2).

Finally, the empirical findings are presented in Table 10.

7.1 Rwanda, maternal mortality and MDG 5A

During the 1990's, Rwanda was recovering from the devastating civil war and genocide, and the main challenge was to stabilize, rebuild, reconcile and unite the country, causing Rwanda to fall behind the 1990 MDG indicator level, and thus "*beginning from behind the starting line*". During the genocide, Rwanda's MMR was striking 2,300, significantly dropping to 1,700 in 2003 – but still far higher than pre-genocide (UNDP & Government of Rwanda [GoR], 2003:7).

The prospects of Rwandan progress in MDG target 5A have varied in the MDGRs. In 2003, the first MDG Progress Report (MDGR) stated that the experience would make it very difficult to achieve the MDGs, but that *"the determination of Rwandans and the sound policies that have been adopted are laying the foundation for sustainable and reliable justice, democracy, and economic growth as preconditions for attaining many of the MDGs"* (UNDP & GoR, 2003:7). Therefore, Rwanda was predicted to *potentially*[12] achieve target 5A. In 2007 the prospects had increased to *very likely*[13] and Rwanda is argued to have "*aligned to the rest of the world to achieve the MDGs*" (NISR, 2007:xi).

Although sharing the previous MDGRs' confidence, the 2010 MDGR shows a different picture categorizing target 5A as *off track*[14]. Referring to the 2007 MDGR, it concludes that the necessary level of funding was not realistically achievable (Abbott, Rwirahira & UNDP, 2010). However, four years later, the final MDGR presents Rwanda as one of few countries that seemed to be achieving almost all the MDG targets by 2015 (GoR & UNDP, 2014).

The Rwandan government has directed a lot of attention towards health indicators during the last decades. Rwandan health policy targets the poorest to improve quality and accessibility (GoR, 2000). Between 2000 and 2010, the government implemented comprehensive health sector reforms to strengthen the progress towards MDG target 5A, and compared to other LMICs, Rwanda has improved its health services in general and its maternal health services in particular. Among the most innovative efforts are *Mutuelles de Santé*, performance-based financing, and

[12] As the medium rating on a three-grade scale consisting of "*Probably*", "*Potentially*", "*Unlikely*".
[13] As the highest rating on a four-grade scale consisting of "*Very likely* ", "*Likely*", "*Inconclusive*" and "*Unlikely*".
[14] As the lowest rating on a three-grade scale consisting of "*Off track*", " *Strong to moderate potential to achieve with support to accelerate progress*" and "*On track*".

Maternal Death Audit. Substantial progress took place between 2000 and 2005, and escalated in 2006 when several of these initiatives where extended nation-wide (Logie, Rowson & Ndagije, 2008; Bucagu, Kagubare, Basinga, Ngabo, Timmons & Lee, 2012; Assaf et al., 2018).

7.1.1 Development in medical expertise

The proportion of births attended by skilled personnel as well as the proportion of facility births in relation to home births has experienced steady increases in the last decades (see Table 5).

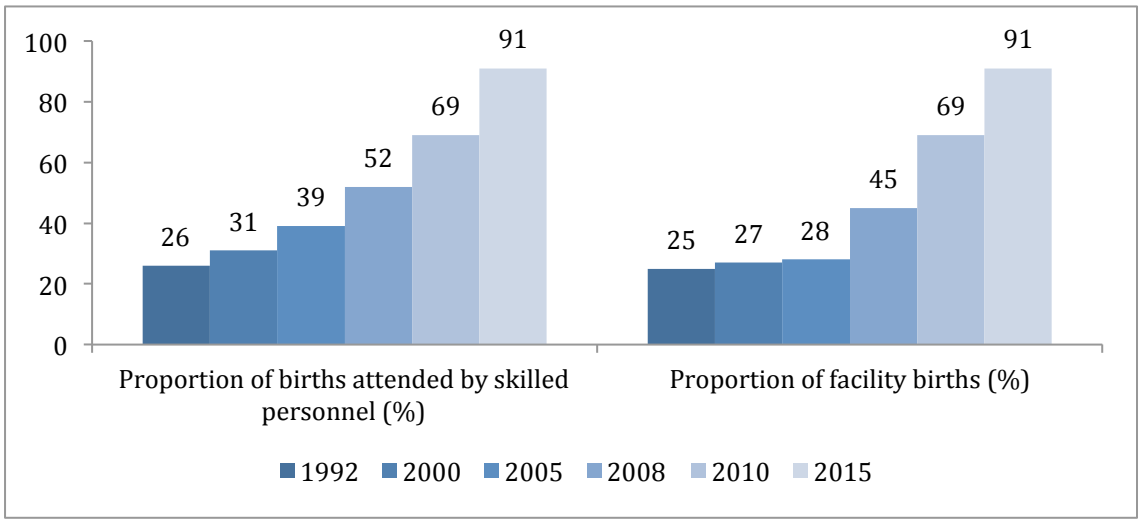

Table 5. Skilled birth attendance, Rwanda. Sources: Barrère et al., 1994; ONAPO & ORC Macro, 2001; NISR & OSR Macro, 2006; MoH, NISR & ICF International, 2009; NISR, MoH & ICF International, 2012; 2015.

Between 1992 and 2005, Rwanda made significant improvements in skilled birth attendance, sometimes perceived as an effect of recovery after the genocide. The increase continued, reaching 91% in 2015. The proportion of facility births had a slower start, but increased between 2005 and 2008, and later also reached 91% in 2015 (NISR 2007; Ministry of Health [MoH], NISR & ICF International, 2009; GoR & UNDP, 2014).

Factors such as rural-urban residence, education, household income and number of previous births account for subnational variation where women who live in rural areas, have no or low education and household income are more prone to home delivery and less to skilled birth attendance (NISR, 2007). The rural-urban divide has however shrunken. In 2005/2006, 63% of deliveries in urban areas were attended by skilled personnel and only 35% in rural areas. In 2010/2011, the figures were 82% versus 67%. In some rural provinces, the proportion of skilled birth attendance had doubled (GoR & UNDP, 2014). This suggests that targeting poor and rural populations in policy-making has been an important feature of Rwanda's success.

The 2010 MDGR stated that achievement of MDG target 5A would demand an increase of the share of facility births from the 2008 level of 52% closer to the WHO target of 90% and that pregnant women must be encouraged to make the recommended number of four antenatal visits. As seen in Table 5, Rwanda did surpass 90% facility births in 2015, indicating that facility delivery is a crucial factor for maternal survival.

The GoR has implemented training of health personnel such as nurses, doctors and midwives. For example, while waiting for educated midwives, general nurses received in-service midwifery training, and general doctors have been trained in emergency obstetric care. Adequate training and deployment and increased salaries for health personnel seem to have contributed to increased quantity and quality of care. Further, health personnel have been provided with incentives to reach maternal and child health targets (Bucagu et al., 2012; Assaf et al., 2018).

7.1.2 Accessible and adequate medical facilities

Antenatal care has traditionally been accessible. In 2000, 92% of pregnant women used antenatal care services, and in 2015 this had increased to 99% (ONAPO & ORC Macro, 2001; NISR, MoH & ICF International, 2015). However, the median number of antenatal visits in 2000 was 3, not reaching the WHO recommendation of 4 (Barrère et al., 1994). In 2015, although experiencing a substantial increase, only 44% had four antenatal visits (see Table 6).

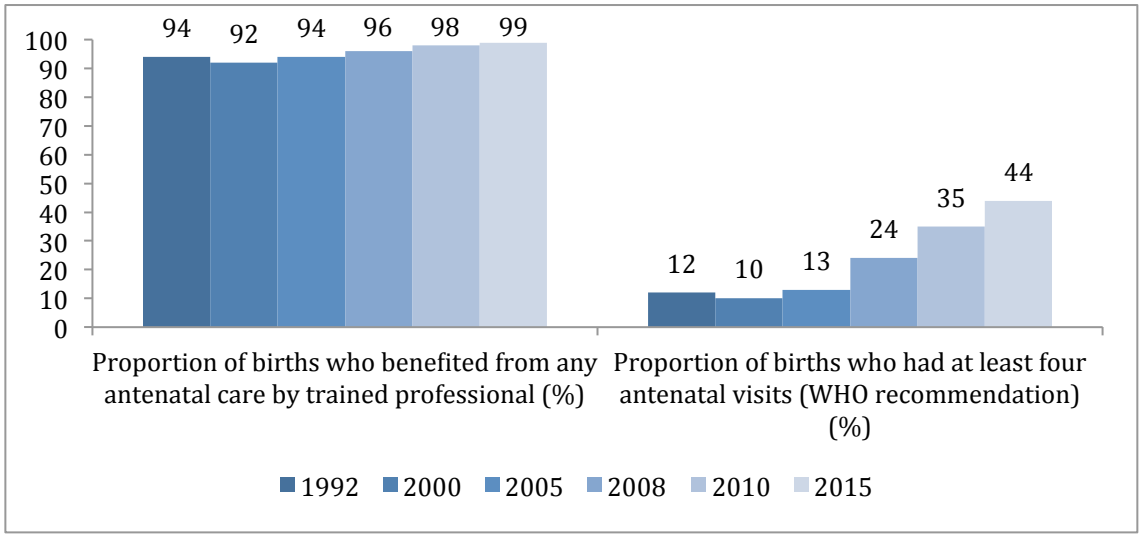

Table 6. Access to antenatal care, Rwanda. Sources: Barrère et al., 1994; ONAPO & ORC Macro, 2001; MoH et al., 2009; NISR et al., 2012; 2015.

In regards to facilities, Rwanda has addressed several basic obstacles such as extended and respected opening hours of health centers; adequate hygiene; and health personnel are generally respectful towards patients. Also, district hospital teams monitor the facility quality of health

centers in their district unannounced every three months through observation, review of records and discussion with the staff. The inspection involves indicators such as prenatal care, family planning and delivery (Basinga et al., 2011; ODI, 2012; GoR & UNDP, 2014; Sayinzoga & Bijlmakers, 2016).

Moreover, the 2010 MDGR emphasized distribution of New Birth Kits to all health facilities; establishment of a referral system for pregnant women at risk for complications; and training of health personnel in inserting long-term contraceptives (Abbott et al., 2010). Also so called "waiting wards" for pregnant women in rural areas have reduced accidental home births and facilitated discovery of complications (GoR & UNDP, 2014).

Both in the 2010 and 2014 DHS, 60% of women reported problems in accessing maternal care, financial barriers being the major problem mentioned by half of the respondents. Distance to a health facility was mentioned as a problem by one in five, and "not wanting to go alone" by 17%. Only 3% put getting permission to go as an obstacle (NISR et al, 2012; 2015).

7.1.3 Family planning consultation and contraceptive technology

There is a downward trend in Rwanda's fertility rate (see Table 7). Already in the 1992 DHS, several trends related to maternal health were deemed encouraging and fertility rates were dropping, especially among educated and urban women. Increased average age of marriage and first birth and increased contraceptive prevalence were identified as important factors. In 1983, the average Rwandan woman gave birth to 8.5 children during her reproductive years. This was followed by a 27% decrease to 6.2 children in 1992 where it remained relatively stable until decreasing in 2010 (Barrère et al., 1994; NISR et al., 2012). In three decades, the number of children per woman has halved. The government sets the goal of reducing the fertility rate to 3 in 2020 (GoR, 2000; Påfs, 2016).

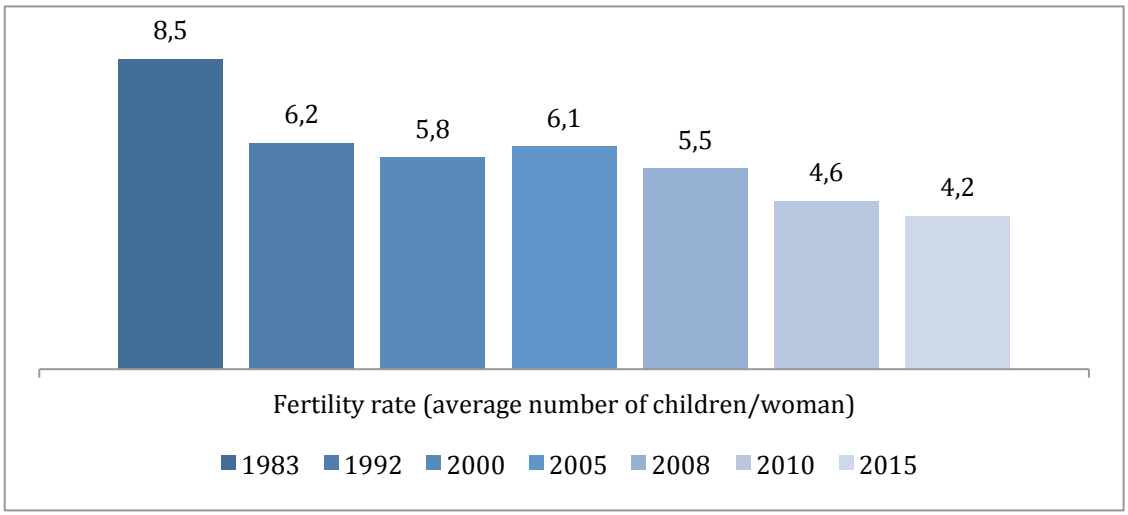

Table 7. Fertility rate over time, Rwanda. Sources: Barrère et al., 1994; ONAPO & ORC Macro, 2001; MoH et al., 2009; NISR et al., 2012; 2015.

The preferred number of children according to Rwandan men and women is consistently lower than the total fertility rate. 1992-2005, the most responded ideal number of children was 4, while the fertility rate hovered around 6 (Barrère et al., 1994; INSR & ORC Macro, 2006). As the fertility rate dropped to 4.2, the ideal number of children was 3 (NISR et al., 2015). The difference between actual and desired fertility highlights a desire for lower fertility and thus a continued need for family planning.

It is noteworthy that, unlike most other Sub-Saharan African countries, the proportion of men who do not want more children as well as their preferred number of children is similar to that of women. This is of relevance since a household's decision-making power in regards to family most often belongs to the husband (INSR & ORC Macro, 2006).

Between 1983 and 1992, the general knowledge surrounding modern contraceptives increased substantially: from 67% to 98% of all women knew of at least one modern contraceptive method (Barrère et al., 1994). A recurring trend in Rwanda has been a very high knowledge about contraception among both men and women (94-98%), but low usage (see Table 8). The 2000 DHS suggested that Rwanda's high MMR was at least partly a consequence of non-attendance of skilled personnel and non-use of contraceptives. However, a steep increase in contraceptive use occurred between 2005 and 2010, reaching about half of married women. The proportion of contraceptive use among sexually active unmarried women is similar to that of married women (NISR et al., 2012). Seeing to all women, modern contraceptive use increased from 5.6% to 25.2% between 2005 and 2010. As seen in Table 8, the proportion is larger among married women. During the same time period, the unmet need for contraceptives decreased from 38% to 18.9% (GoR & UNDP, 2014).

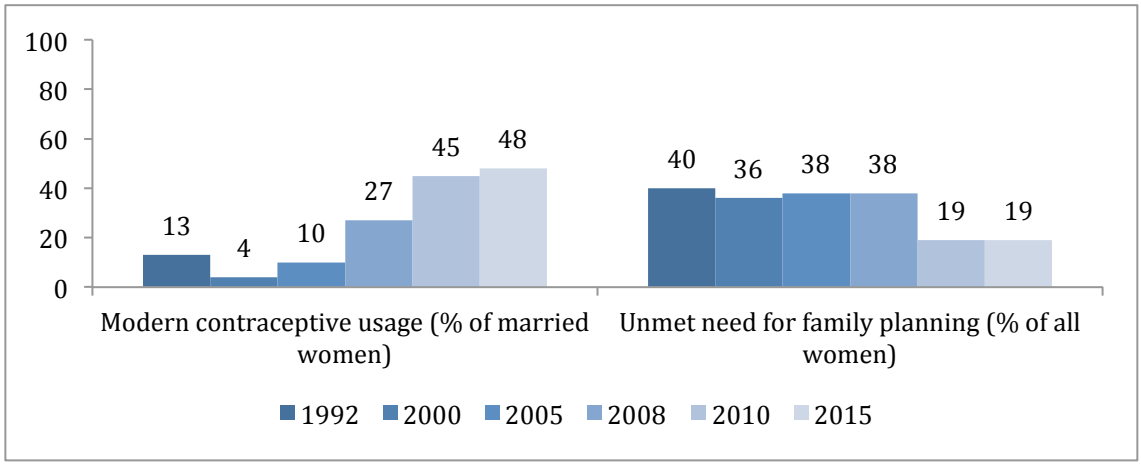

Table 8. Contraceptive use and unmet need for family planning over time, Rwanda. Sources: Barrère et al., 1994; ONAPO & ORC Macro, 2001; MoH et al., 2009; NISR et al., 2012; 2015.

The rural-urban divide in modern contraceptive use is very small: 45% versus 47% of married women (GoR & UNDP, 2014). The divide thus follows the same diminishing trend in contraceptive use as in skilled birth attendance.

In recent years, as seen in Table 8, the previous progress in contraceptive usage and unmet need of family planning seem to have stagnated (see also Assaf et al., 2018).

7.2 Non-medical state efforts reducing MMR in Rwanda

While the previous section has provided an overview of Rwanda's recent progress in regards to maternal mortality reduction, illustrated by established medical indicators, this section turns to the core focus of this thesis. It will thus account for identified non-medical state efforts that are likely to have contributed to the maternal mortality reductions during the MDG era, between 1990 and 2015. According to the theoretical framework, identified *direct* non-medical state efforts and *indirect* non-medical state efforts are assessed.

7.2.2 Direct non-medical state efforts

State investment and leadership in maternal health

Political leadership is a key element in driving change (van Lerberghe et al., 2014). This section specifically analyzes state investment, prioritization and leadership in regards to maternal mortality.

A consistent theme in the Rwanda MDGRs is the emphasis on strong political leadership as a success factor (see e.g. NISR 2007; GoR & UNDP, 2014). Brown (2016) holds that it would have been impossible to insert women into public spheres without the support of the GoR, often

in collaboration with women's organizations. This determination is commonly explained by connecting it to the country's violent past:

> "*Rwanda once again reminds the rest of the world that although the country experienced severe and extreme hardships in 1994, a combination of the determination, mixed with sound policies, and visionary leadership is bringing out a sustainable justice, democracy, and economic growth toward the MDGs*" (NISR 2007:xi).

> "*The country's post-genocide development strategy rests on the premise that security and stability must be sustained at whatever cost*" (GoR & UNDP, 2014:8)

In the post-genocide era, the Rwandan government has not only shown determination towards reconciliation and unity, but also to improve population health and end poverty. The Rwandan political will relative to other countries under similar conditions is part of the success towards the MDGs in general, and MMR reduction in particular. It is illustrated by the Rwandan government's recognition of the alarming MMR and prioritization of maternal health throughout its policies and main health sector reform, including health sector decentralization, performance-based management and community participation (Logie et al., 2008; Bucagu et al., 2012; Assaf et al., 2018).

A central aspect of Rwanda's political commitment to the MDGs in general is the country's own development agenda Vision 2020, which was adopted in 2000 and aims to turn Rwanda into a private sector led middle-income country by 2020. It also recognizes the importance of addressing maternal and reproductive health in order to reduce poverty. President Kagame, who chairs the Global MDG Advocacy Group, said in 2013 that the MDGs "*are not a ceiling but a floor*", referring to Vision 2020 (Bucagu et al., 2012; GoR & UNDP, 2014:11).

Vision 2020 is highly focused on economic growth. However, gender equality is one of three crosscutting issues to be mainstreamed throughout all of Rwanda's development process (GoR, 2000; Abbott et al., 2010).

Maternal Death Audit

Sayinzoga and colleagues (2016) concluded that the nationwide initiative of Maternal Death Audit (MDA) is a demonstration of strong political leadership in maternal health.

The MDA is frequently reported to have played an important role in reducing maternal mortality in Rwanda. It was introduced in 2008, and Rwanda was the first developing country with

nationwide MDAs, enabling implementation of evidence-based interventions (see e.g. GoR & UNDP, 2014; Assaf et al., 2018; Sayinzoga, Bijlmakers, van Dillen, Mivumbi, Ngabo & van der Velden, 2016).

In all state, private and church-owned hospitals, MDA committees have been established, chaired by the medical chief of staff or head of the maternity department. All staff who provided care to a deceased woman should attend the audit session, which concludes by recommending future actions. The anonymized reports are collected and stored electronically by the MoH. Health facility maternal deaths are audited by the nearest district hospital (there are currently 30 district hospitals in Rwanda) (Sayinzoga et al., 2011).

The audits have likely contributed to MMR reduction and improved obstetric care (Assaf et al., 2018). They have helped hospitals in identifying causes of maternal deaths and contributing factors, and to make recommendations for suitable counteraction (Sayinzoga et al., 2016).

Context tailoring of maternal health efforts

Related to the political leadership in maternal health is that the Rwandan government insists on local ownership in development plans (see Logie et al., 2008; Ansoms & Rostagno, 2012; Farmer et al., 2013). This is for example spelled out by a tradition of tailoring efforts and intervention to their specific contexts. There is an emphasis of "*home grown solutions like the community health workers model*" in Rwandan health policy (GoR, 2000:12).

For example, the *Imihigo* system, described as a performance contract ensuring public accountability, is frequently emphasized as an important complement to the performance-based health financing and as a key tool for Rwandan policy implementation and service delivery. The Imihigo tradition also constitutes the foundation of the government focus on performance-based management. Imihigos have a strong moral force and imply an unshakeable determination in achieving a specific objective. Imihigos are signed between the president and the district mayors, and between all civil servants and their superiors on workplaces. This contract publicly commits them all to achieve the outset goals, where failing leads to dishonor and success to becoming community role models. The GoR fully adopted Imihigo in the national planning system in EDPRS1 in 2006 (African Development Bank [ADB], 2012; Bucagu et al., 2012; ODI, 2012; GoR & UNDP, 2014; Assaf et al., 2018).

Several Imihigo indicators involve improvements in maternal health, and thus directly target maternal mortality (see Rwanda Governance Board, 2014). Imihigo illustrates how cultural and traditional practices can be successfully incorporated in policy-making and implementation. It is both an example of context tailoring, and of a public accountability initiative that enforces the policy implementation through performance discipline (ODI, 2012).

7.2.3 Indirect non-medical state efforts

Gender equality and women's empowerment

The Rwandan society was largely patriarchal pre-1994, but gender equality is today a political priority. The turning point took place in 2003 with the new constitution and policy priorities to increase women's status, and again in 2009 with the National Gender Policy.

There have been significant improvements in women's decision-making power in the private sphere as well in the last decade. 73% of women participate in decisions regarding major household purchases, 83% in decisions regarding their own health care, and 85% in decisions regarding family visits. Relatedly, women's experience of spousal violence decreases linearly with the increasing participation in decisions (NISR et al., 2015). Nevertheless, traditional patriarchal structures prevail, rates of domestic violence and tolerance for it remain high, and gendered expectations of men as breadwinners persist (GoR & UNDP, 2014; Påfs, 2016).

As stated in the literature review of this thesis, the most researched gender equality indicator in maternal mortality research is education. Apart from this, there are two specific non-medical indirect efforts under gender equality promotion in Rwanda that have gained specific attention: Affirmative action and gender mainstreaming. One by one, these will be accounted for in the following three sections.

Women's education

In Rwanda, girls are currently more likely than boys to attend and complete primary school, and as likely to attend secondary school (see Table 9). However, the gender gap persists on higher educational levels, especially in science and technology (GoR & UNDP, 2014). Further, girls' school performance is still lower than boys' (MoE, 2008b). Primary school completion rate increased steadily post-genocide and reached the pre-genocide level in 2005.

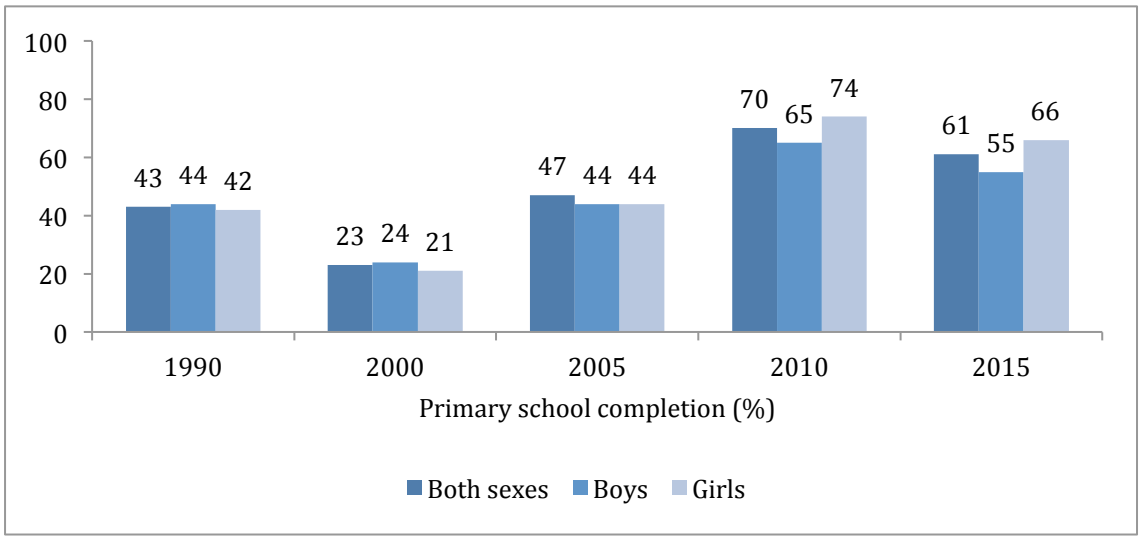

Table 9. Primary school completion (% of relevant age group), Rwanda. Source: World Bank, 2018b.

Education policies and activities in Rwanda have specifically targeted girls and women, for example by following the constitutionally recommended affirmative action (see below) (GoR, 2000; see e.g. MoE, 2003; 2008a; b; MoE, 2014a; b). Already in 2000, Rwanda had achieved the MDG target on ratio of girls to boys in primary school (GoR & UNDP, 2014). This ratio has traditionally been high, and remained relatively stable over the last decades (0.945 in 1990 and 1.03 in 2015).

Rwanda's education policy addresses girl drop-outs, which is reinforced in the 2008 Girls Education Policy. This is likely to account for girls' primary school completion rate having surpassed that of boys (see Table 9). Further activities include: gender sensitive curricula; adequate sanitation facilities; scholarship programs targeting girls from poor families; affirmative action and education promotion clubs; and sensitization to communities on supporting girls (MoE, 2003; 2008b).

As school attainment is associated with later marriage and pregnancies and lower fertility, education for girls is a prioritized policy area. In the Girls Education Policy it is recognized that educating girls yields particularly high returns, among other aspects by reducing the risk of

maternal death (MoE, 2008b; Assaf et al., 2018). The policy aims at "*progressive elimination of gender disparities in education and training as well as in management structures*" through strategies addressing access, quality and completion of education (MoE, 2008b:13).

Affirmative action

Previous research has largely overlooked the potential effect of women's political participation on MMR outcomes. Rwanda is a unique case in the world in this regard, with women holding 61.3% of parliamentary seats – the highest proportion in the world (IPU, 2018).

The constitution emphasizes the principle of gender equality and established a gender quota of 30% women in decision-making positions, leading to Rwanda being the first country in the world with more than 50% of parliamentary seats held by women. It also entailed increased female participation in lower government levels and local governance (MoE, 2008b; Ansoms & Rostagno, 2012; GoR & UNDP, 2014). Further, Vision 2020 also focuses on empowerment of women, and explicitly states that Rwanda will "*practice a positive discrimination policy in favor of women*" (GoR, 2000:17). The wide-spread inclusion of women in local communities is suggested to have given significant results in improving maternal health (GoR & UNDP, 2014; Assaf et al., 2018).

Gender mainstreaming

Gender equality is a crosscutting issue both in Rwanda's constitution and in the development strategy Vision 2020, and is set to be mainstreamed into all central and local policies. The National Gender Policy emphasizes that gender principles are to be integrated into all policies, practices and programs (MIGEPROF, 2010). Further, Rwanda's Ministry of Gender and Family Promotion (MIGEPROF) has the leverage to ensure gender mainstreaming in all development policies (MIGEPROF, 2009; Ansoms & Rostagno, 2012).

The mainstreaming of gender equality in Rwandan policies entails that all government policies are formally gender sensitive. Gender mainstreaming is of course strongly interlinked with applying a multi-sectorial approach, and maternal mortality is problematized and recognized in a number of non-health sector governmental policies (see e.g. MoE, 2008b; 2011; 2014a; b; UNU-IAS, 2006). This comprehensiveness of interventions rather than a targeted health system reform is indicated to have driven progress in Rwanda's MMR reduction (Sayinzoga & Bijlmakers, 2016).

For example, as seen above, gender is emphasized and problematized in Rwanda's education policy, stating that inequality between the sexes hinders women from reaching decision-making positions (MoE, 2003).

Also, the National School Health Strategic Plan (2014), aiming at a health promoting school, directly addresses themes such as 'SRHR' and 'Gender and GBV issues'. Among other things, the policy addresses adequate sanitation facilities for boys and girls, and information on relationships, sexuality and contraception addressing adolescent pregnancies. It touches specifically on maternal health issues such as unwanted pregnancies, unsafe abortions and complications from childbirth. Key strategies are intergenerational communication and information on SRHR, promotion of education on SRH, management of adolescent pregnancies, and follow-up on school drop-outs (girls in particular). An important feature of the Strategic Plan is the capacity-building teacher trainings that involve all key areas (MoE, 2014a).

Civil society integration

The final MDGR directs attention towards a concrete collaboration between public, private and non-governmental organizations (NGOs), and states that this has brought positive effects in governance and economic growth (GoR & UNDP, 2014). Virtually all the reviewed government policies include civil society, NGOs and other associations, and specify their respective role in reaching the objectives.

Civil society integration has been present in Rwandan policy-making. For example, one of the six pillars upon which the education policy is built is "*The importance of participation of all different partners is acknowledged: Government, parents, communities, donors, the private sector, NGOs and Civil Society*" (MoE, 2003:8). It is repeatedly mentioned that civil society plays a role in education management and financing, in dialogue with the government (MoE, 2003; 2014a; b). How this is more specifically implemented however remains unclear since it is not emphasized in previous studies or reports.

7.2.4 Additional non-medical state efforts based on Rwanda

Apart from the above-presented efforts that were deductively anticipated based on previous studies' suggestions according to the theoretical framework, the case study of Rwanda made some additional inductive findings. This section thus presents some findings that emerged from

the empirical analysis, which were not anticipated based on previous research and the theoretical framework.

Public awareness campaigns

One key feature of the Rwandan success seem to have been the increase in health care usage, attributed to public awareness campaigns on maternal and child health (ODI, 2012). Increased facility births are traced back to a "*very effective public education campaign on its importance for mother and child health*" (GoR & UNDP, 2014:55; Påfs, 2016). Between 2000 and 2005, a sensitization campaign managed to reduce the share of women with six births or more who did not receive antenatal care from 8.1% to 6.7% (NISR, 2007).

Following Rwandan population policy aiming to decrease demographic growth, several family planning campaigns have launched. In 2010, 66% of women and 83% of men reported to have heard a family planning message on the radio in the month before taking the survey, compared to 41% and 61% in 2005 (NISR & ORC Macro, 2006; NISR et al., 2012). This demonstrates a perspective on family planning and contraceptives that is different than the strictly medical perspective where focus lies on training health personnel in family planning consultation.

Public awareness campaigns can thus be categorized as both direct and indirect state-efforts, depending on what is the aim. While the first of the two above-presented public awareness campaigns directly targeted maternal mortality by e.g. encouraging facility births, the second had a population controlling aim where MMR reductions likely follow as a bonus with decreased number of pregnancies.

Another example of state-led public awareness campaigns directly addressing maternal mortality in Rwanda is one aiming at encouraging male involvement in antenatal visits through the campaign *Going for the Gold*. Rwanda has a high number of attending partners compared to neighboring countries: 87% (Påfs, 2016). Male involvement is theoretically considered an important strategy to reduce maternal mortality and morbidity by making men and households aware of risks and avoiding care-seeking delays. However, research indicates that it can have both positive and negative effects on women's empowerment and maternal mortality reduction. Critics claim that male involvement impedes women's empowerment and uses men's superior status to achieve program targets. In Rwanda and Burundi specifically, no significant results of male involvement have been observed (Jennings, Na, Cherewick, Hindin, Mullany & Ahmed,

2014). However, traditional gender roles and norms are recognized and emphasized as important aspects for improved maternal health.

Population policies addressing fertility

Having one of the highest population densities in Africa, the GoR sees family planning as crucial in order to control demographic growth, reduce poverty and improve population health. This recognition has led to Rwanda setting ambitious targets and strategies that have given rise to increased contraceptive use and decreased fertility (GoR, 2000; Ayad & Hong, 2009).

Over the last decades, the GoR has developed several population policies to balance demographic growth and resources through lowered fertility. The first population policy that included family planning was initiated in 1982, and involved in particular promotion of family planning through trained communicators. In 1990, a subsequent family planning policy included elements such as public health improvements, land use planning, training of communicators, promotion of education, and women's empowerment. Also the 2003 population policy emphasized slowed population growth, access to education, good governance, and equal opportunities and participation in development (NISR & ORC Macro, 2006; 2015; Ayad & Hong, 2009).

In similiarity to public awareness campaigns addressing population, population policies aiming at reduced demographic growth might thus be considered an indirect non-medical state effort contributing to MMR reduction, since it doesn't target maternal mortality per se, but reductions likely naturally follows.

Performance-based financing

In 2005, the performance-based health financing strategy Payment for Performance (P4P) was adopted, aiming to motivate health personnel and thus increase service and improve quality of care. P4P implies that health personnel receive financial incentives for improvements in utilization and quality in specific indicators. For example, each emergency transfer to the hospital for obstetric care during delivery and each facility delivery pay $4.59, and each woman who attends four prenatal visits pays $0.37. This has had an effect on maternal health since health personnel are financially rewarded based on a framework of indicators largely related to maternal and child health (Basinga, Gertler, Binagwaho, Soucat, Sturdy & Vermeersch, 2011; Påfs, 2016; Assaf et al., 2018).

The P4P incentive is suggested to improve both usage and quality of maternal health services, as well as patients' satisfaction and has been pointed out as a useful intervention towards the MDGs (Logie et al., 2008; Basinga et al., 2011; Priedeman Skiles et al., 2013; Påfs, 2016). P4P thus seem to incentivize medical provision, and is thus suggested to be a direct non-medial state effort targeting maternal mortality.

There is however some criticism directed towards P4P. For example, it is argued that it promotes a questionable concept of human labor, and also that it shifts focus from systemic changes to improving a few specific indicators (Kalk, Amani Paul & Grabosch, 2010).

Decentralization

A frequently emphasized effort in regards to maternal mortality reduction, among other health indicators, in Rwanda is the effective decentralization of public facilities. Among others, the MDGR 2013 emphasizes the decentralization of responsibilities to local levels, adopted in 2000. The reform include financial decentralization, but also aims to further citizens' participation in the national development (Ministry of Local Government [MINALOC], 2014; GoR & UNDP, 2014).

> "*The Government has chosen the path of decentralisation as a way of empowering the population - women and men, girls and boys - to participate in development activities that affect them, including education*" (MoE, 2003:7).

Although not directly targeting maternal mortality, the decentralization has had a positive impact on health governance, granting all health facilities administrative and financial autonomy. This has entailed increased accountability, responsiveness and efficiency (Bucagu et al., 2012). While planning and implementation are decentralized, policy-making is however strongly centralized, related to the authoritarian governance (Kuruvilla et al., 2014).

Decentralization has however indirectly affected maternal health. Two of the most emphasized Rwandan state efforts can be seen as examples of this general decentralization to local and community levels: *Mutuelles de Santé* and Community Health Workers.

Mutuelles de Santé

Mutuelles de Santé (henceforth Mutuelle) is a community-based public health insurance scheme, where people pay income-based premiums to a locally administered health pool. Mutuelle piloted in 1999, and was extended countrywide in 2000. Communities have an important role in

Mutuelle, managing mobilization and registration, collecting fees and clearing bills (Bucagu et al., 2012; Rosenberg, 2012, July 3).

The introduction of Mutuelle was a significant health sector initiative, and has improved health facility accessibility geographically and socioeconomically – two well-known barriers to maternal health. For example, Mutuelle covers 90% of ambulance transfers (ibid., 2018). The increased proportion of facility births is argued to be a result of Mutuelle, combined with increased health education (Påfs, 2016). Insurance is strongly correlated with maternal health care use, facility delivery and skilled birth attendance (Hong, Ayad & Ngabo, 2011; Priedeman Skiles, Curtis, Basinga & Angeles, 2013; Wang, Temsah & Mallick, 2017).

Health care access in remote areas has been improved, and the rural-urban divide in Rwanda is less pronounced than in other countries, but a quarter of the population still has one hour to the nearest health facility (GoR & UNDP, 2014).

Some scholars relate Mutuelle to context tailoring of maternal health efforts, suggesting that local initiatives are likely to have contributed to improved maternal health in Rwanda. For instance, *Ubudehe*, defined as the cultural Rwandan cooperative problem-solving tradition, has contributed to the increased accessibility of maternal health through increased enrolment in Mutuelle (Assaf et al., 2018).

Community Health Workers

Alongside Mutuelle, Rwanda's deployment of Community Health Workers (CHW) is frequently emphasized to have contributed the most to the MMR reduction (Sayinzoga & Bijlmakers, 2016).

The CHWs were first introduced in 1995, responding to health personnel shortages and covering urgent needs, alongside promoting a long-term vision for a professional workforce and facilities (Kuruvilla et al., 2014). They are trained and deliver primary health services and health education on local levels. Each village has 3-4 CHWs of which one, preferably a woman, is in charge of maternal and reproductive health (Bucagu et al., 2012; ODI, 2012; GoR & UNDP, 2014; Påfs, 2016).

The fact that the CHWs have been provided with extensive training and incentives to reach maternal health targets in particular is reported to have contributed to increased antenatal care usage and facility births (ODI, 2012; Påfs, 2016).

Cost reductions in health care services along with decentralization of health service delivery to local levels, as Mutuelle and CHWs, are often emphasized efforts when explaining Rwanda's progress. However, Bucagu and colleagues (2012) found that Malawi, Niger and Uganda, who are other examples of countries who have adopted cost reductions and decentralizations, didn't experience near the MMR reduction as Rwanda. They found that an important feature of the reforms in Rwanda was that the use of unskilled traditional birth attendants (TBA) vanished through successful integration in the Community Health Workers system as the MoH appointed them as community mobilizers for maternal and child health instead of continuing to provide unskilled home birth attendance as has been the case in other countries. This again illustrates interlinkages to other efforts, in this case context tailoring.

Mainstreaming of international targets into national policy-making

Also the nature of Rwandan policy planning has been a success factor, where policies have been mutually reinforcing. As seen when examining state leadership in maternal health issues above, an emphasized success factor is that the MDG targets have been mainstreamed into Vision 2020 (GoR & UNDP, 2014). Vision 2020 thus serve as a key instrument in implementing the MDGs and channeling resources (GoR, 2000; Abbott et al., 2010; GoR & UNDP, 2014).

The MDGs are often described as important catalysts for the Rwandan development: "*The MDGs have played an important catalyzing role in the implementation of national development policies in Rwanda by providing specific universally accepted targets and indicators […]. They have informed and complemented national strategies as laid out in Vision 2020*" (GoR & UNDP, 2014:1). The MDGs and Vision 2020 have thus worked mutually reinforcing. This supports the finding of Kuruvilla and colleagues (2014) that successful LMICs have been oriented by guiding principles such as international agreements.

7.3 Key findings from Rwanda

Deriving from the above analysis of Rwandan state efforts that potentially have led to MMR reductions, the below table presents an overview of the empirical findings in relation to the analytical framework. The table also includes five additional inductively identified categories that were not theoretically anticipated, but seem to have been important in the Rwandan experience.

Considering the scarce evidence in this field, it is difficult to attempt to rank the different efforts relative one another. However, based on what has been most frequently emphasized regarding MMR reduction in the case of Rwanda in the literature, specifically important efforts are suggested to be political leadership in maternal health; specific policy innovations such as MDA, CHWs and Mutuelle (indicating decentralization), context-tailoring and the multi-sectorial approach. As seen in the empirical analysis, several identified efforts belong in two or more of these more comprehensive categories. The findings will be further discussed and problematized in the discussion chapter of the thesis.

Non-medical state efforts reducing MMR in Rwanda

State-driven efforts *directly* targeting MMR

Category	Examples from Rwanda
State investment and leadership in maternal health	• Government recognition of MMR and prioritization of maternal health • Maternal Death Audit
Multi-sector integration of maternal health concerns	• Inclusion of maternal health in education policies
Context tailoring of maternal health efforts	• Imihigo • Appointing TBAs as community mobilizers for maternal health
Public awareness campaigns*	• Public education on maternal health, and encouragement on facility births • *Going for the Gold*
State incentivizing of medical provision*	• P4P, based on indicators specifically targeting maternal health

State-driven efforts *indirectly* reducing MMR

Category	Examples from Rwanda
Gender equality and women's empowerment	• Girls' Education Policy • Affirmative action • Gender mainstreaming
Civil society integration	• Civil society inclusion emphasized in policies
Public awareness campaigns*	• Family planning information aiming at controlling demographic growth
Population policy*	• Policy interventions aiming at controlling demographic growth
Effective administrative and financial decentralization*	• *Mutuelles de Santé* • Community Health Workers
Mainstreaming of international targets into national policy*	• Mainstreaming MDG 5A into Vision 2020

Table 10. Key empirical findings of non-medical efforts reducing MMR in Rwanda.

8. Comparative analysis: Shadow-case Burundi

Following the above deep look at efforts that contributed to maternal mortality reduction in Rwanda, this chapter adds a comparative dimension by comparing the key findings from Rwanda to the shadow-case Burundi. As the below brief presentation of MMR in Burundi will show, most indicators of medical efforts are rather similar between the two cases. This further suggests, as the larger focus of this thesis, that the non-medical efforts deserve increased attention. Thus, this chapter will thenceforth look into the available data with a particular focus on the above extended theoretical framework of extracted suggested non-medical success factors from Rwanda, and try to find to what extent these aspects were present in Burundi.

8.1 Burundi, maternal mortality and MDG 5A

To start the comparison, this section will present the situation in regards to maternal health in Burundi in the light of the above overview on Rwanda. It will demonstrate that Rwanda and Burundi look rather similar in established maternal health indicators that capture medical efforts, such as proportion of births attended by skilled personnel and access to antenatal care. Given Burundi's relative failure to meet MDG target 5A, this indicates the significance of looking into a broader non-medical perspective for differences between the two cases.

In similarity to Rwanda, Burundi was plagued by conflict in the beginning of the MDG era, causing her to start from behind the starting line with many MDG indicators. The MDGRs of Burundi have consistently reported achievement of target 5A to be unlikely (GoB & UN, 2004; UNDP & MPR Burundi, 2010). In 2015, Burundi was one of 19 countries in Sub-Saharan Africa having "*very high MMR*" (WHO, 2015c).

Burundi has an even higher fertility rate than Rwanda. In 2010, a Burundian woman gave birth to an average of 6.4 children, compared to 5.5 in Rwanda, decreasing to 5.5 in 2016-17, compared to 4.2 in Rwanda 2015 (ISTEEBU, MSPLS Burundi & ICF International, 2012; MPBGP, MSPLS, ISTEEBU & ICF, 2017).

8.1.1 Development in medical expertise

When turning to progress in maternal healthcare, Burundi and Rwanda have had similar experiences, although Burundi is consistently lagging behind. For example, 85% of births were attended by skilled personnel in 2016-17, increasing from 60% in 2010 and 19% in 2000. In Rwanda, the proportion was 91% in 2015 and 69% in 2010 (see Table 11).

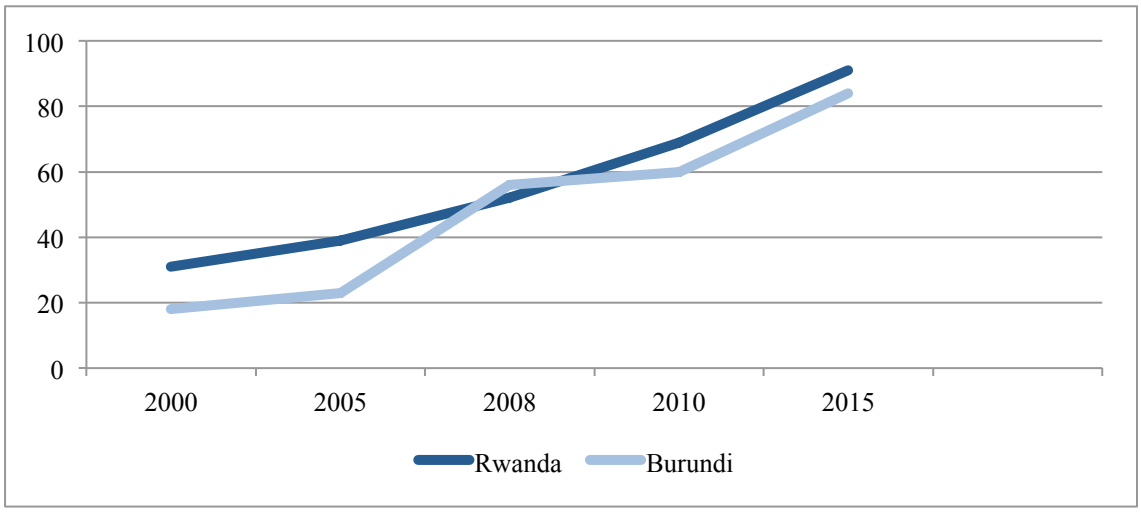

Table 11. Skilled birth attendance (% of all births), Burundi, Rwanda. Proportion of births attended by skilled personnel. Sources: ONAPO & ORC Macro, 2001; NISR & OSR Macro, 2006; MoH et al., 2009; NISR et al., 2012; 2015; ISTEEBU et al., 2012; MPBGP et al., 2017.

8.1.2 Accessible and adequate medical facilities

Also the proportion of women receiving the recommended number of four antenatal visits is very similar in the two cases. Burundi has a slightly higher proportion than Rwanda (see Table 12) (Segamba, Ndikumasabo, Makinson & Ayad, 1988; GoB & UN, 2013; MPBGP et al., 2017).

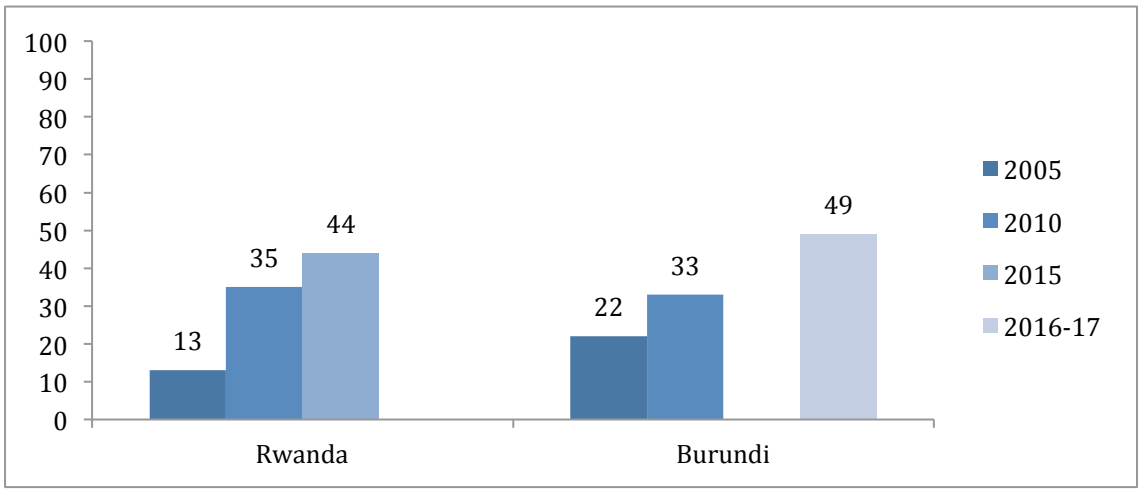

Table 12. Access to antenatal care (%), Rwanda, Burundi. Proportion of women who had at least four antenatal visits. Sources: NISR & OSR Macro, 2006; MoH et al., 2009; NISR et al., 2012; 2015; ISTEEBU et al., 2012; MPBGP et al., 2017.

Facility births follow the same pattern as skilled birth attendance. Burundi's introduction of free health care for pregnant women and children under the age of 5 in 2006 is presented as a strong pull factor for facility delivery, enabling registration of the child for free health care. Further, women's increased health facility contact is believed to have led to improved knowledge about family planning. However, it was also followed by reduced financial flows to facilities, entailing drug stock-outs, lowered quality and referral system disruptions (Chi et al., 2015b).

Recommended efforts for improved access to maternal care in Burundi are improved infrastructure and sanitation, improved availability of drugs and equipment, referral system, health monitoring systems and sensitization of the dangers of pregnancy related complications (Tayler-Smith et al., 2013a). Several of these key efforts are present in Rwanda, such as monitoring and MDA, which were recommended by the 2012 MDGR. Chi and colleagues (2015b) conclude that while addressing financial barriers is crucial, attention must directed towards non-financial barriers, striving towards an equitable health system.

8.1.3 Family planning consultation and contraceptive technology

Contraceptive use is the one maternal health indicator where Rwanda and Burundi clearly diverge since 2005. As in Rwanda, contraceptives are largely known but scarcely used in Burundi. In 1987, 70% of women and 92% of men knew of at least one modern contraceptive method. In 2010 and 2016-17 the figure was 97% for both sexes. Despite this, only 23% of married women used a modern contraception method in 2016-17, an increase from 18% in 2010 and 1% in 1987 (see Table 13).

The unmet need for family planning was estimated to 31% of married women in 2010, and 30% in 2016-17, compared to Rwanda's 19%. There are large differences in progress in different regions in Burundi, due to factors such as infrastructure, educational levels and cultural and religious barriers to contraception (GoB & UN, 2013).

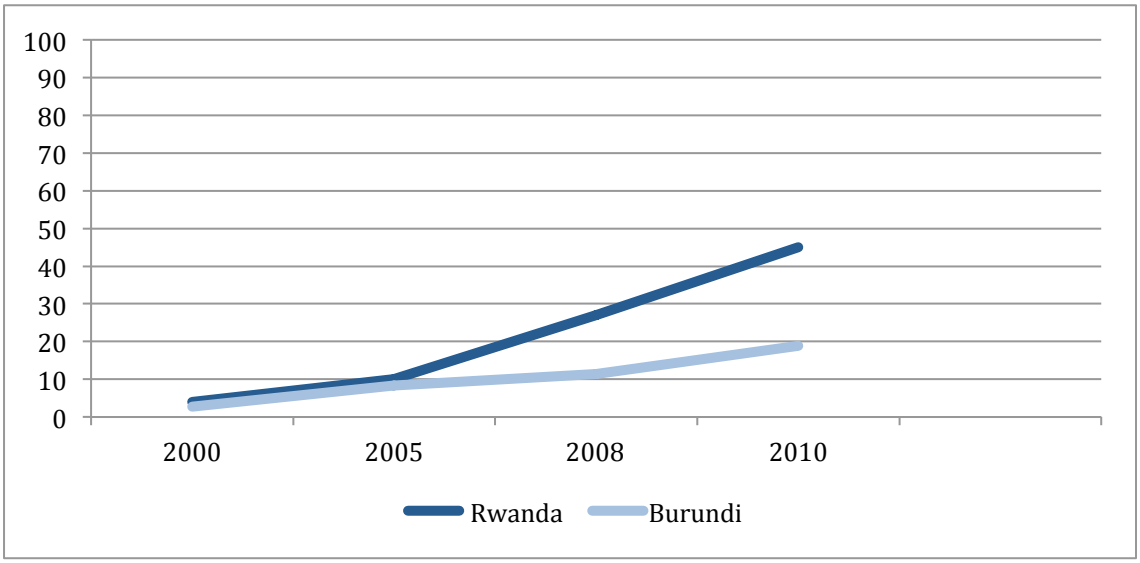

Table 13. Contraceptive usage (% of married women), Rwanda, Burundi. Sources: ONAPO & ORC Macro, 2001; NISR & OSR Macro, 2006; MoH et al., 2009; NISR et al., 2012; ISTEEBU et al., 2012.

In similarity to Rwanda, men and women's preferred number of children is virtually identical and lower than both the regional average and the actual fertility rate (4 in 2010 and 3.9 in 2016-17) (Segamba et al., 1988; GoB & UN, 2004; ISTEEBU et al., 2012; Van den Boogaard et al., 2016; MPBGP et al., 2017). This divergence however indicates that promotion and diffusion of contraceptives are important aspect of MMR reduction.

8.2 Non-medical state efforts reducing MMR in Burundi

8.2.1 Direct non-medical state efforts

State investment and leadership in maternal health

The 2012 MDGR emphasizes high-level political commitment and recognition of maternal health reflected by e.g. free maternal health care and performance-based financing. On the other hand, Chaumont and colleagues (2015) claim that the low level of state spending in reproductive health reflects low prioritization of the Burundian government in 2010 and 2012.

While the government of Rwanda has shown strong political leadership in maternal health, efforts in Burundi are highly dependent on NGOs. The main drivers of maternal health efforts in Burundi have been NGOs such as *Médecins Sans Frontières* (MSF). It has been poorly harmonized and not as consistent as the Rwandan state efforts, often implemented in some districts as opposed to nationwide policy program roll-outs (Chi et al., 2015a)

Further, while Rwanda is a well-studied case in regards to maternal mortality reduction, research on Burundi is scanter and consists to a large extent of NGOs evaluating their own interventions, notably MSF. They are predominantly limited to MSF's own hospital in the Kabezi district where MSF is the only emergency obstetrics provider since 2006 (see MSF, 2012; Tayler-Smith et al., 2013a; b; Van den Boogaard et al., 2016). MSF (2012) estimate that their own intervention in Kabezi led to a 74% reduction in MMR in the district, reaching the MDG target already in 2012. Evidently, the work of MSF has been crucial to improve maternal health in Burundi since the political leadership seems to have been weaker than in e.g. Rwanda. Documentation of state efforts reducing maternal mortality in Burundi is however scarce.

Multi-sector approach and context tailoring in maternal health

The literature on MMR reduction in Burundi does not specifically indicate a deliberate multi-sector approach.

While the Rwandan policies seem to have managed to context tailor by involving traditional and cultural practices, they have rather worked as obstacles in Burundi. For example, the 2010 and 2012 MDGRs mention a general Burundian advocacy for high birthrates, '*pro-nataliste*', as part of a cultural mentality that hinders maternal health. Also, NGO representatives have reported that the Catholic Church has a strong negative influence on contraceptive use (Chi et al., 2015b). Despite both countries having high fertility rates, no equivalents were mentioned in any of the Rwandan MDGRs. There, cultural factors were instead presented as a part of the success.

However, in similarity to Rwanda, traditional birth attendants have been trained and assigned a new role in community health promotion (GoB & UN, 2013; Chaumont et al., 2015).

Performance-based management

Burundi was the second Sub-Saharan African country, after Rwanda, to introduce nationwide performance-based financing (PBF) among healthcare personnel in 2010, after piloting it since 2006. The roll-out was conducted by the government in collaboration with NGOs. Research on its effects has been inconsistent. Some indicate that this entailed slightly improved quality of care, but particularly among the better-off. Facility deliveries increased slightly among the richer, but not at all among the poorer (Bonfrer et al, 2014; Chi et al., 2015b). However, Rudasingwa, Soeters and Basenya (2017) found that PBF highly improved institutional delivery.

The economic incentives are however not as focused on maternal health in Burundi as in Rwanda. For example, the Rwandan P4P scheme is clearly linked to MDG 5A and WHO recommendations on maternal health. For instance, in Rwanda, the highest-paying indicators are emergency transfers to hospital for obstetric care during delivery and facility delivery, both at $4.59 each. In Burundi, regular facility delivery pays $2, and the highest-paying interventions are caesarian section, along with treatment of tuberculosis at $20 (Basinga et al., 2011; Bonfrer et al., 2014; Rudasingwa et al., 2017). PBF thus may contribute to maternal mortality reduction – *if* the schemes are sensitized towards evidence-based maternal health indicators.

8.2.2 Indirect non-medical state efforts

Gender equality and women's empowerment

Primary school completion for both boys and girls is almost as high in Burundi as in Rwanda (60% in 2015). Number of women in parliament on the other hand differs greatly between Rwanda and Burundi, despite both countries having adopted a gender quota of 30%. Although Burundi is far from being in the bottom; ranked number 25 in the world with 36.4% women in parliament, Rwanda is far ahead with 61.3% (IPU, 2018a; b).

Women's household decision-making power is somewhat weaker in Burundi than in Rwanda. In 2010[15], 78% of women reported to take part in decision regarding family visits, 77% regarding their own health and 57% regarding larger household purchases. In 2016-17 women's involvement in decisions regarding their own health had decreased to 72%, while the other two areas increased. 60% participated in all three decisions, and 13% in none (ISTEEBU et al., 2012; MPBGP et al., 2017).

In Burundi, a considerable proportion of women (60%) and 35% of men report that men's violence against women is justified for at least one of the reasons burning food, arguing with husband, go out without telling husband, neglecting children, or refusing sex. There was however a decrease from 73% and 44% respectively in 2010 (MPBGP et al., 2017). In Rwanda, the corresponding figures were 41% of women and 18% of men in 2014-15 (NISR et al., 2015).

[15] 2010 was the first DHS to include women's decision-making power.

This indicates a general acceptance of men's right to control their wives, which seem to be prevalent in both Rwanda and Burundi, although obviously more established in Burundi. These attitudes can provide a reflection of the state of gender equality in the society.

Both opposition of domestic violence and level of women's economic empowerment is among the lowest in the region in Burundi, indicating a generally lower level of female empowerment in Burundi than in Rwanda (Jennings et al., 2014).

Further, while Rwanda has the highest proportion of male involvement in antenatal care (87%), Burundi has among the lowest (18%) (ibid, 2014). This may be interpreted as Rwanda having succeeded in moving maternal health from being a women's issue to a receiving a higher status as a societal issue.

Population policies and public awareness campaigns

The government of Burundi expressed the need for controlling demographic growth for the first time in 1983, launching a nationwide program addressing family planning and maternal and child health. In this regard, population policy and public awareness campaigns seem to have been directly targeting maternal mortality aswell, although additional research is needed. In similarity to Rwanda, Burundian family planning promotion has spread over radio, but has had less reach. In 2010, 56% of women and 34% of men reported to have been reached by media family planning messages in the month before the survey. In 2016-17 this was only true for 36% of women (Chaumont et al., 2015).

Decentralization

Decentralization policy is present in Burundi as well. However, in difference to Rwanda, the government of Burundi has only introduced administrative decentralization, but not financial: This is claimed to have hampered the resource allocation and implementation of programmes on local levels (GoB & UN, 2013; Chaumont et al., 2015; Chi et al., 2015a; b).

Mainstreaming of international targets into national policy

The national development agenda of Burundi is similarly organized to that of Rwanda, with the overarching Vision 2025 and strategic plans to combat poverty *Cadre Stratégique de croissance et de Lutte contre la Pauvreté (*UNDP & MPR, 2010). In regards to reproductive health, demographic growth is to be reduced from 2.5% to 2% between 2011 and 2025, through "*an*

aggressive demographic policy" with particular emphasis on family planning and reproductive health (Chaumont et al., 2015:5).

Importantly, while Rwandan policies have mainstreamed the MDG targets, the Burundian development agenda and National Health Policy 2005-2015 set a lower target of 50% reduction of MMR (Chaumont et al., 2015). MDGRs and previous research have not indicated that Burundi has mainstreamed the MDGs like Rwanda has done.

8.3 Obstacles for progress in Burundi

Finally, in order to gain further understanding of the case of Burundi, I here account for some obstacles that have been emphasized to hamper progress, in comparison to Rwanda.

Apart from the above-mentioned cultural factors, emphasized major obstacles in Burundi are inadequate accessibility and capacity of health facilities, under-reporting of maternal deaths, inadequate monitoring and evaluation, inadequate development in maternal health and family planning services on local levels, inadequately trained personnel, weak general health financing and poor allocation of resources (MSF, 2012; GoB & UN, 2013, p. 35; Tayler-Smith et al., 2013a; Chaumont et al., 2015; Chi et al., 2015a). Here, it is clear that most of these challenges have been successfully addressed in Rwanda. For example, the Rwandan government has focused on increased access to health for the most vulnerable people, maintained and mainstreamed a strong monitoring tradition into policy implementation, introduced MDAs as a national standard, successfully decentralized and strengthened local level programs, and managed to increase contraceptive usage through family planning promotion.

9. Discussion of results

This section will further discuss some of the main comparative findings from the above comparison of non-medical state efforts reducing maternal mortality in Rwanda and Burundi. For the sake of analytical clarity, the comparative findings have been placed into the analytical framework of the thesis, see Table 14 below. Some aspects are categorized as inconclusive since there was not adequate information for concluding whether or not the specific category of efforts were present in the case or not. Based on the below table, 'State investment and leadership in maternal health', 'Context-tailoring of maternal health efforts, 'Effective administrative and financial decentralization' and 'Mainstreaming of international targets into national policy' are suggested to be of particular relative importance.

Non-medical state efforts reducing MMR in Rwanda and Burundi

State-driven efforts *directly* targeting MMR		
Category	Rwanda	Burundi
State investment and leadership in maternal health	**Yes** • Government recognition of MMR and prioritization of maternal health • Maternal Death Audit	**No**
Multi-sector integration of maternal health concerns	**Yes** • Inclusion of maternal health in education policies	**Inconclusive**
Context tailoring of maternal health efforts	**Yes** • Imihigo • Appointing TBAs as community mobilizers for maternal health	**No**
Public awareness campaigns	**Yes** • Maternal health, and facility births • *Going for the Gold*	**Yes** • Maternal and child health
State incentivizing of medical provision	**Yes** • P4P	**Yes** • PBF

State-driven efforts *indirectly* reducing MMR		
Category	Rwanda	Burundi
Gender equality and women's empowerment	**Yes** • Girls' Education Policy • Affirmative action • Gender mainstreaming	**Inconclusive**
Civil society integration	**Inconclusive**	**Yes** • MSF as main drivers
Public awareness campaigns	**Yes** • Family planning information for population control	**Yes** • Family planning information for population control
Population policy	**Yes** • Policy interventions aiming at controlling demographic growth	**Yes** • Policy expressing need for controlling demographic growth
Effective administrative and financial decentralization	**Yes** • *Mutuelles de Santé* • Community Health Workers	**No**
Mainstreaming of international targets into national policy	**Yes** • Mainstreaming of MDG 5A into Vision 2020	**No**

Table 14. Comparative findings of non-medical efforts reducing MMR in Rwanda and Burundi.

The aim of this thesis was to examine what non-medical state efforts seem to be efficient in reducing MMR, and thus inform policy-making towards achieving SDG target 3.1. The focus on state action rather than on contextual features carried valuable indications of what policy-makers should focus on. This thesis aimed to go deep rather than wide to obtain an understanding of what has the power to combat maternal mortality.

First, as mentioned in the research design chapter, Yin (2014) stresses the importance of considering alternative perspectives, and there are of course aspects that have not been addressed in this thesis, due to the delimitations that are required in the limited space and time. While the aim of this thesis was to identify non-medical state efforts, it is evident that contextual factors

within which these efforts play out also affect the outcome. For example, the countries' respective experiences of violence (Burundi 1993-2005 and Rwanda 1990-1994) have of course impacted health indicators, institutions and state capacity. While Rwanda started to recover shortly after the 1994 genocide, the Burundian civil war continued until 2001, and Rwanda has been more politically stable than Burundi (indicated by Burundi relapsing into conflict in 2015). On the other hand, the Rwandan genocide was of a magnitude that made the international community doubt that Rwanda would ever recover (e.g. illustrated by the MDGRs' consistent referring to the devastating events), which was not near matched by the Burundian conflict. The respective experiences have likely affected the MDG processes, but cannot alone account for the differing developments in MMR reduction.

Some particularly interesting empirical findings of this thesis will now be further discussed.

State investment and leadership in maternal health. The case of Rwanda suggests that strong political leadership and prioritization of maternal health is efficient in reducing MMR. This is not least demonstrated by several innovative initiatives specifically targeting maternal health, such as MDA. Further, while Rwandan interventions addressing maternal mortality have been largely homegrown and resulted from a domestic political will, most Burundian interventions have been NGO implemented. This seems to have led to more comprehensive nationwide policy programs in Rwanda, and smaller-scale interventions targeting detached villages in Burundi. Although implemented interventions seem to have had a positive effect on their respective targeted populations in both countries, Rwanda could have experienced a more dramatic change since the efforts have had a wider range. This thus strongly indicates that political will and context-sensitivity are crucial in state efforts to reduce maternal mortality.

Relatedly, a strong tradition of monitoring has contributed to Rwanda's success. Based on traditional practices, the government has managed to build a culture of monitoring and accountability in policy implementation. Combined with the government's recognition of and emphasis on MMR reduction, high levels of monitoring demonstrate responsibility and concern. The MDA is an obvious example, of which the very design implies that maternal mortality is a system failure rather than putting the blame on individual women. The audits reject an understanding of maternal deaths as something natural and indicate that it is an outcome of an institutional failure that should be avoided.

Context-tailoring of maternal health efforts. While Rwanda has successfully incorporated traditional practices into national policy-making and implementation, many cultural practices are considered obstacles to maternal health in Burundi. Thus, policies and efforts aiming to reduce MMR cannot follow a one-size-fits-all scheme but has to be carefully tailored to the specific context.

Population policy and public awareness campaigns. The case comparison demonstrates that Rwanda and Burundi have introduced some policies with the similar scope of reducing fertility, but that these policies have had more diffusion in Rwanda. For example, family planning messages on the radio reached a higher proportion of the population in Rwanda than in Burundi. Population policies aiming to reduce fertility and entailed public awareness campaigns could potentially both directly (targeting maternal health) and indirectly contribute to MMR reduction. The reach of the campaigns is of course crucial for the outcome.

State incentivizing of medical provision. Performance-based financing has been mentioned as a success factor in both Rwanda and Burundi. However, scholars disagree on its effect. This study indicates that, in order to potentially contribute to MMR reductions, PBF schemes must be sensitized towards evidence-based maternal health indicators.

Gender equality promotion. Although both Rwanda and Burundi have adopted a gender quota of 30% women in parliament, it seems to have had a stronger effect in Rwanda. The obvious government prioritization of gender equality and women's empowerment is likely to account for part of this variation. Not only has Rwanda the world's highest proportion of women in parliament, but it has also led to increased female political participation on local levels. The variation between Rwanda and Burundi in several indicators of women's status in both public and private spheres strengthens the idea of women's status as a crucial factor for maternal mortality reduction. A significantly higher level of women's empowerment and decision-making power in Rwanda than in Burundi is likely to be a significant factor behind the diverging MMRs, as women's increased social status has led to increased value of women's lives and thus recognition of the burden of maternal deaths. It is suggested that in the case of the Rwandan government, pushing something of a virtuous nexus of gender equality, fertility rate reduction and education seem effective in rapidly reducing maternal mortality.

Further, the affirmative action targeting women has successfully been mainstreamed into the wider policy-making in Rwanda, as indicated by e.g. gender sensitivity in education policies. A

general focus on women's empowerment seems to have given rise to this strengthened political and decision-making power, as well as altered gender attitudes (e.g. indicated by decreased tolerance for men's violence against women) in Rwanda. However, the de facto policy impact of women's political participation on MMR reduction needs further research.

Civil society integration. Interestingly, state involvement of civil society actors in reducing MMR was theoretically anticipated to be influential but did not come out as an important factor in the empirical research. This may not be very surprising, Rwanda being an authoritarian country. Instead, the comparative analysis indicates that state leadership in maternal health seems to generate better results than NGO-driven interventions. This finding gives rise to a discussion of whether maternal mortality becomes entirely a burden of civil society in more democratic LMIC countries. In Burundi, the MSF appear to be independent main drivers of maternal health efforts, entailing issues revolving localized impact and sustaining the impact once the NGO departs.

Effective administrative and financial decentralization. Decentralization has been introduced in both countries, but seemingly more successfully in Rwanda. Decentralization is nevertheless emphasized in previous literature as an important contributor to the general local-level capacity building that has been part of Rwanda's success.

Mainstreaming of international targets into national policy-making. Another important finding of the empirical analysis is the cases' different approaches to international targets and policy-making. For example, while Rwanda has clearly mainstreamed the MDGs in their domestic policy-making and implementation, Burundi has set lower domestic targets. Addressing MDG health indicators, as well as education and gender equality, is in line with efficient measures in order to further economic growth. More than a goal in itself, it is reasonable to believe that working towards the MDG indicators have been a means for Rwanda's roadmap to economic development. Rwanda's experiences clearly illustrate how promotion of gender equality and women's rights in general, and maternal health in particular, not only provides humanitarian gains but also economic gains. Targets and policies have thus worked together to catalyze and mutually reinforce in Rwanda, which seems to have not occurred in Burundi.

Major over-arching success factors in Rwanda that this analysis did not find in Burundi are 'State investment and leadership in maternal health', 'Context-tailoring of maternal health efforts, 'Effective administrative and financial decentralization' and 'Mainstreaming of

international targets into national policy'. These specific efforts are thus suggested to be at the center of further research on non-medical state efforts to reduce MMR.

Additionally, the aspect of male involvement in antenatal care is noteworthy since it differs greatly between the two cases, and also because of what it indicates. It may indicate that Rwanda's political recognition of maternal health has transformed it into a universal developmental issue. It may be an effect of a multi-sector approach to maternal mortality. Further, it suggests that the notion of gender empowerment should be discussed more broadly and infuse masculinity and male involvement as a strategy within MMR reduction.

10. Conclusion

This thesis suggests that, while medical aspects such as skilled birth attendance, accessible and adequate facilities and contraceptive technology are instrumental in reducing maternal mortality; only focusing on medical aspects is insufficient. Increased attention should be directed towards the potential of other state efforts to reduce maternal mortality, which has been largely overlooked in previous research. This study thus assents to previous researchers' calls for increased attention to additional non-medical state efforts that reduce maternal mortality.

What non-medical state efforts were used by Rwanda to reduce maternal mortality over the MDG period?

Rwanda's political recognition of gender equality and maternal health and determination has entailed innovations, homegrown initiatives, local capacity and autonomy and domestic ownership.

Further, Rwanda's gender mainstreaming of policies has in many regards also led to mainstreaming of maternal health and reducing maternal mortality, and thus entailed a multi-sectorial recognition of maternal health.

How did the non-medical efforts adopted by Rwanda to reduce maternal mortality differ from Burundi?

As the above empirical analysis and discussion has demonstrated, Rwanda and Burundi have experienced different processes in regards to maternal mortality reduction. Interventions in Burundi have been largely NGO driven and less comprehensive, leading to less innovation and weaker implementation in Burundi than in Rwanda.

Based on the comparative analysis, this thesis assesses the key non-medical state efforts behind the different outcomes in MMR reduction between 1990 and 2015 to involve 'State investment and leadership in maternal health', 'Context-tailoring of maternal health efforts, 'Effective administrative and financial decentralization' and 'Mainstreaming of international targets into national policy'.

Policy implications

While accessible and quality maternal care and medical interventions of course require continued prioritization, this thesis indicates that a more holistic approach including the non-medical aspects is needed to successfully combat maternal mortality. Policy-makers should take a broader, multi-sectorial approach to maternal health while simultaneously being context-sensitive.

This study also indicates that efforts leading to successful promotion and diffusion of family planning and contraceptives carry weight in reducing maternal mortality.

Limitations and further research

A limitation of this study proved to be the difficulty in accessing the desired policy documents and reports. Although intending to analyze policy documents from the years 1990 to 2015, only the most recent policy documents were available. Due to this, the intended focus on the time period preceding the year 2000, when Rwanda and Burundi diverged, was disrupted as the analysis had to rely on other sources of information, and secondary sources had to take a bigger role than anticipated. This point in time has not been explicitly researched previously, and should be at the center of future research on maternal mortality reduction in Rwanda since it may provide important details.

This study has analyzed potentially efficient non-medical efforts in combating maternal mortality in Rwanda and Burundi. The focus on efforts rather than contextual features has brought with it some limitations in drawing conclusions. Most efforts require some extent of quality of governance and institutional capacity in order to implement policies and achieve desirable outcomes. Analyzing the relationship between contextual features such as corruption and quality of governance and MMR would therefore be a valuable future contribution.

The empirical analysis of this thesis found several areas whose impact on maternal mortality should be further investigated. These include the potential of male involvement in maternal healthcare, and the de facto policy impact of women's political participation.

Finally, as indicated at the beginning of this thesis, maternal mortality is the tip of the iceberg of maternal morbidity. Future research could therefore preferably take a wider scope examining maternal health.

The chosen research design brought some limitations, which could be remediated by conducting quantitative large-N studies that would be able to control for a number of contextual factors. However, I maintain that qualitative case studies have substantial strengths when analyzing a certain phenomenon in depth that should not be overlooked. Another way forward would thus be to conduct field studies and informant interviews in order to obtain information that this thesis did not manage to get a hold of. In that sense, this thesis could be seen as a pre-study, guiding a potential future field study of maternal mortality reduction efforts in Rwanda. Future research could also favorably take a mixed methods approach, in order to gain strengths from both sides and reach even more comprehensive conclusions.

As seen in the above conclusion, the findings of this study nevertheless make out suggestions of efforts that should gain larger attention in policy-making and continued research on maternal mortality reduction.

References

Abbott, P. and Rwirahira, J. and UNDP (2010) *Millennium Development Goals Progress Report. Rwanda Country Report 2010*. [Unofficial] Retrieved from https://www.africaportal.org/documents/9196/MDGs_COUNTRY__RWANDA_REPORT_20101.pdf, March 20, 2018.

Adjiwanou, V. and LeGrand, T. (2014) Gender inequality and the use of maternal healthcare services in rural sub-Saharan Africa. *Health & Place 29*, p. 67-78.

African Development Bank, the [ADB] (2012) *Performance contracts and social delivery – lessons from Rwanda. ABD Rwanda Field Office Policy Brief.* Retrieved from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Policy_Brief_-_Perfomance_Contracts_and_Social_Service_Delivery_-_Lessons_from_Rwanda.pdf, April 6, 2018.

Ahmed, S., Li, Q., Liu, L., and Tsui, A.O. (2012) Maternal deaths averted by contraceptive use: an analysis of 172 countries. *The Lancet 2012(380)*, p. 111-125.

Ansoms, A. and Rostagno, D. (2012) Rwanda's Vision 2020 halfway through: what the eye does not see. *Review of African Political Economy, 39(133)*, p. 427-450.

Ariyo, O., Ozodiegwu, I.D., Doctor, H.V. (2017) The influence of the social and cultural environment on maternal mortality in Nigeria: Evidence from the 2013 demographic and health survey. *PLoS ONE 12(12): e0190285*.

Arulkumaran, S. (2013) Working together toward the common goal of improving sexual and reproductive health. *International Journal of Gynecology and Obstetrics, 121*, p. 1-4.

Assaf, S., Staveteig, S. and Birungi, F. (2018) *Trends in Maternal Health in Rwanda: Further Analysis of the 2014-15 Demographic and Health Survey*. DHS Further Analysis Reports No. 108. Rockville: ICF.

Atti, E. and Gulis, G. (2017) Political determinants of progress in the MDGs in Sub-Saharan Africa. *Global Public Health, 12(11)*, p. 1351-1368.

Avorti, J.Y. and Walters, V. (1999) You look at our work and see if you have any freedom on earth: Ghanaian women's accounts of their work and their health. *Social Science and Medicine 48*, p. 1123-1133.

Ayad, M. and Hong, R. (2009*) Levels and Trends of Contraceptive Prevalence and Estimate of Unmet Need for Family Planning in Rwanda: Further Analysis of the Rwanda Demographic and Health Surveys, 2000–2007/08*. DHS Further Analysis Reports No. 67. Calverton, Maryland, USA: ICF Macro.

Barrère, B., Schoemaker, J., Barrère, M., Habiyakare, T., Kabagwira, A. & Ngendakumana, M. (1994) *Enquête Démographique et de Santé Rwanda 1992*. Kigali: Office National de la Population and Macro International.

Basinga, P., Gertler, P. J., Binagwaho, A., Soucat, A. L. B., Sturdy, J. and Vermeersch, C. M. J. (2011) Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *The Lancet 2011: 377*, p. 1421-1428.

Bazile, J., Rigodon, J., Berman, L., Boulanger, V. M., Maistrellis, E., Kausiwa, P., and Yamin, A. E. (2015) Intergenerational impacts of maternal mortality: Qualitative findings from rural Malawi. *Reproductive Health*, *12*(Suppl 1), S1.

Bonfrer, I., Van de Poel, E. & Van Doorslaer, E. (2014) The effects of performance incentives on the utilization and quality of maternal and child care in Burundi. *Social Science & Medicine 123*, p. 96-104.

Brown, S. E. (2016) Reshaping Gender Norms in Post-Genocide Rwanda. *Genocide Studies International, 10(2)*, p. 230-250.

Bucagu, M., Kagubare, J.M., Basinga, P., Ngabo, F., Timmons, B. K. and Lee, A. C. (2012) Impact of health systems strengthening on coverage of maternal health services in Rwanda, 2000-2010: a systematic review. *Reproductive Health Matters, 20:39*, p. 50-61.

Campbell, O.M.R., Calvert, C., Testa, A., Strehlow, M., Benova, L., Keyes, E., Donnay, F., Macleod, D., Gabrysch, S., Rong, L., Ronsmans, C., Sadruddin, S., Koblinsky, M., and Bailey, P. (2016) The scale, scope, coverage, and capability of childbirth care. *The Lancet 388*, p. 2193–2208.

Central Intelligence Agency [CIA] (2018a) *Country Comparison: Maternal Mortality Rate*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/rankorder/2223rank.html, January 2, 2018.

Chaumont, C., Muhorane, C., Moreira-Burgos, I., Juma, N. and Avila-Burgos, L. (2015) Maternal and reproductive health financing in Burundi: public-sector contribution levels and trends from 2010 to 2012. *BMC Health Services Research, 15:446*.

Chi, P.C., Bulage, P., Urdal, H. and Sundby, J. (2015a) Barriers in the Delivery of Emergency Obstetric and Neonatal Care in Post-Conflict Africa: Qualitative Case Studies of Burundi and Northern Uganda. *PLoS ONE 10(9)*.

Chi, P.C., Bulage, P., Urdal, H. and Sundby, J. (2015b) A qualitative study exploring the determinants of maternal health service uptake in post-conflict Burundi and Northern Uganda. *BMC Pregnancy and Childbirth, 15(18)*.

Choe, S-A, Cho, S. and Kim, H. (2017) Gender gap matters in maternal mortality in low and lower-middle-income countries: A study of the global Gender Gap Index. *Global Public Health, 12:9*, p. 1065-1076.

CIA (2018b) *World Factbook: Burundi*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/by.html, January 2, 2018.

CIA (2018c) *World Factbook: Rwanda*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/rw.html, January 2, 2018.

Cross, S., Bell, J.S. and Graham, W.J. (2010) What you count is what you target: the implications of maternal death classification for tracking progress towards reducing maternal mortality in developing countries. *Bull World Health Organ 2010:88*, p. 147–153.

Darroch, J.E. and Singh, S. (2013) Trends in contraceptive need and use in developing countries in 2003, 2008, and 2012: an analysis of national surveys. *The Lancet 2013:381*, p. 1756-1762.

Every Woman, Every Child [EWEC] (2015) The global strategy for women's, children's and adolescents' health (2016-2030).

Farmer, P. E., Nutt, C. T., Wagner, C. M., Sekabaraga, C., Nuthulaganti, T., Weigel, J. L., Farmer, D. B., Habinshuti, A., Dusabeyesu, S., Karasi, J-C. and Drobac, P. C. (2013) Reduced premature mortality in Rwanda: lessons from success. *BMJ, 346:f65*.

Firoz, T., Chou, D., von Dadelszen, P., Agrawal, P., Vanderkruik, R., Tunçalp, Ö., Magee, L.A., van Den Broek, N. and Say, L. (2013) Measuring maternal health: focus on maternal morbidity. *Bull World Health Organ 2013:9*, p. 794–796.

Flyvbjerg, B. (2006) Five Misunderstandings About Case-Study Research. *Qualitative Inquiry, 12:2*, p. 219-245.

Freedman, L. (2016) Implementation and aspiration gaps: whose view counts? *The Lancet 2016:388*, p. 2068-2069.

Fujita, N., Abe, K., Rotem, A., Rathavy, T., Keat, P., Robins, A., & Zwi, A.B. (2013) Addressing the human resources crisis: a case study of Cambodia's efforts to reduce maternal mortality (1980–2012). *BMJ Open 2013;3:e002685*.

Gapminder (2018a) *Democracy Score (Polity IV): Burundi, Rwanda*. Retrieved from https://www.gapminder.org/tools/#_state_time_value=2011;&marker_select@_geo=rwa;&_geo=bdi;;&opacitySelectDim:0&axis/_x_which=time&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null&scaleType

=time;&axis/_y_which=democracy/_score/_use/_as/_color&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null;;;&ui_chart_trails:false;;&chart-type=bubbles, January, 2018.

Gapminder (2018b) *Maternal mortality: Burundi, Rwanda*. Retrieved from https://www.gapminder.org/tools/#_state_time_value=2013;&marker_select@_geo=rwa&trailStartTime=2013;&_geo=bdi&trailStartTime=2013;;&opacitySelectDim:0&axis/_y_which=maternal/_mortality/_ratio/_per/_100000/_live/_births&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null&scaleType=log;;;&data_/_lastModified:1523284209399;&chart-type=bubbles, January, 2018.

Gapminder (2018c) *Ratio girls/boys in school, Rwanda*. Retrieved from https://www.gapminder.org/tools/#_state_time_value=2009;&marker_select@_geo=rwa&trailStartTime=1978;;&opacitySelectDim:0&axis/_x_which=time&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null&scaleType=time;&axis/_y_which=ratio/_of/_girls/_to/_boys/_in/_primary/_and/_secondary/_education/_perc&domainMin:null&domainMax:null&zoomedMin:null&zoomedMax:null;;;&data_/_lastModified:1523280545109&lastModified:1523280545109;&chart-type=bubbles, April 9, 2018.

George, A.L. and Bennett, A. (2005) *Case Studies and Theory Development in the Social Sciences*. London: MIT Press.

Germain, A., Sen, G., Garcia-Moreno, C. and Shankar, M. (2015) Advancing sexual and reproductive health and rights in low- and middle-income countries: Implications for the post-2015 global development agenda. *Global Public Health, 10(2)*, p. 137-148.

Gerring, J. (2004) What is a case study and what is it good for? *American Political Science Review, 98(2)*, p. 341-354.

Gil-González, D., Carrasco-Portiño, M. and Ruiz, T.M. (2006) Knowledge gaps in scientific literature on maternal mortality: a systematic review. *Bulletin of the World Health Organization, 84(11)*, November 2006, p. 903-909.

Gill, K., Pande, R. and A. Malhotra. 2007. Women deliver for development, *The Lancet,* 370(9595), p.1347-1357.

Godal and Quam (2012) Comment: Accelerating the global response to reduce maternal mortality. *The Lancet 379*, 2012, p. 2025-2026.

Government of Burundi, the and the United Nations (2004) *Rapport d'Avancement Objectifs du Millenaire pour le Developpement 2004*. Bujumbura: Government of Burundi and the UN.

Government of Burundi, the and the United Nations (2013) *Burundi Rapport sur les Objectifs du Millénaire pour le développement 2012*. Bujumbura: Government of Burundi and the UN.

Government of Rwanda, the (2000) *Vision 2020.* Kigali: Ministry of Finance and Economic Planning.

Government of Rwanda, the (2003) *The Constitution of the Republic of Rwanda of 2003. Revised in 2015*. Kigali: Government of Rwanda.

Government of Rwanda, the and UNDP (2014) *Millennium Development Goals. Rwanda. Final Progress Report: 2013*. Retrieved from http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/africa-collection.html, March 19, 2018.

Graham, W., Woodd, S., Byass, P., Filippi, V., Gon, G., Virgo, S., Chou, D., Hunton, S., Lozano, R., Pattinson, R. and Singh, S. (2016) Diversity and divergence: the dynamic burden of poor maternal health. *The Lancet 2016:388*, p. 2164–2175.

Grépin, K.A. and Klugman, J. (2013) Maternal health: a missed opportunity for development. *The Lancet, vol. 381, 2013*, p. 1691-1693.

Holm Hansen, C. and Armstrong Schellenberg, J. R. M. (2016) Modest global achievements in maternal survival: more focus on sub-Saharan Africa is needed. *The Lancet 387, 2016*, p. 410-411.

Hong, R., Ayad, M. and Ngabo, F. (2011) Being insured improves safe delivery practices in Rwanda. *Journal of Community Health, 36(5)*, p. 779-784.

Hsieh, H.F., and Shannon, S.E. (2005) Three Approaches to Content Analysis. *Qualitative Health Research, 15(9)*, p. 1277-1288.

IndexMundi (2017) *Rwanda vs. Burundi*. Retrieved from https://www.indexmundi.com/factbook/compare/rwanda.burundi, December 25, 2017.

Institut de Statistiques et d'Études Économiques du Burundi [ISTEEBU], Ministère de la Santé Publique et de la Lutte contre le Sida [MSPLS] Burundi and ICF International (2012) *Enquête Démographique et de Santé Burundi 2010*. Bujumbura: ISTEEBU, MSPLS and ICF International.

Institut National de la Statistique du Rwanda (INSR) and ORC Macro (2006) *Rwanda Demographic and Health Survey 2005*. Calverton, Maryland: INSR and ORC Macro.

Inter-Parliamentary Union, the [UPI] (2018) *Women in national parliaments. Situation as of January 1, 2018.* Retrieved from http://archive.ipu.org/wmn-e/classif.htm, April 10, 2018.

Jennings, L., Na, M., Cherewick, M., Hindin, M., Mullany, B. and Ahmed, S. (2014) Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth, 14(297)*.

Kalk, A., Amani Paul, F. and Grabosch, E. (2010) 'Paying for performance' in Rwanda: does it pay off? *Tropical Medicine and International Health, 15(2)*, p. 182–190.

Karlsen, S., Say, L., Souza, J.P., Hogue, C.J., Calles, D.L., Gülmezoglu, A.M., and Raine, R. (2011) The relationship between maternal education and mortality among women giving birth in health care institutions: Analysis of the cross sectional WHO Global Survey on Maternal and Perinatal Health. *BMC Public Health 2011, 11:606*, p. 1-10.

Kassebaum, N.J., Steiner, C., Murray, C.J.L., Lopez, A.D., and Lozano, R. (2016) Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet, 388*, p. 1775-1812.

Kirigia, J.M., Oluwole, D., Mwabu, G.M., Gatwiri, D. & Kainyu, L.H. (2005) Effects of maternal mortality on gross domestic product (GDP) in the WHO African region. *African Journal of Health Sciences, 12(3-4)*, p. 55-64.

Knight, H.E., Self, A., and Kennedy, S.H. (2013) Why Are Women Dying When They Reach Hospital on Time? A Systematic Review of the 'Third Delay'. *PLoS ONE 8(5)*.

Koblinsky, M., Moyer, C.A., Calvert, C., Campbell, J., Campbell, O.M.R., Feigl, A.B., Graham, W.J., Hatt, L., Hodgins, S., Matthews, Z., McDougall, L., Moran, A.C., Nandakumar, A.K., and Langer, A. (2016) Quality maternity care for every woman, everywhere: a call to action. *The Lancet 388*, p. 2307-2320.

Kuruvilla, S., Schweitzer, J., Bishai, D., Chowdhury, S., Caramani, D., Frost, L., Cortez, R., Daelmans, B., de Fransisco, A., Adam, T., Cohen, R., Alfonso, Y. N., Franz-Vasdeki, J., Saadat, S., Pratt, B. A., Eugster, B., Bandali, S., Venkatachalam, P., Hinton, R., Murray, J., Arscott-Mills, S., Axelson, H., Maliqi, B., Sarker, I., Lakshminarayanan, R., Jacobs, T., Jacks, S., Mason, E., Ghaffar, A., Mays, N., Presern, C. and Bustreo, F. (2014) Success factors for reducing maternal and child mortality. *Bull World Health Organ 2014(92)*, p. 533-544.

Lemarchand, R. (1994) Managing Transition Anarchies: Rwanda, Burundi, and South Africa in Comparative Perspective. *Journal of Modern African Studies 32(4)*, p. 581-604.

Levy, J.S. (2008) Case Studies: Types, Designs, and Logics of Inference. *Conflict Management and Peace Science, 25*, p. 1–18.

Logie, D.E., Rowson, M. and Ndagije, F. (2008) Innovations in Rwanda's health system: looking to the future. *Lancet 2008:372*, p. 256-261.

Magadi, M. A., Agwandab, A.O., and Obarec, F.O. (2007) A comparative analysis of the use of maternal health services between teenagers and older mothers in sub-Saharan Africa: Evidence from Demographic and Health Surveys (DHS). *Social Science & Medicine 64*, p. 1311-1325.

Mathai, M., Dilip, T.R., Jawad, I., and Yoshida, S. (2015) Strengthening accountability to end preventable maternal deaths. *International Journal of Gynecology and Obstetrics 131 (2015)*, p. S3–S5.

Mbizvo, M. T. and Say, L. (2012) Global progress and potentially effective policy responses to reduce maternal mortality. *International Journal of Gynecology and Obstetrics 119*, p. S9–S12.

McDougall, L., Campbell, O.M.R. and Graham, W. (2016) Maternal Health. An Executive Summary for The Lancet's Series. *The Lancet 388, 2016*.

McTavish, S., Moore, S., Harper, S., and Lynch, J. (2010) National female literacy, individual socio-economic status, and maternal health care use in sub-Saharan Africa. *Social Science & Medicine 71*, p. 1958-1963.

Médecins Sans Frontières [MSF] (2012) *Safe Delivery. Reducing maternal mortality in Sierra Leone and Burundi*. Brussels: Médecins Sans Frontières.

Melvin, D. and Duggan, B. (2015, December 20) Rwandans approve changes in term limits, initial results show. *CNN*. Retrieved from https://edition.cnn.com/2015/12/18/africa/rwanda-kagame-term-limits/index.html, April 6, 2018.

Mgawadere, F., Unkels, R., Kazembe, A., and van den Broek, N. (2017) Factors associated with maternal mortality in Malawi: application of the three delays model. *BMC Pregnancy ad Childbirth, 17(219)*.

Miller, S. and Bélizan, J.M. (2015) The true cost of maternal death: individual tragedy impacts family, community and nations. *Reproductive Health, 12(56)*, p. 1-4.

Miller, S., Abalos, E., Chamillard, M., Ciapponi, A., Colaci, D., Comandé, D., Diaz, V., Geller, S., Hanson, C., Langer, A., Manuelli, V., Millar, K., Morhason-Bello, I., Pileggi Castro, C., Nogueira Pileggi, V., Robinson, N., Skaer, M., Paulo Souza, J., Vogel, J.P. and Althabe, F. (2016) Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide. *The Lancet, 388(10056),* p. 2176-2192.

Ministère à la Présidence chargé de la Bonne Gouvernance et du Plan Burundi [MPBGP], MSPLS, ISTEEBU and ICF (2017) *Troisième Enquête Démographique et de Santé au Burundi.* Bujumbura: ISTEEBU, MSPLS and ICF.

Ministry of Education [MoE] Rwanda (2003) *Education Sector Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2008a) *Nine years basic education implementation*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2008b) *Girls Education Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2011) *Early Childhood Development Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2014a) *National School Health Strategic Plan*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2014b) *Adult Education Policy*. Kigali: MoE.

Ministry of Gender and Family Promotion [MIGEPROF], Rwanda (2010) *National Gender Policy*. Kigali: MIGEPROF.

Ministry of Gender and Family Promotion [MIGEPROF], Rwanda (2011) *National Policy against Gender-Based Violence*. Kigali: MIGEPROF.

Ministry of Health (MoH) Rwanda, National Institute of Statistics of Rwanda [NISR], and ICF Macro (2009) *Rwanda Interim Demographic and Health Survey 2007-08.* Calverton: MoH, NISR, and ICF Macro.

Ministry of Local Government [MINALOC] Rwanda (2004) *Rwanda five-year decentralization implementation programme (5 year – DIP: 2004-2008)*. Kigali: MINALOC.

Moucheraud, C., Worku, A., Molla, M., Finlay, J. E., Leaning, J., and Yamin, A. E. (2015) Consequences of maternal mortality on infant and child survival: a 25-year longitudinal analysis in Butajira Ethiopia (1987-2011). *Reproductive Health*, *12*(Suppl 1), S4.

National Institute of Statistics [NISR] (2007) *Millennium Development Goals. Towards sustainable and economic growth. Country Report 2007*. Kigali: NISR.

NISR and ORC Macro (2006) *Rwanda Demographic and Health Survey 2005.* Calverton: NISR and ORC Macro.

NISR, Ministry of Health and ICF International (2012) *2010 Rwanda Demographic and Health Survey*. Calverton: NISR, Ministry of Health and ICF International.

NISR, Ministry of Health and ICF International (2015) *Rwanda Demographic and Health Survey 2014-15*. Rockville: NISR, MOH and ICF International.

National Office of Population [ONAPO] Rwanda and ORC Macro (2001) *Santé pour tous. Enquête Démographique et de Santé, Rwanda 2000*. Kigali: MoH, ONAPO and ORC Macro.

Ngabo, F., Nguimfack, J., Nwaigwe, F., Mugeni, C., Muhoza, D., Wilson, D.R., Kalach, J., Gakuba, R., Karema, C. and Binagwaho, A. (2012) Designing and Implementing an Innovative SMS-based alert system (RapidSMS-MCH) to monitor pregnancy and reduce maternal and child deaths in Rwanda. *PanAfrican Medical Journal 13(31)*.

Okonofua, F.E., Ntoimo, L.F.C., and Ogu, R.N. (2018) Women's perceptions of reasons for maternal deaths: Implications for policies and programs for preventing maternal deaths in low-income countries. *Health Care for Women International, 39(1)*, p. 95-109.

Oronje, R.N., Crichton, J., Theobald, S., Lithur N.O., and Ibisomi, L. (2011) Operationalising sexual and reproductive health and rights in sub-Saharan Africa: constraints, dilemmas and strategies. *BMC International Health and Human Rights 2011*, 11(Suppl 3):S8.

Overseas Development Institute [ODI] (2012) *Delivering maternal health. Why is Rwanda doing better than Malawi, Niger and Uganda? Briefing paper*. Retrieved from https://www.odi.org/publications/6614-delivering-maternal-health-why-rwanda-doing-better-malawi-niger-and-uganda, April 6, 2018.

Patesh, P. (2013) *The Clash of Violent Conflict, Good Jobs, and Gender Norms in Four Economies*. Background Paper for the World Bank Development Report.

Priedeman Skiles, M., Curtis, S. L., Basinga, P. and Angeles, G. (2013) An equity analysis of performance-based financing in Rwanda: are services reaching the poorest women? *Health Policy and Planning 2013:28*, p. 825-837.

Påfs, J. (2016) *The Quest for Maternal Survival in Rwanda. Paradoxes in Policy and Practice from the Perspective of Near-Miss Women, Recent Fathers and Healthcare Providers* (Doctoral thesis, Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine 1275). Uppsala: Acta Universitatis Upsaliensis. Avaliable: https://uu.diva-portal.org/smash/get/diva2:1042525/FULLTEXT01.pdf.

Ray, S., Madzimbamuto, F. and Fonn, S. (2012) Activism: working to reduce maternal mortality through civil society and health professional alliances in sub-Saharan Africa. *Reproductive Health Matters, 20(39)*, p. 40-49.

Rosenberg, T. (2012, July 3) In Rwanda, Health Care Coverage That Eludes the U.S. *The New York Times.* Retrieved from https://opinionator.blogs.nytimes.com/2012/07/03/rwandas-health-care-miracle/?_r=0, April 5, 2018.

Rudasingwa, M., Soeters, R. and Basenya, O. (2017) The effect of performance-based financing on maternal healthcare use in Burundi: a two-wave pooled cross sectional analysis. *Global Health Action, 10:1*.

Rwanda Governance Board (2014) *The assessment of the impacts of home grown initiative*s. Kigali: Rwanda Governance Board.

Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A-B., Daniels, J., Gülmezoglu, A.M., Temmerman, M. and Alkema, L. (2014) Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health 2014:2*, p. e323-e333.

Sayinzoga, F. and Bijlmakers, L. (2016) Drivers of the health sector performance in Rwanda: A qualitative view from within. *BMC Health Services Research, 16(123)*.

Sayinzoga, F., Bijlmakers, L., van Dillen, J., Mivumbi, V., Ngabo, F. and van der Velden, K. (2016) Maternal death audit in Rwanda 2009-2013: A nationwide facility-based retrospective cohort study. *BMJ Open 2016;6:e009734*.

Segamba, L., Ndikumasabo, V., Makinson, C. and Ayad, M. (1988*) Enquête Démographique et de Santé au Burundi 1987*. Columbia, Maryland, USA: Ministère de l'Intérieur Département de la Population/Burundi and Institute for Resource Development/Westinghouse.

Sen, G. (2014) Sexual and reproductive health and rights in the post-2015 development agenda. *Global Public Health, 9(6)*, p. 599-606.

Sen, G. and Mukherjee, A. (2014) No Empowerment without Rights, No Rights without Politics: Gender-equality, MDGs and the post-2015 Development Agenda. *Journal of Human Development and Capabilities, 15(2-3)*, p. 188-202.

Tayler-Smith, K., Zachariah, R., Manzi, M., Van den Boogaard, W., Nyandwi, G., Reid, T., Van den Bergh, R., De Plecker, E., Lambert, V., Nicolai, M., Goetghebuer, S., Christaens, B., Ndelema, B.,. Kabangu, A., Manirampa, J. and Harries, A. D. (2013a) Achieving the Millennium Development Goal of reducing maternal mortality in rural Africa: an experience from Burundi. *Tropical Medicine and International Health 2013:18*, p. 166–174.

Tayler-Smith, K., Zachariah, R., Manzi, M., Van den Boogaard, W., Nyandwi, G., Reid, T., Van den Bergh, R., De Plecker, E., Lambert, V., Nicolai, M., Goetghebuer, S., Christaens, B., Ndelema, B.,. Kabangu, A., Manirampa, J. and Harries, A. D. (2013b) An ambulance referral network improves access to emergency obstetric and neonatal care in a district of rural Burundi with high maternal mortality. *Tropical Medicine and International Health 2013:18*, p. 993-1001.

Thaddeus, S. and Maine, D. (1994) Too far to walk: Maternal mortality in context. *Social Science & Medicine, 38(8)*, p. 1091-1110.

Transparency International (2018) *Corruption Perceptions Index 2017*. Retrieved from https://www.transparency.org/news/feature/corruption_perceptions_index_2017, April 11, 2018.

Uppsala Conflict Database Program [UCDP] (2018a) Rwanda. Retrieved from http://ucdp.uu.se/#country/517, January 3, 2018.

UCDP (2018b) Burundi. Retrieved from http://ucdp.uu.se/#country/516, January 3, 2018.

UNDP and the Government of Rwanda (2003) *Millennium Development Goals. Status Report 2003.* Kigali: UNDP.

UNDP and Ministère du Plan et de la Reconstruction, Burundi (2010) *Rapport Burundi. Objectifs du Millénaire pour le développement 2010*. Bujumbura: UNDP and MPR.

United Nations Maternal Mortality Estimation Inter-Agency Group, the (2016) Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *The Lancet 387, 2016*, p. 462–474.

United Nations University – Institute of Advanced Studies (UNU-IAS) and the Republic of Rwanda's Ministry of Science, Technology and Scientific Research (2006) *The Republic of Rwanda's Policy on Science, Technology and Innovation*. Kigali: UNU-IAS and the Republic of Rwanda.

Uvin, P. (1999) Ethnicity and Power in Burundi and Rwanda: Different Paths to Mass Violence. Comparative Politics 31(3), p. 253-271.

Vandeginste, S. (2014) Governing ethnicity after genocide: ethnic amnesia in Rwanda versus ethnic power-sharing in Burundi. *Journal of Eastern African Studies 8(2)*, p. 263-277.

Van den Boogaard, W., Manzi, M., De Plecker, E., Caluwaerts, S., Nanan-N'zeth, K., Duchenne, B., Etienne, W., Juma, N., Ndelema, B. and Zachariah, R. (2016) Caesarean sections in rural Burundi: how well are mothers doing two years on? *Public Health Action, 6(2)*, p. 72-76.

Van den Broek, N.R. and Falconer, A.D. (2011) Maternal mortality and Millennium Development Goal 5. *British Medical Bulletin 2011:99*, p. 25–38.

Van Lerberghe, W., Matthews, Z., Achadi, E., Ancona, C., Campbell, J., Channon, A., de Bernis, L., De Brouwere, V., Fauveau, V., Fogstad, H., Koblinsky, M., Liljestrand, J., Mechbal, A., Murray, S.F., Rathavay, T., Rehr, H., Richard, F., ten Hoope-Bender, P., and Turkmani, S. (2014) Country experience with strengthening of health systems and deployment of midwives in countries with high maternal mortality. *The Lancet 2014; 384*, p. 1215–1225.

Wang, G. (2013) The Impact of Social and Economic Indicators on Maternal and Child Health. *Social Indicators Research, 116(3)*, p. 935-957.

Wang, W., Temsah, G. and Mallick, L. (2017) The impact of health insurance on maternal health care utilization: evidence from Ghana, Indonesia and Rwanda. *Health Policy and Planning, 32*, p. 366-375.

World Bank, the (2018a) *Population. Burundi, Rwanda*. Retrieved from https://data.worldbank.org/indicator/SP.POP.TOTL?locations=BI-RW, January 2, 2018.

World Bank, the (2018b) *Primary school completion (total; females; males), Rwanda*. Retrieved from https://data.worldbank.org/indicator/SE.PRM.CMPT.ZS?locations=RW, April 9, 2018.

World Bank, the (2018c) *Net ODA received (% of GNI). Burundi, Rwanda*. Retrieved from https://data.worldbank.org/indicator/DT.ODA.ODAT.GN.ZS?locations=BI-RW&view=chart, June 17, 2018.

World Health Organization, the [WHO] (2004) *Reproductive Health Strategy to accelerate progress towards the attainment of international development goals and targets*. Geneva: WHO.

WHO (2015a) *MDG 5: Improve maternal health. Reviewed May 2015.* Retrieved from http://www.who.int/topics/millennium_development_goals/maternal_health/en/, January 2, 2018.

WHO (2015b) *Strategies toward ending preventable maternal mortality (EPMM)*. Geneva: World Health Organization.

WHO (2015c) *Trends in maternal mortality: 1990 to 2015. Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. Geneva: World Health Organization.

WHO (2016) *Maternal Mortality. Fact sheet. Updated November 2016*. Retrieved from http://www.who.int/mediacentre/factsheets/fs348/en/, January 3, 2018.

WHO (2017a) *Maternal mortality ratio (per 100 000 live births)*. Retrieved from http://www.who.int/healthinfo/statistics/indmaternalmortality/en/, December 30, 2017.

WHO (2017b) *WHO Recommendations on Maternal Health. Guidelines Approved by the WHO Guidelines Review Committee. Updated May 2017.* Geneva: World Health Organization.

WHO (2018) Family *planning/Contraception. Fact sheet. Reviewed February 2018*. Retrieved from http://www.who.int/mediacentre/factsheets/fs351/en/, February 20, 2018.

Yamin, A.E., Boulanger, V.M., Falb, K.L., Shuma, J. & Leaning, J. (2013) Costs of Inaction on Maternal Mortality: Qualitative Evidence of the Impacts of Maternal Deaths on Living Children in Tanzania. *PLoS ONE, 8(8)*, p. 1-7.

Yin, R.K. (2014) *Case Study Research: Design and Methods. 5th Edition*. Los Angeles: SAGE Publications.

Appendix 1. MDG 5A country-level progress 1990-2015

Category	Criteria	Countries (95)
Achieved MDG 5A	MMR reduction point-estimate of ≥ 75%	Bhutan, Cape Verde, Cambodia, Iran (Islamic Republic of), Lao People's Democratic Republic, Maldives, Mongolia, **Rwanda**, Timor-Leste (9)
Making progress	MMR reduction point-estimate of ≥ 50% **AND** ≥ 90% probability of an MMR reduction of ≥ 25%	Afghanistan, Angola, Bangladesh, Brazil, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Guatemala, Honduras, India, Indonesia, Iraq, Kiribati, Madagascar, Morocco, Mozambique, Myanmar, Nepal, Pakistan, Peru, Romania, Samoa, Sao Tome and Principe, Solomon Islands, South Sudan, Sudan, Tajikistan, Tunisia, Uganda, United Republic of Tanzania, Vanuatu, Vietnam, West Bank and Gaza Strip (the State of Palestine), Zambia (39)
Insufficient progress	MMR reduction point-estimate of ≥ 25% **AND** ≥ 90% probability of an MMR reduction of ≥ 0%	Bolivia, Botswana, Burkina Faso, **Burundi**, Chad, Colombia, Comoros, Ghana, Guinea, Guinea-Bissau, Jordan, Liberia, Mali, Micronesia (Federated States of), Niger, Papua New Guinea, Senegal, Sierra Leone, Somalia, Syrian Arab Republic, Togo (21)
No progress	MMR reduction point-estimate of < 25% **OR** 90% probability that there has been no reduction in MMR, or there has been an increase in MMR	Algeria, Benin, Cameroon, Central African Republic, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Gabon, Gambia, Guyana, Haiti, Kenya, Lesotho, Malawi, Mauritania, Namibia, Nicaragua, Nigeria, Panama, Paraguay, Philippines, South Africa, Suriname, Swaziland, Yemen, Zimbabwe (26)

Sources: WHO (2015c); MMEIG (2016).

Appendix 2. Regional MMR 1990-2015

Region	MMR* 1990	MMR* 2015	% reduction in MMR 1990-2015	Average annual % reduction in MMR 1990-2015
World	385	216	44	2.3
Northern Africa	171	70	59	3.6
Sub-Saharan Africa	987	546	45	2.4
Eastern Asia	95	27	72	5.0
Southern Asia	538	176	67	4.5
South-Eastern Asia	320	110	66	4.3
Western Asia	160	91	43	2.2
Caucasus and Central Asia	69	33	52	3.0
Latin America and the Caribb	135	67	50	2.8
Oceania	391	187	52	3.0

*Estimated maternal mortality ratio in deaths/100,000 live births.
Source: WHO (2015c).

Appendix 3. List of case study material, Rwanda

Policy documents

Government of Rwanda, the (2000) *Vision 2020. Revised in 2012.* Kigali: Ministry of Finance and Economic Planning.

Government of Rwanda, the (2003) *The Constitution of the Republic of Rwanda of 2003. Revised in 2015*. Kigali: Government of Rwanda.

Ministry of Education [MoE] Rwanda (2003) *Education Sector Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2008a) *Nine years basic education implementation*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2008b) *Girls Education Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2011) *Early Childhood Development Policy*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2014a) *National School Health Strategic Plan*. Kigali: MoE.

Ministry of Education [MoE] Rwanda (2014b) *Adult Education Policy*. Kigali: MoE.

Ministry of Gender and Family Promotion [MIGEPROF], Rwanda (2010) *National Gender Policy*. Kigali: MIGEPROF.

Ministry of Gender and Family Promotion [MIGEPROF], Rwanda (2011) *National Policy against Gender-Based Violence*. Kigali: MIGEPROF.

Ministry of Local Government [MINALOC] Rwanda (2004) *Rwanda five-year decentralization implementation programme (5 year – DIP: 2004-2008)*. Kigali: MINALOC.

Rwanda Governance Board (2014) *The assessment of the impacts of home grown initiative*s. Kigali: Rwanda Governance Board.

United Nations University – Institute of Advanced Studies (UNU-IAS) and the Republic of Rwanda's Ministry of Science, Technology and Scientific Research (2006) *The Republic of Rwanda's Policy on Science, Technology and Innovation*. Kigali: UNU-IAS and the Republic of Rwanda.

Demographic and Health Surveys (DHS)

Assaf, S., Staveteig, S. and Birungi, F. (2018) *Trends in Maternal Health in Rwanda: Further Analysis of the 2014-15 Demographic and Health Survey*. DHS Further Analysis Reports No. 108. Rockville: ICF.

Ayad, M. and Hong, R. (2009*) Levels and Trends of Contraceptive Prevalence and Estimate of Unmet Need for Family Planning in Rwanda: Further Analysis of the Rwanda Demographic and Health Surveys, 2000–2007/08*. DHS Further Analysis Reports No. 67. Calverton, Maryland, USA: ICF Macro.

Barrère, B., Schoemaker, J., Barrère, M., Habiyakare, T., Kabagwira, A. & Ngendakumana, M. (1994) *Enquête Démographique et de Santé Rwanda 1992*. Kigali: National Office of Population and Macro International.

Ministry of Health [MoH], National Institute of Statistics of Rwanda [NISR], and ICF Macro (2009) *Rwanda Interim Demographic and Health Survey 2007-08.* Calverton: MOH, NISR, and ICF Macro.

NISR, MoH and ICF International (2012) *2010 Rwanda Demographic and Health Survey.* Calverton: NISR, Ministry of Health and ICF International.

NISR, MoH, and ICF International (2015) *Rwanda Demographic and Health Survey 2014-15*. Rockville: NISR, MOH and ICF International.

NISR and ORC Macro (2006) *Rwanda Demographic and Health Survey 2005.* Calverton: NISR and ORC Macro.

ONAPO and ORC Macro (2001) *Santé pour tous. Enquête Démographique et de Santé, Rwanda 2000*. Kigali: Ministry of Health, ONAPO and ORC Macro.

Millennium Development Goals Country Progress Reports (MDGR)

Abbott, P. and Rwirahira, J. and UNDP (2010) *Millennium Development Goals Progress Report. Rwanda Country Report 2010*. [Unofficial] Retrieved from https://www.africaportal.org/documents/9196/MDGs_COUNTRY__RWANDA_REPORT_20101.pdf, March 20, 2018.

Government of Rwanda, the and UNDP (2014) *Millennium Development Goals. Rwanda. Final Progress Report: 2013*. Retrieved from http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/africa-collection.html, March 19, 2018.

National Institute of Statistics (NISR) (2007) *Millennium Development Goals. Towards sustainable and economic growth. Country Report 2007*. Kigali: NISR.

UNDP and the Government of Rwanda (2003) *Millennium Development Goals. Status Report 2003.* Kigali: UNDP.

Secondary research

African Development Bank, the [ADB] (2012) *Performance contracts and social delivery – lessons from Rwanda. ABD Rwanda Field Office Policy Brief.* Retrieved from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Policy_Brief_-_Perfomance_Contracts_and_Social_Service_Delivery_-_Lessons_from_Rwanda.pdf, April 6, 2018.

Ansoms, A. and Rostagno, D. (2012) Rwanda's Vision 2020 halfway through: what the eye does not see. *Review of African Political Economy, 39(133)*, p. 427-450.

Basinga, P., Gertler, P. J., Binagwaho, A., Soucat, A. L. B., Sturdy, J. and Vermeersch, C. M. J. (2011) Effect on maternal and child health services in Rwanda of payment to primary health-care providers for performance: an impact evaluation. *The Lancet 2011: 377*, p. 1421-1428.

Brown, S. E. (2016) Reshaping Gender Norms in Post-Genocide Rwanda. *Genocide Studies International, 10(2)*, p. 230-250.

Bucagu, M., Kagubare, J.M., Basinga, P., Ngabo, F., Timmons, B. K. and Lee, A. C. (2012) Impact of health systems strengthening on coverage of maternal health services in Rwanda, 2000-2010: a systematic review. *Reproductive Health Matters, 20:39*, p. 50-61.

Farmer, P. E., Nutt, C. T., Wagner, C. M., Sekabaraga, C., Nuthulaganti, T., Weigel, J. L., Farmer, D. B., Habinshuti, A., Dusabeyesu, S., Karasi, J-C. and Drobac, P. C. (2013) Reduced premature mortality in Rwanda: lessons from success. *BMJ, 346:f65*.

Hong, R., Ayad, M. and Ngabo, F. (2011) Being insured improves safe delivery practices in Rwanda. *Journal of Community Health, 36(5)*, p. 779-784.

Jennings, L., Na, M., Cherewick, M., Hindin, M., Mullany, B. and Ahmed, S. (2014) Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth, 14(297)*.

Kalk, A., Amani Paul, F. and Grabosch, E. (2010) 'Paying for performance' in Rwanda: does it pay off? *Tropical Medicine and International Health, 15(2)*, p. 182–190.

Logie, D.E., Rowson, M. and Ndagije, F. (2008) Innovations in Rwanda's health system: looking to the future. *Lancet 2008:372*, p. 256-261.

Ngabo, F., Nguimfack, J., Nwaigwe, F., Mugeni, C., Muhoza, D., Wilson, D.R., Kalach, J., Gakuba, R., Karema, C. and Binagwaho, A. (2012) Designing and Implementing an Innovative SMS-based alert system (RapidSMS-MCH) to monitor pregnancy and reduce maternal and child deaths in Rwanda. *PanAfrican Medical Journal 13(31)*.

Overseas Development Institute [ODI] (2012) *Delivering maternal health. Why is Rwanda doing better than Malawi, Niger and Uganda? Briefing paper*. Retrieved from https://www.odi.org/publications/6614-delivering-maternal-health-why-rwanda-doing-better-malawi-niger-and-uganda, April 6, 2018.

Priedeman Skiles, M., Curtis, S. L., Basinga, P. and Angeles, G. (2013) An equity analysis of performance-based financing in Rwanda: are services reaching the poorest women? *Health Policy and Planning 2013:28*, p. 825-837.

Påfs, J. (2016) *The Quest for Maternal Survival in Rwanda. Paradoxes in Policy and Practice from the Perspective of Near-Miss Women, Recent Fathers and Healthcare Providers* (Doctoral thesis, Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine 1275). Uppsala: Acta Universitatis Upsaliensis. Avaliable: https://uu.diva-portal.org/smash/get/diva2:1042525/FULLTEXT01.pdf.

Rosenberg, T. (2012, July 3) In Rwanda, Health Care Coverage That Eludes the U.S. *The New York Times.* Retrieved from https://opinionator.blogs.nytimes.com/2012/07/03/rwandas-health-care-miracle/?_r=0, April 5, 2018.

Sayinzoga, F. and Bijlmakers, L. (2016) Drivers of the health sector performance in Rwanda: A qualitative view from within. *BMC Health Services Research, 16(123)*.

Sayinzoga, F., Bijlmakers, L., van Dillen, J., Mivumbi, V., Ngabo, F. and van der Velden, K. (2016) Maternal death audit in Rwanda 2009-2013: A nationwide facility-based retrospective cohort study. *BMJ Open 2016;6:e009734*.

Wang, W., Temsah, G. and Mallick, L. (2017) The impact of health insurance on maternal health care utilization: evidence from Ghana, Indonesia and Rwanda. *Health Policy and Planning, 32*, p. 366-375.

Appendix 4. List of case study material, Burundi

Demographic and Health Surveys

Institut de Statistiques et d'Études Économiques du Burundi [ISTEEBU], Ministère de la Santé Publique et de la Lutte contre le Sida [MSPLS] Burundi and ICF International (2012) *Enquête Démographique et de Santé Burundi 2010*. Bujumbura: ISTEEBU, MSPLS and ICF International.

Ministère à la Présidence chargé de la Bonne Gouvernance et du Plan Burundi [MPBGP], MSPLS, ISTEEBU and ICF (2017) *Troisième Enquête Démographique et de Santé au Burundi.* Bujumbura: ISTEEBU, MSPLS and ICF.

Segamba, L., Ndikumasabo, V., Makinson, C. and Ayad, M. (1988) *Enquête Démographique et de Santé au Burundi 1987*. Columbia, Maryland, USA: Ministère de l'Intérieur Département de la Population/Burundi and Institute for Resource Development/Westinghouse.

Millennium Development Goals Country Progress Reports

Government of Burundi and the United Nations (2004) *Rapport d'Avancement Objectifs du Millenaire pour le Developpement*. Bujumbura: Government of Burundi and the UN.

Government of Burundi, the and the United Nations (2013) *Burundi Rapport sur les Objectifs du Millénaire pour le développement 2012*. Bujumbura: Government of Burundi and the UN.

UNDP and Ministère du Plan et de la Reconstruction, Burundi (2010) *Rapport Burundi. Objectifs du Millénaire pour le Développement 2010.* Bujumbura: UNDP and Ministère du Plan et de la Reconstruction.

Secondary research

Bonfrer, I., Van de Poel, E. & Van Doorslaer, E. (2014) The effects of performance incentives on the utilization and quality of maternal and child care in Burundi. *Social Science & Medicine 123*, p. 96-104.

Chaumont, C., Muhorane, C., Moreira-Burgos, I., Juma, N. and Avila-Burgos, L. (2015) Maternal and reproductive health financing in Burundi: public-sector contribution levels and trends from 2010 to 2012. *BMC Health Services Research, 15:446*.

Chi, P.C., Bulage, P., Urdal, H. and Sundby, J. (2015a) Barriers in the Delivery of Emergency Obstetric and Neonatal Care in Post-Conflict Africa: Qualitative Case Studies of Burundi and Northern Uganda. *PLoS ONE 10(9)*.

Chi, P.C., Bulage, P., Urdal, H. and Sundby, J. (2015b) A qualitative study exploring the determinants of maternal health service uptake in post-conflict Burundi and Northern Uganda. *BMC Pregnancy and Childbirth, 15(18)*.

Jennings, L., Na, M., Cherewick, M., Hindin, M., Mullany, B. and Ahmed, S. (2014) Women's empowerment and male involvement in antenatal care: analyses of Demographic and Health Surveys (DHS) in selected African countries. *BMC Pregnancy and Childbirth, 14(297)*.

Médecins Sans Frontières [MSF] (2012) *Safe Delivery. Reducing maternal mortality in Sierra Leone and Burundi*. Brussels: Médecins Sans Frontières.

Rudasingwa, M., Soeters, R. and Basenya, O. (2017) The effect of performance-based financing on maternal healthcare use in Burundi: a two-wave pooled cross sectional analysis. *Global Health Action, 10:1*.

Tayler-Smith, K., Zachariah, R., Manzi, M., Van den Boogaard, W., Nyandwi, G., Reid, T., Van den Bergh, R., De Plecker, E., Lambert, V., Nicolai, M., Goetghebuer, S., Christaens, B., Ndelema, B.,. Kabangu, A., Manirampa, J. and Harries, A. D. (2013a) Achieving the Millennium Development Goal of reducing maternal mortality in rural Africa: an experience from Burundi. *Tropical Medicine and International Health 2013:18*, p. 166–174.

Tayler-Smith, K., Zachariah, R., Manzi, M., Van den Boogaard, W., Nyandwi, G., Reid, T., Van den Bergh, R., De Plecker, E., Lambert, V., Nicolai, M., Goetghebuer, S., Christaens, B., Ndelema, B.,. Kabangu, A., Manirampa, J. and Harries, A. D. (2013b) An ambulance referral network improves access to emergency obstetric and neonatal care in a district of rural Burundi with high maternal mortality. *Tropical Medicine and International Health 2013:18*, p. 993-1001.

Van den Boogaard, W., Manzi, M., De Plecker, E., Caluwaerts, S., Nanan-N'zeth, K., Duchenne, B., Etienne, W., Juma, N., Ndelema, B. and Zachariah, R. (2016) Caesarean sections in rural Burundi: how well are mothers doing two years on? *Public Health Action, 6(2)*, p. 72-76.