Open Access Dissertations

9-2010

Gendered Vulnerabilities After Genocide: Three Essays on Post-Conflict Rwanda

Catherine Ruth Finnoff
University of Massachusetts Amherst, finnoff@econs.umass.edu

GENDERED VULNERABILITIES AFTER GENOCIDE:
THREE ESSAYS ON POST-CONFLICT RWANDA

A Dissertation Presented

by

CATHERINE RUTH FINNOFF

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 2010

Department of Economics

GENDERED VULNERABILITIES AFTER GENOCIDE:
THREE ESSAYS ON POST-CONFLICT RWANDA

A Dissertation Presented

by

CATHERINE RUTH FINNOFF

Approved as to style and content by:

_____

James K. Boyce, Chair

_____

Léonce Ndikumana, Member

_____

Frank Holmquist, Member

_____

Gerald Epstein, Chair
Department of Economics

DEDICATION

For the two most important men in my life, Arjun and Azad, who make me think, laugh and enjoy life more than I ever imagined possible.

ACKNOWLEDGMENTS

ABSTRACT

GENDERED VULNERABILITIES AFTER GENOCIDE:
THREE ESSAYS ON POST-CONFLICT RWANDA

SEPTEMBER 2010

CATHERINE RUTH FINNOFF, B.S., UNIVERSITY OF UTAH

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor James K. Boyce

This dissertation addresses gendered vulnerabilities after the genocide of 1994 in Rwanda. It consists of three essays, each focusing on the experience of women in a particular aspect of post-conflict development. The first essay analyzes trends in poverty and inequality in Rwanda from 2000 to 2005. The chapter identifies four important correlates of consumption income: gender, human capital, assets, and geography, and examines their salience in determining the poverty of a household and its position in the income distribution.

The second essay is an econometric examination of an important health insurance scheme initiated in post-conflict Rwanda. Employing logistic regression techniques, I find systematically lower membership among female-headed households in the community-based health insurance scheme in Rwanda. This finding contravenes other empirical studies on community-based health insurance in Africa that found higher uptake by female-headed households. Female-headed households are just as likely to access health care, implying greater out-of-pocket expenditures on health. They report worse health status compared to their male counterparts.

The third essay examines the prevalence and correlates of intimate partner violence, based on household-level data from the Demographic and Health Survey conducted in Rwanda in 2005. Three results stand out. First, there are significant differences in the prevalence of three different types of gendered violence: physical, emotional and sexual violence. Second, women who are employed but whose husbands are not experience more sexual violence, not less, as would be expected in conventional household bargaining models. This can be interpreted as reflecting 'male backlash' as gender norms are destabilized. Finally, there is a strong inter-district correlation between the post-conflict prevalence of sexual violence and the intensity of political violence during the genocide.

The findings of the dissertation support its underlying premise: that looking at economic processes through a gendered lens, and recognizing that women face social, historical and institutional constraints that are ignored in much standard economic theorizing, affords important insights into social processes and development outcomes.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

 "Women in Rwanda suffered and are still suffering the many consequences of the crisis, and many of them are left to face the tremendous responsibilities of reconstruction…women are facing added responsibilities now that many of them are either widows of have their husbands in jail and find themselves heads of households"

(M. Turshen & C. Twagiramariya, 1998, p. p. 114 p. 114)

"[M]ost feminist scholars argue that sexual violence against women specifically is a constitutive aspect of war. Although it is clear that war is gendered, less recognized are the ways in which the postwar period is equally gendered. What happens to women victims of war violence? What role does righting gender inequities play in postwar reconstruction?"

(Borer, 2009 p. 1170)

Were it not for the events of April-May 1994, Rwanda would be viewed as a

'typical' Sub-Saharan African country: land-locked, relatively poor, highly dependent on

subsistence rain-fed agriculture, conflict-prone and experiencing slow growth. The

genocide of 1994, however, in which at least 500,000[1] people were murdered in one of

the starkest examples of government sponsored ethnic cleansing of the twentieth century,

makes Rwanda's history a cruelly unique one. The social landscape following such a

cataclysmic event is vastly altered. There are sharp and sudden demographic changes.

The social fabric, collective action and trust are severely damaged. Survivors experience

many new forms of vulnerability. State-society relationships have to be reconstituted, and

the trajectory of the economy undergoes a sharp reversal. Such large-scale conflict

seriously damages societies that have far less resources to deal with the fallout of such an

---

[1] Estimates vary for the number of deaths in the genocide. The most widely accepted figures are between 500,000 (considered a lower bound estimate from demographer William Seltzer) and the United Nations estimate of 800,000. Detailed analysis of these figures is given by Alison de Forges seminal piece *Leave None to Tell the Story*, pp 15–16 (Des Forges, 1999).

event. For very poor societies it is extraordinarily difficult to move beyond violent

conflict, as evidenced by countries such as Sudan or the Democratic Republic of Congo

that appear to be stuck in endless cycles of violence and poverty.

Sixteen years after the event, Rwanda is widely viewed as a society that has

managed remarkably well in a post-conflict context. It has reemerged as a darling of the

aid donor community, is widely viewed as the 'strongman' of the region with relatively

strong internal security, and has experienced a decent economic growth rate in the last

decade. One might imagine from the 'Rwandan Miracle' narrative that there are few of

the difficulties experienced by a post-genocidal country. The stories that are most

newsworthy are the success stories, such as having the highest political representation of

women in the world[2]. Yet, very little scholarly research has analyzed the unique and

particular difficulties that exist. Part of the reason for this neglect, perhaps is that most

attention has been on ethnic tensions, and the Government of Rwanda has prevented

statistics from being collected by ethnic group since 1994. But this is not a sound reason

for failing to examine the real vulnerabilities of a population struggling with vast

changes, and in particular the *gendered vulnerabilities* in the aftermath of the genocide,

such as those experienced by female-headed households. On the contrary, it is not only

possible but also pertinent to examine these issues given widespread sexual violence

---

[2] Women hold 56 percent of elected parliamentary positions (UNIFEM, 2008). The Constitution of Rwanda provides for a 30-percent minimum quota for women in Parliament. For an overview and discussion of women in parliament see Elizabeth Powley *Strengthening Governance: The Role of Women in Rwanda's Transition A Summary* (Powley, 2004).

against women during the genocide[3].

A gendered analysis is critically important in understanding vulnerabilities for theoretical and analytical reasons. Firstly, gender-prescribed social norms profoundly alter what Sen (1999) describes as functionings and capabilities[4]. The standard economic framework for understanding human behavior is to begin with the presumption that society is composed of undifferentiated individual agents, possibly with heterogeneous preferences. The household is the standard unit of analysis. Such methodological assumptions miss the ways that social differentiation occurs within households, and as such also limit the analysis of human behavior. A gendered analysis specifically addresses the different roles that men and women have within the reproductive and productive spheres and the constraints and opportunities these afford. Secondly, a gendered analysis explicitly recognizes power differences between men and women and the social and economic ramifications this can have – such as impacts on access to assets, finance, technology, labor markets and inputs into policy making. This has led feminist scholars to pursue a research program that assesses the reasons for these differences and the ways in which these alter our understanding of the economy [5].

Finally, at a purely instrumental level, addressing gender is important to

---

[3] For detailed examination of gender based violence during the genocide, see *Shattered Lives: Sexual Violence during the Rwandan Genocide and its Aftermath* (Human Rights Watch, 1996a).

[4] In this sense social differentiation also occurs in important areas such as class or ethnicity, but these tend to occur outside the realm of the household. Gender social relations, in contrast, get played out within the intimacy of families. For applications of Sen's work taking a gendered perspective see Agarwal et al. (2006).

[5] In particular, see the work of Folbre et al. (1991), Agarwal (1994), Kabeer (1994, 1998) and Jackson and Pearson (1998).

effectively implementation of public policy initiatives. A gendered analysis is necessary in order to most efficiently target beneficiaries and evaluate outcomes. There is now a large empirical literature on the differences in behavior between men and women when targeted by social and economic policies[6]. Without explicitly taking into account gendered behavior, it is likely that policy makers will fail to grasp fully the opportunities present or understand the potential consequences of their decisions.

If a gendered perspective is important for understanding societies in general, it is arguably even more relevant in societies that are faced with social upheavals. After violent conflict, when external factors change the economic and social context extensively, gendered norms can be in a state of flux, and there exists the possibility for a greater level of social and economic engagement for women as well as the possibility that women will be systematically excluded from the reconstitution of the social fabric. After conflict the opportunities for redressing gender inequities often occur when through economic necessity women assume what previously were typically male roles.

A gendered perspective is also critically important in the reconstruction of

---

[6] For example, there is a substantial body of empirical work that has shown differential spending and saving patterns between men and women in developing countries. Floro and Seguino (2003) have examined distinct gendered patterns of savings. Ashraf et al. (2006) find women have a lower discount rate and greater preference for savings in a randomized experiment in the Philippines. King and Mason (2001) found women who have control over some monetary income within the household spend more than their male counterparts on household investments, such as healthcare. Similarly (Kabeer, 1998; Khandker, 1998) found higher levels of health care demanded by women in Bangladesh women who had access to credit through microcredit programs. Based on these findings, a number of conditional cash transfer programs have been implemented in which women are paid in cash or given a voucher as part of an anti-poverty initiative. The best studied of these is perhaps the Mexican program Oportunidades (formerly Progresa), which has improved school attendance especially for girls at the secondary level[6] and health and nutritional outcomes (Adato, et al., 2000). Similarly, Duflo (2000) finds positive nutritional outcomes for girls within households of female recipients for a cash transfer program for pensioners in South Africa.

societies after violent conflict, as gendered inequities may dampen economic recovery and more broadly jeopardize the peace building process. For economic recovery to take place, the greater proportion of women within the labor market will need access to income generating opportunities. If women are prevented from ownership or user rights over economic assets, such as land, these gendered inequities will act as impediments to economic recovery. The reconstitution of the economy also requires rebuilding levels of human capital, in settings where gender disparities are common (especially in the areas of health and education). It is also likely that the disintegration of human capital during the genocide occurred differently for men and women, necessitating different responses in the aftermath. Female participation in the economy will be curtailed if these needs are not addressed, adversely impacting economic recovery itself.

This dissertation is comprised of three essays, each of which provides empirical examinations of these issues. The first essay, "Decomposing Inequality and Poverty in Postwar Rwanda: The Role of Gender, Education, Wealth and Location", is an overview of poverty and inequality in postwar Rwanda. Rwanda is one of the poorest countries in the world, and it has recently become one of the most unequal. High levels of poverty and inequality have important implications not only in terms of evaluations of social welfare, but also for management of social tensions and the propensity for violent conflict in the future. The chapter uses the first two available and nationally representative rounds of household surveys — the EICV1 2000 and EICV2 2005[7] — to decompose and identify the major 'sources' of poverty and inequality in the country. I use econometric and statistical decomposition methods to identify vulnerabilities faced by particular groups, in

_____

[7] Rwanda Household Living Conditions Survey 2000 & 2005.

particular female- and widow-headed households. Other vulnerable groups are identified as well: populations living in further from the capital, Kigali; agricultural workers; those with little education; and so on. The exercise seeks to provide a picture of the ways in which the growth process has been inclusive to some while excluding others.

The second essay, "Gender and Public Good Provisioning: Rwanda's Community Based Health Insurance Scheme", deals with the relationship between gender and the provisioning of public goods. I examine the community-based health insurance scheme, that was implemented in Rwanda after the genocide and civil war in the 1990s (called the *Mutuelle de Santé*). My central motivation is to assess how the Mutuelle de Santé — often hailed as the signal public goods achievement of the Rwandan State — addressed or failed to address vulnerabilities in the post-conflict environment. The aim is to better understand the ways in which the provision of health services can be socially inclusive and provide access for health to those who need it.

Employing logistic regression techniques, I find systematically lower membership for female-headed households. This finding is at direct odds with empirical studies on community-based health insurance elsewhere in Africa which find higher uptake by female-headed households (Diop, et al., 2006). I also find female-headed households are just as likely to access healthcare (implying greater out-of-pocket expenditures on health) and to report worse general health status compared to their male counterparts. These findings highlight the difficulties of translating government commitment to gender equity into implementation on the ground.

The final essay, "Intimate Partner Violence, Female Employment and Male Backlash in Rwanda", delves more closely into household dynamics, in particular the

experience of violence by women who are entering into a newly opened workforce. Intimate partner violence is recognized to be the most widespread form of violence against women in the world today (Krug, et al., 2002). Researchers have documented increased levels and intensity of gendered violence in societies during periods of social unrest and civil strife (Amnesty International, 2004). Little is known, however, about the experience of gendered violence in post-conflict societies. This is particularly relevant given demographic changes that make women the head of households, and changes in the social structure that weaken previously existing gender norms.

I examine both the prevalence and correlates of intimate partner violence using the Demographic and Health Survey conducted in 2005 in Rwanda. Three results bear noting here. First, there is a significant difference in the prevalence of different types of gendered violence (physical, emotional and sexual violence). A second finding is that women who are employed, but whose husbands are not, experienced more sexual violence. I interpret this finding as reflecting 'male backlash' as men react to losing power in a context where gender norms have been destabilized. This finding is contrary to predictions found in the bargaining literature in economics, where greater female economic empowerment is posited to result in more favorable outcomes for women. The result is consistent, however, with anthropological and sociological studies in the region that have documented rising sexual aggressiveness of males against females as male relative economic disempowerment increases (Blumberg, 2005; M. Silberschmidt, 2001). Finally, the chapter finds a strong correlation been the post war prevalence of sexual violence and the intensity of violence during the genocide.

All three chapters are premised on an underlying contention: that analyzing economic processes through a gendered lens, and recognizing that women face distinctive social, historical and institutional constraints, affords the interested researcher greater insights into social processes and development outcomes. The following chapters accordingly seek to remedy the neglect of gender in mainstream economic theory and to provide a gender-focused analysis of vulnerabilities and opportunities in post-genocide Rwanda.

CHAPTER 2

**DECOMPOSING INEQUALITY AND POVERTY IN POSTWAR RWANDA:
THE ROLES OF GENDER, EDUCATION, WEALTH AND LOCATION**

2.1 Introduction

Rwanda is one of the poorest countries in the world. Despite substantial economic growth since the genocide of 1994, in 2008 it ranked 155th out of 170 countries in terms of GNP per capita (World Bank, 2010) and 167th out of 182 countries for the Human Development Index (UNDP2009)[8]. In 2005 over half of the population (57 percent) were considered poor and 37 percent were chronically poor. Unlike many other countries with substantial poverty, Rwanda is also one of the most unequal countries in the world. Since the early 1980s Rwanda has gone from levels of consumption inequality on par with many former Soviet countries (a Gini coefficient of 0.28 in 1983)) to now having one of the highest levels of inequality (a Gini coefficient of 0.51 in 2005), closer to levels in the most unequal countries such as South Africa.

These high levels of poverty and inequality have important implications not only in terms of human well-being, but also for management of social tensions and the propensity for violent conflict in the future. Despite the considerable work done on the links between poverty and inequality on the one hand and conflict on the other[9], there is a notable absence of empirical work attempting to understand the structural causes of poverty and inequality in Rwanda. Given the paucity of such analysis, this chapter uses the first two available and nationally representative rounds of postwar household surveys-

---

[8] The Human Development Index was .47 in 2007 (UNDP2009).

[9] See, for example, the work of Frances Stewart and others at CRISE (http://www.crise.ox.ac.uk/).

-the Rwanda Household Living Conditions Survey 2000 & 2005 (EICV1 2000 and EICV2 2005)[10] — to decompose and identify the major 'sources' of poverty and inequality in the country. To do so, the analysis draws upon the work of Foster, Greer and Thorbecke (Foster, et al., 1984) for the decomposition of poverty and Fields (Fields, 2003) for the decomposition of inequality, in addition to standard correlation analysis.

Given the macroscopic nature of this exercise, this analysis is necessarily simply a diagnostic. The primary focus of the chapter is to look at four important correlates of consumption income and to examine their importance in determining the poverty of a household and its position in the income distribution. These correlates are human capital (proxied by education levels), asset ownership (captured by land and livestock ownership), geographical location (captured by provincial and urban residence) and finally, gender (female and widow-headed households).

To state briefly the more important results: national poverty rates declined slightly between 2000 and 2005, though this hides important regional differences (poverty rates increased in 5 out of 12 provinces). I find stark differences in vulnerability to poverty by region and gender of head of household. Additionally, for poor households human capital (such as education), while important, provides much less of a buffer against poverty than physical capital (such as cattle ownership).

I find that consumption inequality has risen substantially compared to previous comparable survey rounds done in the 1980s. Moreover, the sources of inequality between 2000 and 2005 changed markedly. In the earlier survey, education and urban residence accounted for over 50 percent of the observed inequality. By 2005, however,

---

[10] Explanation given in section 2.2 of the paper.

these conventional factors explained much less of the observed inequality (about 40 percent). The most significant change is the rising importance of regional differences. By 2005 province-level differences accounted for more than 20 percent of observed inequality. Other factors also now matter more for inequality — for example, whether any household member has savings, the dependency ratio and land holdings. These findings suggest there are important changes in the 'income generating functions' of Rwandan households, and that distribution of land and financial assets are increasingly important in determining the inter-household distribution of income.

The rest of this chapter is structured as follows. Section 2.2 examines changes in poverty between 2000 and 2005. I explain and use the Foster-Greer-Thorbecke (1984) poverty decomposition method to examine vulnerabilities by type of household, region and ownership of agricultural assets. Section 2.3 gives an overview of consumption inequality in 2000 and 2005. I explain and use a regression based decomposition method developed by Gary Fields (2003) to examine the main contributing factors to changes in consumption inequality. Section 2.4 concludes with a summary of the findings.

2.2 Poverty in Rwanda, 2000 & 2005

For some time poverty has been a pressing development issue facing Rwanda. Poverty rose sharply during the civil war and genocide and the accompanying displacement of the majority of the population (Justino & Verwimp, 2006). During this time a number of populations were identified as being particularly vulnerable to poverty – notably female-headed households (especially widows) and child-headed households (MINECOFIN2000; 2002). A recent paper by Koster (2008) has questioned this assumption, finding female-headed households no more likely to be poor. This has

brought to light a number of important gaps in our understanding of vulnerabilities to poverty after the genocide. I examine the changing correlates of poverty between 2000 and 2005 and take this analysis further by decomposing poverty by gender and age of household head, region and province-level differences.

2.2.1 Data Background

This study uses data from the 2000 Rwanda Household Living Conditions Survey (EICV1) and the 2005 Household Living Conditions Survey[11] (EICV2). Both surveys were nationally representative integrated household surveys based on the same methodology, conducted by the Direction de la Statistique in 2000/2001 and the National Institute of Statistics in 2005/2006 with donor funding and technical support. The surveys asked detailed information on living standards including household and individual socio-economic characteristics, consumption expenditures, asset and production information. EICV1 sampled 6400 households and EICV2 sampled 6900 households.

Poverty in Rwanda is determined by the absolute poverty line of FRw 64,000 that was set in 2001 based on the widely used 'Cost of Basic Needs' method and an equivalence scale[12]. Using data from the EICV1 it was calculated based on basket of food and non-food commodities, reflecting consumption patterns of the three poorest quintiles,

---

[11] *Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda 2000* and *Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda 2005.*

[12] For more detailed discussion of poverty lines see *Preliminary Poverty Update Report Integrated Living Conditions Survey 2005/06* (NISR2006a), *Methods Used for Poverty Analysis in Rwanda* (McKay & Greenwell, 2007) and *Methodology in Setting the Poverty Line* (NISRno date).

sufficient to provide 2500 kcal per adult[13]. An extreme poverty line of FRw 45,000 was also set, representing the level of expenditure needed to consume just the minimum basic food basket sufficient to provide 2500 kcal per adult[14].

2.2.2 Measuring Poverty

Amaryta Sen's (1976) seminal article on poverty pointed out the importance in understanding three dimensions to poverty – incidence, intensity, and distribution of poverty. Various measures to examine these dimensions have been created. An extremely useful class of indices is derived axiomatically by Foster Greer and Thorbecke (1984).

Consider a population with N individuals/households, and a poverty line denoted by z. Each individual/household i has an income or consumption level of y_i, and q individuals/households are below the poverty line such that (y_1, y_2, y_3...y_q<z<y_{q+1}, y_{q+2}....y_n). The *FGT* family of indices can be written as:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{(z-y_i)}{z}\right)^\alpha \qquad (1)$$

$0 \le \alpha \le \infty$ and a is a parameter that reflects an aversion to inequality among the poor. When $a = 0$, the index reduces to.

$$P_0 = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{(z-y_i)}{z}\right)^0 = \frac{1}{N}\sum_{i=1}^{q}1 = \frac{q}{N} \qquad (2)$$

---

[13] To calculate poverty incidence, for each household, total expenditure per annum was calculated, which was deflated by a regional price index for the relevant period to give real expenditure, and subsequently divided by an index of household size to give real expenditure per equivalent adult.

[14] Converting the poverty lines into January 2006 prices gives an absolute poverty lines of 90,000 FRw and an extreme poverty line at 63,500 FRw.

As is evident, this index gives an the proportion of individuals/households who are below the poverty line. It is commonly termed the headcount index.

While a useful initial characterization of poverty, the headcount index ignores differences in well-being within the population of poor individuals. For example, it cannot differentiate between the situation in which all poor individuals are arbitrarily close to the poverty line but below it and a situation in which all poor individuals are very far below.

In order to capture differences within the poor population, a commonly used metric is the poverty gap index. The poverty gap index is defined as the ratio of the poverty gap to the poverty line. The poverty gap in turn is defined as the average over the entire population of the gap between the consumption/income of the poor and the poverty line. It is thus:

$$P_1 = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{(z - y_i)}{z} \right) \tag{3}$$

It can be seen that this corresponds to a situation where $a = 1$ in the *FGT* family of indices.

As a increases above 1, the resultant index increasingly takes inequality among the poor into account. Consider, for example, a situation in which $a = 2$ (sometimes called the squared poverty gap index). If a person below the poverty line transfers some income to a person even further below, this index will register a decrease (while the poverty gap index alone will not).

A fundamental advantage of the *FGT* class of indices is that they are subgroup decomposable. That is to say, overall poverty can be measured as the weighted average of poverty within particular subgroups (where these subgroups can be defined by ethnic,

geographical, or gender lines). Consider the original population of N individuals and suppose that they can be partitioned into m subgroups that are indexed by $g\ e\ \{\ 1,2,\dots$ $,m\}$. Further let n_g refer to the size of group g. The Foster-Greer-Thorbecke index can be elegantly decomposed additively as:

$$P_\alpha = \sum_{g=1}^{m} \left(\frac{n_g}{n} \right) P_{\alpha g} \tag{4}$$

That is, for any measure within the *FGT* family, the contribution of subgroup g to overall poverty is $(n_g\ /n)\ FGT_g$. The analysis that follows relies on equation 4, and examines the contribution of various subgroups to the poverty observed in Rwanda.

Using the absolute poverty lines set by the government of Rwanda, Table 2.1 presents the three *FGT* measures of poverty. There has been a decline in incidence, intensity and distribution of poverty between 2000 and 2005. A similar trend is shown with the extreme poverty line. While these national trends are encouraging I am interested in looking at group-based dimensions of poverty, and in particular at, whether there are important regional and household characteristics associated with greater vulnerability to poverty.

Table 2.1 Trends in Foster-Greer-Thorbecke Measures of Poverty, 2000 & 2005

	FGT(0): headcount ratio (proportion poor)	FGT(1): average normalised poverty gap	FGT(2): average squared normalised poverty gap
2000	0.60	0.25	0.13
2005	0.57	0.23	0.12

With this in mind, I first examine the correlates of poverty using a discrete choice model,[15] and then decompose the FGT index based on subgroups whose relevance is suggested by the results of the estimation.

The logistic model estimates the probability that a household's consumption income will fall below the national poverty line (FRw 64,000) based on a number of regional, household and individual characteristics:

$$\Pr(Y_i = 1) = \left[\frac{1}{1 + e^{-z}} \right]$$

$Y_i=1$ if the household's consumption income is less than FRw 64000, else $Y_i=0$

Where

$$Z_i = \beta_0 + \beta_i \mathbf{X}_i + \varepsilon_i$$

$\mathbf{X}_i=$\{Regional, Household and Individual characteristics\}

The regional variables include: urban/rural and province-based dummies. The household variables include structure of the household, cattle ownership, whether the household owns and cultivates land. The individual (household head) variables include: education, age, employment as farm laborer, employment as waged worker.

Table 2.2 lists the mean and standard deviation of the variables used in this analysis. Mean per capita expenditures for poor households increased from RWF 86809 ($223 USD) in 2000 to RWF 100423 ($258 USD) in 2005 in constant 2000 Rwandan francs. The largest group of female-headed households was widows. The percentage of

---

[15] The two main types of poverty analysis using regression techniques are: (i) using the consumption expenditure per adult equivalent as the dependent variable and regressing this against a number of explanatory variables, and (ii) using a binary dependent variable, taking a value of 1 if the household is poor, and regressing this against a number of explanatory variables. In this section I use the later approach as I want to examine the correlates of poverty and this approach allows me to look at independent variables that act as buffers to poverty.

female widow-headed households has declined from 25 percent to 22 percent of all households between surveys. Female non-widow-headed household remained constant at 6 percent.

Poor households were more likely to have heads that had no education. Forty percent of poor households had no education in 2000, declining to 35 percent in 2005. Households where the head was employed as a farm laborer make up a large proportion of the poor. In 2000, in 84 percent of households the head was employed as a farm laborer were poor, declining only slightly to 81 percent in 2005. The proportion of poor households owning cattle increased from 18 percent in 2000 to 23 percent in 2005. The proportion of poor households owning land between 0.9 and 1.65 ha declined from 16 percent in 2000 to 14 percent in 2005. Correspondingly, there has been an increase in the proportion of poor households with less than 0.5 ha of land, from 57 percent in 2000 to 59 percent in 2005.

2.2.3 Discussion of Results: Household Poverty Estimation

Household characteristics indicating composition, size and structure of the household often show important patterns in poverty analysis. Female-headed households, younger households, and those in larger households are often more likely to be poor (World Bank, 2005). Households headed by women are often poorer due to labor market discrimination, barriers of access to productive assets, limited access to finance, and inequities in access to education and healthcare.

Female-headed households are more vulnerable to poverty[16]. In addition to the

barriers and discrimination just mentioned, they are entering the paid labor market during

a period of social upheaval and severe contraction of formal employment opportunities.

After conflict, female-headed households in rural settings often face higher poverty due

to widespread destruction or contestation of ownership over physical assets such as land

or livestock and limited employment opportunities outside of the agricultural sector.

In recent work on gender and poverty in Rwanda, Koster (2008) did not find

female-headed households more likely to be poor. Using a mix of qualitative and

quantitative methods she collected data on 136 households in the Gatsibo district between

September 2003 and January 2008. A note of caution is warranted, however, as to the

generalizability of Koster's findings. Firstly, a small micro survey in one district is not

necessarily indicative of country trends at the macro level. Secondly, Koster does not

examine consumption or income measures of poverty, focusing instead on access to land,

health, household structure and remittances. Interestingly, Koster does report separate

results for widow and non-widow female heads of household. She finds non-widows at a

much greater disadvantage than widows in access to land and remittances. However, she

finds widows and their families are at a greater disadvantage when it comes to health

status.

---

[16] For an extensive discussion of female-headed households vulnerability after conflict see (BCPR2002; Date-Bah, 2001; Lindsey, 2001; Sorensen, 1998; UNIFEM1998).

It is also important to note that the majority of the Rwandan population reports widows and their families as much more likely to be destitute. The *Ubedehe*[17] survey in 2006 conducted a nation wide participatory poverty analysis that recorded subjective perceptions of vulnerability to poverty. In this widows were overwhelmingly ranked as one of the most destitute groups in Rwanda (MINECOFIN2007). This type of exercise, while subjective, does encompass a much broader understanding of poverty beyond expenditures, including access to assets, health outcomes and education[18].

In the poverty estimation focusing solely on expenditures (see Table 2.3), I find female-headed households are indeed more likely to be poor. However, in 2000 widowed headed households were 23 percent more likely to be poor, while in 2005 this result was no longer statistically significant. In 2000, non-widow female-headed households were more likely to be poor though this was only statistically significant in rural areas. By 2005, non-widow female-headed households were 34 percent more likely to be poor. For rural non-widow female heads of household there has been a slight worsening of their likelihood of poverty from 35 percent to 37 percent between the two surveys. These results provide tentative confirmation of stagnation or even worsening of gendered structural constraints that limit income generating opportunities.

---

[17] The *Ubudehe* programe is the most decentralized poverty reduction program implemented by the GoR with EU funding. The program provided grants to local level government at the cell level (most decentralized administrative unit) of €900 to reduce poverty through participatory development planning.

[18] The category in the participatory poverty analysis referring to those in abject poverty was *Umutindi nyakujya*. The characteristics of this group were listed as: they had to beg to survive; they have no land or livestock, they lack shelter, clothing and food; they fall sick often and have no access to medical care; their children are malnourished and they can't afford to send them to school (MINECOFIN2002). This analysis of poverty is more indicative of Sen's capabilities approach to poverty and provides a much richer understanding than focusing primarily on expenditures.

Table 2.2 Descriptive Statistics for Poor Households

	2000		2005	
	Mean	Std. Dev.	**Mean**	Std. Dev.
Per capita expenditure	**86808.9**	1912.8	**100422.6**	2828.1
Male head	**0.665**	0.0	**0.704**	0.0
Female head (non-widow)	**0.061**	0.003	**0.064**	0.003
Female head (widow)	**0.253**	0.006	**0.219**	0.005
Child headed household	**0.022**	0.002	**0.013**	0.002
Age 13-19 (OC)	**0.013**	0.002	**0.009**	0.001
Age 20-29	**0.165**	0.005	**0.182**	0.005
Age 30-39	**0.247**	0.006	**0.227**	0.005
Age 40+	**0.575**	0.007	**0.582**	0.006
No education (OC)	**0.401**	0.007	**0.353**	0.006
Education 1-4 years	**0.257**	0.006	**0.282**	0.006
Education 5-8 years	**0.272**	0.006	**0.291**	0.006
Education 9+ years	**0.069**	0.003	**0.075**	0.003
Urban	**0.099**	0.004	**0.164**	0.004
Household size=1 (OC)	**0.042**	0.003	**0.039**	0.002
Household size 2-4	**0.420**	0.007	**0.418**	0.006
Household size 5-7	**0.401**	0.007	**0.402**	0.006
Household size 8+	**0.137**	0.005	**0.141**	0.004
Head farm laborer	**0.840**	0.005	**0.814**	0.005
Head wage worker	**0.251**	0.006	**0.421**	0.006
Household owns cattle	**0.178**	0.005	**0.233**	0.005
Household land <.5ha (OC)	**0.569**	0.007	**0.593**	0.006
Household land .5-.89ha	**0.168**	0.005	**0.167**	0.005
Household land .9-1.65ha	**0.163**	0.005	**0.139**	0.004
Household land >=1.66	**0.100**	0.004	**0.101**	0.004

Note: OC refers to omitted category in the poverty estimation

The most striking change has been a decrease in likelihood of being poor by widow-headed households in rural areas. This finding may reflect a number of changes occurring in the rural sector. Firstly, there has been government commitment and strong international support for targeting of social safety net programs (including cash transfers and land) for widows of the genocide. Secondly, a number of NGOs, such as the

Association of Genocide Widows *Avega Agahozo,* have arisen providing a collective voice for the needs and issues facing widows and their families. One of the most vocal issues of these groups has been women's access to their deceased husband's land[19].

Moving to other determinants, in both 2000 and 2005, education is a significant determinant of income. Education does act as a buffer to poverty, with the effect being somewhat larger for urban households. In 2005, education appeared to have a slightly larger impact on determining poverty than in 2000.

Ownership of physical agricultural assets such as land and livestock should be important buffers to poverty in a primarily agrarian economy. I find a negative relationship between ownership and cultivation of land and poverty (increasing with the more land a household owns). This relationship is not as strong in urban areas where opportunities for income outside of subsistence farming are likely to be greater. Household ownership of cattle acts as strong buffer against poverty. In 2000 households with cattle were 70 percent less likely to be poor, but by 2005 this had reduced to 60 percent less likely to be poor. The significance of cattle as a buffer against poverty is not small – and on the same magnitude as owning land in the largest landholding category. Quantifying cattle ownership is a relatively easy task compared to gathering data about land (where quality, quantity and inputs matter)[20]. The ownership of cattle provides almost double the protection against poverty provided by primary or secondary education. This finding is troubling given the reconstruction imperative facing Rwanda. It

---

[19] NGOs representing widows from the genocide have also been active in getting women health services for women affected by sexual violence during the genocide.

[20] EICV1&2 gathered information about land by asking the head of each household the area of land owned and cultivated. It is thus relying on self-reporting by farmers and doesn't take into account quality of soil fertility, irrigation or inputs.

also indicates that increasing education levels of the rural poor will be less effective without taking into account wider changes occurring in the agrarian sector, such as the concentration of physical assets.

At the regional level there may be a number of characteristics associated with poverty. Poverty is often found in remote rural areas, where there are adverse resources, inhospitable climate conditions or low levels of physical infrastructure. There are often country-specific regional dimensions to poverty. I find an overwhelming increase in significance of regional level effects on poverty.

In 2000 households in five out of eleven provinces registered statistically significant likelihood of being poor compared to households in the capital city, Kigali (the omitted variable). By 2005, households in every single province showed a large positive and statistically significant likelihood of being poor compared to Kigali (ranging from 100 percent more likely in Umutara to over 900 percent in Gikongoro). Much of these increases are driven by rising urban poverty by province.

Given Rwanda's history of uneven regional development, finding regional disparities is not surprising. What is interesting is the dramatic change between 2000 and 2005, the period during which Rwanda moved away from post-conflict humanitarian development activities to long-term development planning and activities.

Table 2.3 Household Poverty Estimation

Independent Variables	2000	2005	Urban 2000	Urban 2005	Rural 2000	Rural 2005
Household Type (OC=male head)						
Female (widowed) head	1.229*	0.992	1.24	1.203	1.221*	0.959
Female (not widowed) head	1.29	1.34*	0.67	1.36	1.35*	1.37*
Child head	1.6	0.6	1.6	3.5	1.6	0.3*
Age (OC=13-19)						
Age 20-29	0.9	0.2*	0.8	1.1	0.8	0.1**
Age 30-39	1.000	0.3	0.7	1.3	1	0.2*
Age 40+	1	0.4	1.8	1.4	0.9	0.2*
Education (OC=No Education)						
Education 1-4 years	0.7***	0.8***	0.5*	0.6*	0.8**	0.8**
Education 5-8 years	0.4***	0.5***	0.3***	0.3***	0.4***	0.5***
Education 9+ years	0.1***	0.1***	0.1***	0.0***	0.1***	0.2***
Urban Residence	0.1***	0.4***	N/A	N/A	N/A	N/A
Household Size (OC=1)						
Household size 2-4	3.2***	4.0***	2.1	4.4***	3.1***	4.0***
Household size 5-7	8.0***	8.4***	4.1*	9.9***	8.1***	8.4***
Household size 8+	14.3***	11.2***	5.3*	12.2***	14.8***	11.4***
Household head farm laborer	1.6***	1.4***	3.7***	2.4***	1.4**	1.2
Household head waged worker	1	1.6***	0.6	1.6**	1	1.6***
Own Cattle	0.3***	0.4***	0.2*	0.4***	0.3***	0.4***
Owns Land (OC<.5ha)						
Household land .5-.89ha	0.7***	0.7***	0.7	0.8	0.7***	0.6***
Household land .9-1.65ha	0.5***	0.6***	0.5	0.5*	0.5***	0.6***
Household land >=1.66	0.3***	0.3***	0.3*	0.4**	0.3***	0.3***
Migrant (Head HH lived away >6 mo)	1.2	0.90	0.6	0.90	1.2	0.90
Butare	2.2***	6.8***	1.7	3.6***	2.3***	3.6***
Byumba	1.5	5.0***	0.7	5.9***	1.5**	2.3***
Cyangugu	1.1	3.5***	0.5	3.2**	1.2	1.6**
Gikongoro	2.8***	10.2***	2.7	11.2***	2.9***	4.7***
Gisenyi	0.9	3.2***	1.1	3.5***	0.9	1.5**
Gitarama	1.3	3.7***	1.7	3.9***	1.3	1.7***
Kibungo	0.9	2.7***	1.1	2.9**	0.9	1.3
Kibuye	2.0**	4.7***	0.5	1.3	2.1***	2.5***
Kigali ngali	1.9**	2.3***	0.3	1.9*	2.0***	1.1
Ruhengeri	1.7*	4.6***	1.7	2.7*	1.8***	2.3***
Umutara	1	2.0***	---	---	---	---
No. of observations	6404	6895	1149	1618	5255	5277

Note: OC=omitted category

Provincial borders are closely aligned to important geographical boundaries going back to federal consolidation of power with the monarchy in the pre-colonial period.

Those provinces receiving preferential status have changed over time. It is possible to trace these through changes at the federal level from the King to colonial rulers and post-independent rulers[21]. The most recent configuration of political elite patronage has favored the capital city, Kigali. The current president, Paul Kagame, and his inner circle were mostly raised outside the country and so have less regional-based allegiances.

Overseas development assistance (ODA) may have been another important contributor to regional disparities. In the last 10 years a large proportion of ODA has been channeled into rural extension activities in Umutara[22], Kibungo[23] and Kigali-Nagali[24] provinces[25]. In all three of these provinces poverty rates declined between 2000

---

[21] Johan Pottier (2002) *Re-Imagining Rwanda. Conflict, Survival and Disinformation in the Late Twentieth Century*, writes in detail of the regional patronage in the post-colonial political configurations of power. Under Grégoire Kayibanda, Butare was favored, which changed to Gisyenyi after Juvénal Habyarimana seized power in a military coup in 1973. For an examination of Habyarimana's political and economic ties to Gisyenyi see Philip Verwimp (2003) *The Political Economy of coffee, dictatorship, and genocide*. For background on Kagame's inner circle and patronage see Filip Reyntjens (2004) *Rwanda, Ten Years On: From Genocide to Dictatorship*.

[22] Umutara has had large inflows of population putting stress on existing infrastructure. For example, more than one in five households in Umutara are more than an hour away from their main water source (National Poverty Reduction Programme Ministry of Finance and Economic Planning (MINECOFIN), 2002).

[23] Kibungo was relatively better off before the genocide but in now relatively poor. There has been a large inflow of population into the province promoting settlement in *imidugudu* (areas designed for resettlement) and high numbers of widows reported (MINECOFIN2002). In 2002 the PRSP reported that 76,000 lived under plastic sheeting in the province (MINECOFIN2002).

[24] Kigali-Nagali is the rural area surrounding Kigali the capital city. It is densely populated and was severely affected during the genocide. Declining soil fertility, limited access to water and recent droughts have contributed to this region's income poverty and food insecurity. Livestock distress sales during recent droughts were mentioned in the PRSP 2002 (MINECOFIN2002).

and 2005. The most substantial decline was seen in Kigali-Ngali where poverty rates fell

from 69.4 percent to 46.5 percent. The other nine provinces, not receiving as much ODA

had mixed results in terms of poverty reduction. Poverty declined in four of these

provinces, and poverty increased in the remaining five provinces (see table 2.6).

2.2.4 Poverty Decomposition

The household poverty estimation is useful in identifying a number of important

trends in the correlates of poverty. To understand what is driving changes in poverty by

particular household characteristics, I decompose the *FGT* poverty measures (using

equation 4), and examine the contribution of various subgroups to the poverty in Rwanda.

The first decomposition of interest is by the gender and age structure of the

household. I divide the sample into four reference categories for this purpose: male-

headed households, female-headed widow households, female-headed non-widow

households, and child-headed households (age less than 21 for household head). The

results are given in Table 2.4.

Table 2.4 Poverty Decomposition by Gender and Age of Household Head

Household Type	Pop Share		Poverty Rates		Mean Poverty Gap/Poor		Poverty Share By Household Type	
	2000	2005	2000	2005	2000	2005	2000	2005
Male Headed	71.7%	75.7%	58.2%	55.8%	25929.6	25071.2	69.0%	74.3%
Female Headed (non-widows)	5.0%	4.9%	58.7%	61.4%	26942.5	27348.9	4.8%	5.3%
Female Headed (widows)	22.0%	18.7%	68.1%	59.9%	28413.5	27211.1	24.8%	19.7%
Child Headed (<21)	1.3%	0.7%	61.7%	56.9%	25205.8	27345.2	1.3%	0.7%

---

[25] This is based on personal conversations with the head of UN's Aid
Coordination Unit in 2007. Unfortunately it is not possible to track ODA by province in
the 2000-2005 time period. Detailed data on tracking ODA by province is only just
becoming available, through the Aid Coordination, Harmonization, and Alignment
(ACHA) framework. For more information and data availability see:
http://dad.synisys.com/dadrwanda.

The two most striking results are that poverty rates of female-headed widows have fallen the most rapidly, while female-headed non-widows have seen a rise in poverty between 2000 and 2005. The decline in poverty for widow household heads is indeed encouraging and points to the effectiveness of government and NGOs targeting, including the genocide survivors fund. It may also indicate greater access to agricultural income-generating assets, with important changes in widow's rights to land with the passage of the Land Law during this time. There has also been a decline in the population share of widow heads of household (from 22 percent to 18.7 percent), which may explain a portion of the decline in poverty rates if more destitute widows remarried.

The second decomposition of interest is by the urban or rural residence of the household. As the regression analysis of poverty indicated, the correlates of poverty vary by urban or rural residence. Table 2.5 gives us the poverty decomposition by residence. Between 2000 and 2005, there has been almost a 60 percent rise in the percentage of the population residing in urban areas, though the levels relative to other Sub-Saharan African countries it remains low[26]. Rising poverty has accompanied the growth in population residing in urban areas. This rise has not been small; urban poverty has more than doubled between 2000 and 2005. Urban areas have also seen an increase in the depth of poverty between years, as shown by the increase in the poverty gap ratio from 18118.1 in 2000 to 22856.3 in 2005. Nevertheless, the urban population rate remains considerably below the rural poverty rates.

---

[26] The World Bank background paper, *Agglomeration Index: Towards a New Measure of Urban Concentration* (Uchida & Nelson, 2008), reports urbanization for SSA around 30-35 percent depending on the measure used.

Table 2.5 Poverty Decomposition by Urban/Rural Residence

Region	Pop Share		Poverty Rates		Poverty Gap/Poor		Poverty Share By Region	
	2000	2005	2000	2005	2000	2005	2000	2005
Urban	10.5%	16.6%	13.4%	28.7%	18118.1	22856.3	2.3%	8.4%
Rural	89.5%	83.4%	65.9%	62.5%	26786.9	25881.6	97.7%	91.6%

The last decomposition exercise is by province. The dramatic increase in poverty of households based primarily on whether they resided within a particular province is a particularly troubling trend. Table 2.6 gives the poverty decomposition by province. Here we see poverty increased in five out of twelve provinces. Of these, three (Kigali urban, Gisenyi and Gikongoro) also saw the poverty gap index rise, indicating rising intensity of poverty.

The highest rates of poverty were in Gikongoro, where poverty rose from 76.1 percent to 79.2 percent. The mean poverty gap is also highest in Gikongoro. It is not surprising to find that extreme poverty rates in Gikongoro also increased, from 56.5 percent in 2000 to 62.9 percent in 2005. Gikongoro is one of the food-insecure regions with high population density and low soil fertility (soils are acidic and steep topography has led to erosion) (MINECOFIN2002).

Figure 2.1 examines the correlates of poverty growth by province more closely. Three variables are strongly correlated with headcount poverty growth. First, there is a strong negative correlation between initial poverty in 2000 and poverty growth between 2000 and 2005, suggesting a process of mean reversion. Secondly, areas with larger urban populations in 2000 saw greater poverty growth (lower poverty reduction). Finally,

areas in which there were higher proportions of household heads in the agricultural sector in 2000 experienced higher growth rates of poverty (lower poverty reduction).

Table 2.6 Poverty Decomposition by Province

Province	Pop Share		Poverty Rates (by province)		Mean Poverty Gap/Poor		Poverty Share By Province	
	2000	2005	2000	2005	2000	2005	2000	2005
butare	8.2%	9.2%	73.5%	70.6%	27724.8	29283.5	10.0%	11.4%
byumba	9.5%	8.3%	64.7%	67.2%	25914.1	25199.6	10.2%	9.9%
cyangugu	7.6%	6.8%	63.9%	61.4%	28730.5	27392.0	8.0%	7.3%
gikongoro	6.3%	6.5%	76.1%	79.2%	29986.7	30785.3	8.0%	9.1%
gisenyi	9.5%	10.6%	54.9%	61.8%	24203.8	26522.5	8.7%	11.5%
gitarama	10.5%	9.9%	53.8%	56.5%	24073.9	21810.1	9.4%	9.9%
kibungo	8.2%	9.2%	52.9%	50.3%	23108.4	23434.8	7.2%	8.1%
kibuye	5.7%	5.9%	73.1%	64.5%	24553.0	25533.6	6.9%	6.7%
kigali ngali	11.4%	10.2%	69.4%	46.5%	29854.2	23338.7	13.1%	8.4%
kigali urban	7.4%	7.4%	11.8%	13.0%	17138.5	18774.3	1.4%	1.7%
ruhengeri	11.7%	10.0%	71.2%	64.5%	27043.3	25910.0	13.7%	11.3%
umutara	3.9%	5.9%	53.1%	45.4%	26295.6	20581.4	3.4%	4.7%
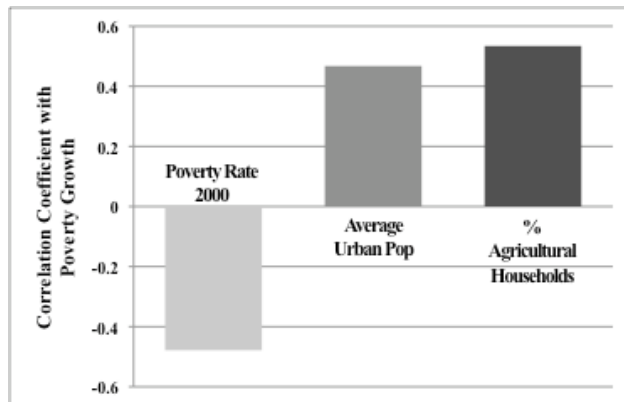
Figure 2.1 Correlates of Poverty Growth by Province, 2000 to 2005

Understanding the dynamics of poverty is important in and of itself. However, in the context of the fragile peace and social tensions in Rwandan society it is imperative that we move beyond understanding poverty and examine the dynamics of changing inequality.

2.3 Inequality in Rwanda, 2000 & 2005

Between 2000 and 2005 Rwanda experienced strong GDP growth of 6.7 percent. Per capital GDP growth was less impressive at 3.4 percent. This growth has been accompanied by a rather small reduction in national poverty rates. This much has been noted by economists, even if there has been little attention paid to the group-based dimensions of poverty. By contrast, virtually no attention has been given to what has happened to inequality, despite the risk that this could be among the sources of conflict in the future. The Rwandan genocide and reconstitution of society afterwards has caused enormous upheaval and disruption in survival strategies for many households. An important and continued source of tension has been around land – for old and new returnees[27] among other groups. The National Unity and Reconciliation Commission (NURC) reports that the majority of the population considers land disputes the greatest factor hindering peace (Musahara & Huggins, 2005; Pottier, 2006; Wyss, 2006). However, access to land is just one of the potential factors driving rising inequality. Access to social safety nets, extension services, finance, health care, education etc. are all potential sources for elite capture, too.

---

[27] Old returnees refer to individuals whose families fled Rwanda during periods of violence prior to 1990. A large proportion of these families escaped Rwanda from 1959-1963 during the instability and targeted attacks of Tutsi's with independence and the overthrow of the monarchy.
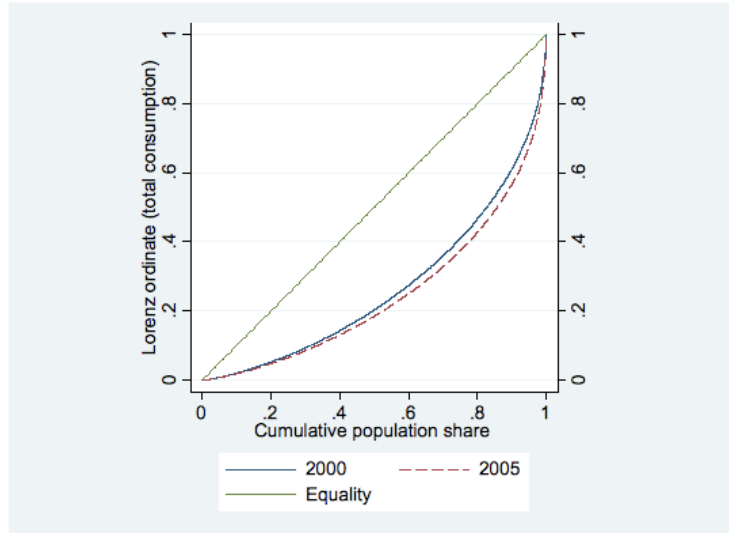
Figure 2.2 The Lorenz Curve, 2000 & 2005

Figure 2.2 shows the Lorenz curves for consumption in 2000 and 2005. The Lorenz curves don't cross, implying that inequality has increased across the distribution between 2000 and 2005 by whichever measure of inequality used (see Shorrocks (1982) for a formal examination of Lorenz curve domination). Given the civil war, genocide and massive displacement of the population over the 1990s it is not surprising that inequality rose in that decade. What is more troubling, from a conflict prevention perspective, is the high level of consumption inequality and the trend of rising inequality between 2000 and 2005.

Consumption growth has not been broad-based. Figure 2.3 shows consumption growth by decile between 2000 and 2005. Consumption growth of the top decile, at 21.1 percent, far exceeded that of any other decile over this period. Compared with the bottom decile, whose consumption grew at 6.7 percent, the top decile's grew more than three times as fast.
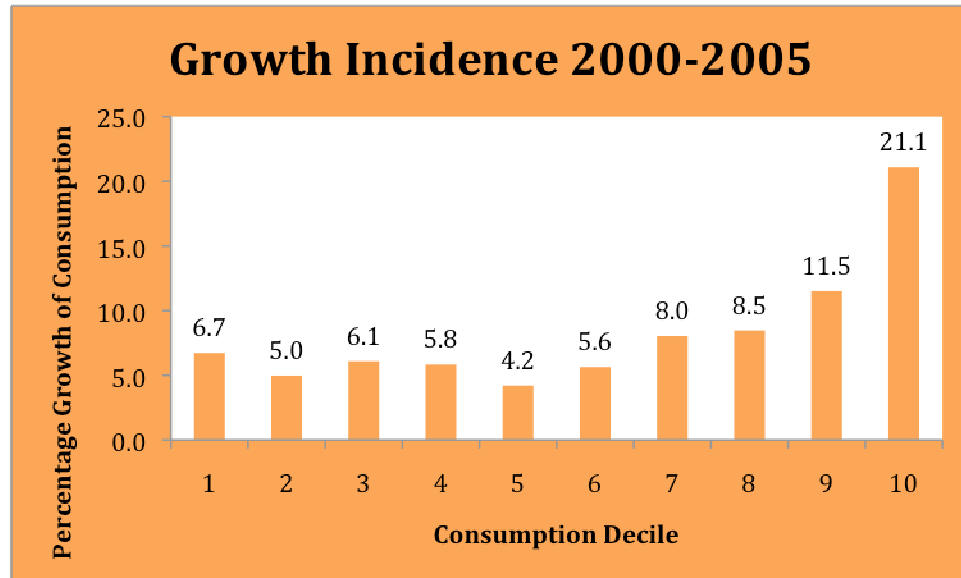
Figure 2.3 Consumption Growth by Decile

To investigate the correlates of household consumption, I use a standard mincerian model specified as follows:

$$\ln \mathbf{Y}_i = \alpha + \beta_j \chi_{ij} + \varepsilon_i$$

Where $\ln \mathbf{Y}_i$ is the logarithm of per capita household consumption (adjusted using equivalence scales and for regional price differences and given in 2000 prices) in Rwandan francs for household *i* and χ_{ij} is a vector of exogenous explanatory variables that can be broadly grouped in regional, household and individual-level characteristics. Regional variables include urban/rural residence and province of household. Household-level characteristics include gender of household head, size of household, dependency ratio, household land cultivated, ownership of cattle, household received cash or in-kind transfers in, household sent cash or in-kind transfers to another household, household member with debt, household member with savings. Individual-level characteristics for household head include age, education, and employment as farm laborer or waged worker.

31

Table 2.7 Descriptive Statistics

	2000		2005	
	Mean	Std. Dev.	**Mean**	Std. Dev.
Log Per capita expenditure	**11.0**	0.0	**11.1**	0.0
Male head	**0.665**	0.0	**0.704**	0.0
Female head (non-widow)	**0.061**	0.003	**0.064**	0.003
Female head (widow)	**0.253**	0.006	**0.219**	0.005
Age	**43.905**	0.210	**44.270**	0.195
Education	**3.051**	0.045	**3.283**	0.041
Urban	**0.099**	0.004	**0.165**	0.004
Household size	**4.956**	0.032	**5.000**	0.029
Head farm laborer	**0.840**	0.005	**0.814**	0.005
Head wage worker	**0.251**	0.006	**0.421**	0.006
Household member wage worker	**0.508**	0.012	**0.905**	0.013
Household cattle	**0.527**	0.034	**0.670**	0.042
Household land	**0.693**	0.021	**0.755**	0.019
Dependency ratio	**0.982**	0.012	**0.903**	0.010
Transfers In	**0.609**	0.007	**0.768**	0.005
Transfers Out	**0.621**	0.007	**0.787**	0.005
Debt	**0.403**	0.007	**0.579**	0.006
Savings	**0.212**	0.006	**0.444**	0.006

Table 2.7 presents descriptive statistics for the variables used in the expenditures regression analysis. As many variables were included in the poverty regression in section 2.2, I will limit this discussion to variables only used for this exercise. Of particular interest are changes in correlates of consumption that may be affecting inequality. There has been a slight increase in mean years of education from 3.0 years in 2000 to 3.3 years in 2005. While an improvement, it still indicates that the majority of the population has very low levels of formal education (less than 4 years of primary school education). Agricultural assets have risen between the two years. On average, each household owned 0.53 cattle in 2000 and 0.67 in 2005. Similarly, landholdings per household rose between the years. In 2000, the average land holding was 0.69 ha and by 2005 this had risen to

0.76 ha. Interestingly, the dependency ratio[28] declined slightly between years (from 0.98 in 2000 to 0.90 in 2005), while at the same time household size slightly increased (from 4.96 in 2000 to 5.0 in 2005).

The data reveal rising levels of debt and savings. In 2000, 40 percent of households reported debt, which rose substantially in 2005 to 58 percent. At the same time, the proportion of households with savings doubled, from 21 percent to 44 percent.

2.3.1 Discussion of Results: Household Expenditures Estimation

Table 2.8 gives the results from the household expenditures estimation. Comparing female widow and non-widow households to the full sample, I find lower levels of consumption income, though this result is only statistically significant for widows in 2000 and for non-widows in 2005. The urban and rural samples show important differences for gender and household structure. In urban areas, female-headed households, both widows and non-widows, face a lower penalty in consumption in 2005 as compared to 2000. This result may indicate greater labor market opportunities for urban women compared to rural women whose livelihood strategies are primarily connected to ownership of land.

Widows in rural areas faced a greater consumption penalty in 2005 while rural non-widows faced a lower consumption penalty in 2005 (both in comparison to 2000). This result is surprising as in section (I) I found a decline in the likelihood of rural widow-headed households being poor. These results are not contradictory, however: they illustrate consumption penalties still exist for rural widow household heads, controlling

---

[28] The dependency ratio is calculated as number of children (<18) divided by number of adults.

for human, physical and geographical differences, but the penalty doesn't push them as frequently into poverty.

The increase in magnitude of consumption penalty for rural widow heads may be explained by two factors. Firstly, the household consumption estimation explains about 30 percent of all variation in consumption, suggesting other important income-generating factors are not captured in the model. Secondly, if widow heads of household are employed in agricultural wage labor in a higher proportion, they will have been particularly hard hit by the decline in real wages during this period. The National Institute for Statistics reports that real wage rates for agricultural laborers fell in all regions by around 30 percent between 2000 and 2005 (Strode, et al., 2007).

Human Capital. Returns to education are positively and significantly correlated with consumption and have increased between 2000 and 2005. Substantially higher returns to education are present for the urban subsample, though both subsamples register increases between the years.

Physical Capital. Land is positively and increasingly associated with higher levels of consumption income for rural households[29]. This is not surprising given the agrarian structure of the economy and the negative relationship between land and poverty as seen

---

[29] It is interesting to note that households that cultivate no land are not a homogenous category. Households owning or cultivating no land includes the very rich and the very poor. In 2000 the mean household income was RWF 86,685 with a standard deviation of 152,984. For the non-cultivating or owning households the mean income was RWF 287,355 with a standard deviation of 347,682. In 2005 the mean household income was RWF 100,411 with a standard deviation of 230,145. For non-cultivating or owning households the mean income was RWF 259,922 with a standard deviation of 291,678.

in section 2.2[30]. The increasing importance of land for levels of consumption in the rural

sector indicates that any structural changes in the distribution of land will have significant

implications on levels of consumption for the rural population. The importance in

understanding changes in land ownership and concentration cannot be overstated. The

majority of the Rwandan population relies on subsistence agriculture and changes in

ownership and distribution of agricultural assets can threaten their survival.

Households in urban areas were statistically more likely to have higher levels of

consumption in both 2000 and 2005. Regional dummies show no consistent or significant

relationship in most regions in 2000. By 2005, however, regional differences are

important in explaining overall variation in consumption. In 2005, all regions had

significantly lower consumption than Kigali (the omitted variable).

Financial Capital. There has been a recent resurgence of interest in different

channels of financial resources, in particular remittances, within the development

community[31]. In the expenditure estimation I include a number of variables to measure

financial capital: whether the household receives or sends cash or in-kind transfers,

whether a member of the household has a savings account, and whether a member of the

household is in debt.

Whether a household has debt or not accounts for very little in the expenditure

estimation. This finding is not entirely surprising as households with debt are likely to

include both the very poor (those forced to borrow to try to avoid destitution) and the

---

[30] In this type of analysis we are unable to compare magnitude of effect between physical and human capital explanatory variables.

[31] See Adams and Page (2003), Johnson and Sedaca (2004), and Manuel Orozco (2003).

wealthy (those able to borrow to see higher returns in the future). In contrast, households

with savings are strongly and statistically more likely to be associated with higher levels

of consumption. Savings, as expected, act as a buffer against household income shocks.

There has been a large increase in the magnitude of the effect of savings on consumption

for urban households. This may be indicative of a rise in income-generating opportunities

for urban households with access to financial capital.

Table 2.8 Household Expenditures Estimation

Independent Variables	2000	2005	Urban 2000	Urban 2005	Rural 2000	Rural 2005
Female-headed Household	-0.075***	-0.047*	-0.060	-0.053	-0.081***	-0.056**
Age	0.001*	-0.001	0.003	-0.002	0.001*	-0.001
Education	0.057***	0.067***	0.081***	0.087***	0.049***	0.051***
Urban Residence	0.811***	0.417***	N/A	N/A	N/A	N/A
Household Size	-0.087***	-0.068***	-0.088***	-0.082***	-0.087***	-0.065***
Household head farm laborer	-0.148***	-0.101***	-0.350***	-0.281***	-0.115***	-0.002
Household head waged worker	-0.012	-0.138***	-0.117*	-0.270***	0.032	-0.094***
Household member wage worker	0.016	-0.007	0.141***	0.106***	-0.027	-0.050***
Cattle	0.015***	0.004	0.010*	0.021	0.016***	0.004
Land	0.041***	0.073***	0.045*	0.046***	0.043***	0.083***
Dependency Ratio	-0.084***	-0.157***	-0.105***	-0.147***	-0.079***	-0.154***
Received transfers in cash or kind	-0.091***	-0.029	-0.091*	-0.035	-0.088***	-0.016
Sent transfers in cash or kind	0.312***	0.261***	0.320***	0.157***	0.309***	0.290***
Debt	-0.028	0.019	-0.077	0.024	-0.016	0.021
Savings	0.303***	0.308***	0.187***	0.510***	0.309***	0.255***
Butare	-0.211***	-0.621***	-0.049	-0.285***	-0.055	-0.351***
Byumba	-0.113*	-0.656***	0.092	-0.576***	0.047	-0.344***
Cyangugu	-0.047	-0.517***	0.268	-0.136	0.103*	-0.228***
Gikongoro	-0.393***	-0.828***	-0.193	-0.671***	-0.239***	-0.528***
Gisenyi	0.071	-0.480***	0.015	-0.446***	0.227***	-0.176***
Gitarama	-0.047	-0.491***	-0.301**	-0.358***	0.123**	-0.181***
Kibungo	0.024	-0.396***	-0.092	-0.300***	0.190***	-0.091*
Kibuye	-0.146*	-0.637***	0.127	-0.367***	0	-0.348***
Kigali ngali	-0.193***	-0.375***	-0.03	-0.281***	-0.049	-0.067
Ruhengeri	-0.269***	-0.615***	-0.054	-0.282***	-0.107**	-0.343***
Umutara	0.036	-0.283***	0.379	0.178	0.188***	0
Constant	11.220***	11.557***	11.804***	11.834***	11.055***	11.203***
R^2	0.465	0.431	0.505	0.594	0.293	0.291
Degrees of freedom	6375	6866	1123	1592	5228	5250
No. of observations	6402	6893	1149	1618	5253	5275

Households receiving cash or in-kind transfers have lower consumption, though this variable is statistically significant only in 2000. Households sending cash or in-kind transfers to other households are much more likely to have higher levels of consumption in both years.

Examining the correlates of consumption is an important exercise in and of itself, and it gives us an idea of changes in patterns of correlates between the two surveys. Ideally, however, I would like to understand what is driving changes in inequality between the two years, as this will have important development ramifications for segments of the Rwandan population negatively impacted by these changes. In this next section I will use a regression-based technique developed by Fields (2003) to look at the factors driving rising consumption inequality.

A seminal piece by Shorrocks (1982) identifies a methodology to decompose income inequality by the various sources of income for each individual. Shorrocks begins by noting that the total income (Y_i) of an individual i is by definition the sum of his or her income from all k sources of income (wages, rental income, dividends, transfers etc.). Thus,

$$Y_i = \sum_{k=1}^{K} \left(Y_i^k \right) \tag{1b}$$

where Y_i^k is the income of individual i from source k.

Shorrocks defines the component inequality weight of a given source of income k as the covariance of the income from this source to overall income scaled by the overall variance of income. Denoting this variable as $s^k(Y)$ we have:

$$s^k(Y) = \frac{\text{cov}(Y^k, Y)}{\sigma^2(Y)} \tag{2b}$$

These shares sum to 1 and can be interpreted as the contribution of inequality in each income source k to overall income inequality.

Fields (2003) notes a similarity between (1b), in which overall income is the sum of income from all k sources (such as wages, rents and transfers), and a regression-based decomposition in which income is derived from an income-generating function with several independent variables (such as from earnings due to education, earnings due to asset ownership and so on). To be specific, consider a simple OLS regression where income is generated from k sources

$$y_i = \sum_{k=0}^{K} \left(\beta^k X_i^k \right) + \varepsilon_i \qquad (3b)$$

Where $y_i = ln\ (Y_i)$, Y_i refers to an individual i's income, X^k is a vector of income from k observed factors that generate income and ε_i is the residual term. The coefficients β^k are obtained, as noted, through a simple OLS regression.

Fields uses the isomorphism between (1b) and (3b) to identify a similar set of decomposable inequality measures as Shorrocks (1982), but thus time using the attributed income from each of the k sources (i.e. $\beta^k X^k$). Taking covariances on both sides of (3b) we have

$$\sigma^2(y) = \sum_{k=0}^{K} \text{cov}\left(\beta^k X^k, y \right) \qquad (4b)$$

From which we can define the *relative factor inequality weight* in an analogous manner to (2b) as

$$s^k(y) = \frac{\left(\beta^k X^k, y \right)}{\sigma^2(y)} \qquad (5b)$$

In what follows, I use this methodology to decompose inequality, using equation (5b) to examine factor components of consumption and how they contribute consumption inequality. Table 2.9 presents the proportion of explained inequality in 2000 and 2005 with the full sample, the urban subsample and the rural subsample by years. It is important to note in the discussion of results that the proportion of inequality explained refers to the total variation in consumption explained through the regression analysis. Thus, I am only explaining a portion of overall inequality as for the consumption estimation for 2000 the R^2 was .47 and for 2005 the R^2 was .43[32].

2.3.2 Decomposition of Inequality

The management of inequality in post-genocide Rwanda could have important repercussions for overall social tensions and the propensity for violent conflict in the future. For this reason, it is imperative that we understand what factors are responsible for rising consumption inequality. Table 2.9 presents the results for the decomposition of inequality exercise.

Household Structure. I find little evidence that changes in consumption inequality are being driven by the structure and composition of household members. The gender of head of household explains a small and decreasing (for widows) proportion of inequality. The most significant decrease has been in the proportion of inequality explained by urban female widow-headed households (decreasing from 3.6 percent in 2000 to 0.6 percent in 2005). This supports the earlier finding that female widow-headed households (the largest

---

[32] The R^2 for the urban and rural subsamples show wide variation. The household consumption estimation for urban population explained a much greater proportion of variation in consumption (R^2 0.6 in 2005) than for the rural population (R^2 0.3 in 2005). This discrepancy indicating that there are important consumption generating characteristics that are not captured in my explanatory variables.

proportion of female-headed households) have seen a larger than proportionate fall in

poverty (though they still have higher poverty rates on average than their male

counterparts).

Table 2.9 Regression-based Decomposition of Inequality

Independent Variable	Proportion of Explained Inequality		Proportion of Explained Inequality		Proportion of Explained Inequality	
	2000	2005	Urban 2000	Urban 2005	Rural 2000	Rural 2005
Female-headed Widow Head	1.0	0.2	3.6	0.6	1.5	0.3
Female-headed Non-Widow Head	0.0	0.1	0.3	0.0	0.1	0.5
Age	-0.7	0.5	-2.6	0.8	-0.7	0.5
Education	22.1	25.5	46.9	38.8	19.0	17.8
Urban Residence	31.0	15.7	N/A	N/A	N/A	N/A
Household Size	8.6	5.5	9.5	3.3	20.3	10.4
Household head farm laborer	5.3	3.0	9.4	9.1	1.1	0.0
Household head waged worker	-0.2	0.8	-3.7	-2.5	0.1	2.7
Household member wage worker	0.5	0.0	11.2	5.8	0.3	3.4
Cattle	1.3	0.9	0.5	1.4	3.4	1.7
Land	1.0	3.7	-0.3	0.1	4.7	12.4
Dependency Ratio	4.4	7.8	5.5	5.0	7.5	11.6
Received transfers in cash or kind	1.4	0.1	0.7	0.2	-0.2	-0.1
Sent transfers in cash or kind	6.0	3.5	10.9	2.0	16.5	10.5
Debt	0.2	0.0	0.0	0.1	0.0	0.3
Savings	9.4	12.3	6.4	21.3	13.6	13.9
Province	8.7	20.4	1.7	14.0	12.8	14.1

Both the correlates and decomposition exercises found that being in a widow-

headed household is becoming a less important as a factor in determining a household's

position in the consumption distribution, controlling for other possible determinants. My

findings are encouraging in that consumption gains have been made for this vulnerable

group between these two surveys. This finding does not mean that widows are no longer

a vulnerable group compared to male-headed households. Besides widows experiencing

lower levels of consumption, they are more likely in post-conflict settings to have lower

physical and human assets (BCPR2002). In examining levels of physical and human

capital by gender of household head there are marked differences. Female-headed

households have significantly lower average household land, cattle and education, compared to their male counterparts. For example, female-headed households in 2005 had on average 0.66 ha of land and male-headed households had 0.79 ha. In terms of education, male heads had 3.8 years of education in 2005 versus female heads with 2.1 years. For cattle, male heads in 2005 had on average 0.79 cattle compared to female heads of 0.38.

The dependency ratio explains an increasing proportion of consumption inequality, rising from 4.4 percent to 7.8 percent, with much greater rise in impact for rural households. This has occurred while the dependency ratio nationwide has declined, from 0.98 in 2000 to 0.90 in 2005. Over this time period, female-headed household have experienced a decline in the dependency ratio (from 1.1 in 2000 to 0.82 in 2005). Male-headed households have seen a slight rise in the dependency ratio (from 0.92 to 0.93 between years).

Education explains by far the largest proportion of inequality. Between 2000 and 2005, it accounts for a significant and slightly increasing proportion of explained inequality. This overall trend obscures important differences between urban and rural expenditure estimations, however. In urban areas there has been a substantial decline in the amount of overall inequality that education explained, from 47 percent in 2000 to 39 percent in 2005. While education is still important in explaining urban inequality, there are now a number of additional important factors, such as savings and region.

Land ownership explains an increasing proportion of overall inequality. For rural households, the contribution of land to overall explained inequality has been substantial, from 4.7 percent in 2000 to 12.4 percent in 2005. This finding is particularly troubling in

the context of Rwanda as there is a history of periods of social upheaval and violence corresponding to heightened tensions and conflict over land[33].

The patterns of spatial inequality can be divided into two different aspects -- a decreasing importance of rural-urban inequality, but an increasing importance of inequality between provinces. The proportion of inequality explained by urban residence versus rural residence was halved between 2000 and 2005. However, spatial inequality by region explains more. In 2000, province-level variation accounted for 9 percent of explained inequality, while by 2005 it had risen to more than 20 percent.

Whether or not a household member has savings explains a greater proportion of explained inequality in 2005 relative to 2000. The rise in significance of savings has been dramatic in urban areas. In the urban subsample, household savings rose from explaining 7 percent of explained inequality to 21 percent. Access to finance and to different sources of finance will likely be an increasingly important determinant of inequality in the years to come.

2.4 Conclusion

In any development context, but especially in post-conflict countries, it is important to understand the determinants of poverty and inequality. Despite the genocide and continued regional instability, Rwanda's economy has experienced positive growth since the late 1990s. This has occurred despite persistent structural problems in the Rwandan economy. In particular, the majority of the population remains dependent upon

---

[33] Pottier (2006) cites three additional sources of conflict around land since the genocide due to (i) female-headed households need for land, (ii) return of new and old caseload refugees, and (iii) acquisition of land by the new political elite.

the agricultural sector where soil fertility, erosion, environmental degradation, plot fragmentation and variable rainfall limit the gains from investments in this sector.

This chapter has looked at the changing correlates of poverty and inequality in Rwanda. There has been a small reduction in poverty, though this hides important differences based on household, education, assets and spatial characteristics. I found a substantial decline in poverty for widow-headed households, but an increase in poverty for female non-widows. Education of head of household acted as a buffer against poverty, though physical assets and geographical location overshadowed this variable. The majority of the population, 57 percent in 2000, still live in poverty, though this is a modest improvement from 60 percent of the population in 2000 falling under the poverty line. Poverty is strongly correlated with female non-widow-headed households, rural residence, size of household lack of education and region of residence.

Taking the poverty analysis one step further, I decomposed the *FGT* measures of poverty by a number of important household and geographical characteristics. I find an important shift in the vulnerability of female-headed households. Widow heads are increasingly less likely to be poor, yet female non-widow heads are increasingly more likely to be poor. The decomposition of poverty by province revealed vast spatial differences in incidence, intensity and distribution of consumption income of the poor based on place of residence. Gikongoro residents are over 900 percent more likely to be poor than Kigali residents, holding other attributes constant. The spatial patterns and intensity of poverty swamp educational returns.

Rising inequality is a pressing development concern in Rwanda though its causes are poorly understood. In this chapter I decomposed changing consumption inequality

and discovered a number of important trends. There has been a decline in proportion of inequality explained by level of education, and a concommitant rise in inequality due to geographical location, land ownership and savings.

Both exercises reveal the increasing importance of physical assets versus human capital. In both cases, the distribution of assets is increasingly important in determining inter-household distribution of income. These results indicate that changes occurring in the agrarian structure and distribution of assets are dampening returns to education. It also points to the importance of examining the asset concentration occurring in rural areas, as this is an important component driving rising inequality and one that could potentially threaten long-term peace and stability in Rwanda.

CHAPTER 3

GENDER AND PUBLIC GOOD PROVISIONING: RWANDA'S COMMUNITY-BASED HEALTH INSURANCE SCHEME

3.1 Introduction

Most developing countries struggle to provide basic health care for the majority of their populations. The poor and most vulnerable within a society often find it hardest to access basic health services. Health equity research has established that the poor have worse overall health, pay a higher proportion of their income on health services, and have lower utilization rates for health care despite having greater need for health interventions (O'Donnell, et al., 2008)[34]. Poor women and their dependents within female-headed households are particularly vulnerable to poor health. Gender-based discrimination in labor markets and in accessing credit make it difficult for women to afford out of pocket expenditures for health care.

In countries emerging from conflict these issues are magnified. Such societies have often experienced the physical destruction of basic infrastructure and the flight of human capital in the form of trained health personnel. At the same time, higher levels of poverty make health care more inaccessible even as when the population has greater healthcare needs. Governments must grapple simultaneously with two issues – how to address glaring inequities in health services, and how to pay for health services with a limited tax base. In this regard, micro insurance initiatives, often referred to as

---

[34] Health inequity impedes what Sen would term 'human capabilities' (our ability to fully function). It has become increasingly recognized that an overall development strategy must then encompass improving health outcomes for the poor (Stiglitz, 1999).

community-based health insurance (CHI)[35], have been heralded as a way to address both equity and revenue for the health sector. CHI schemes are said to be a decentralized way to target the rural poor and the vulnerable in the informal sector. By pooling risk in communities, these schemes are supposed to create a stable demand-based source to finance local health care delivery.

One of the important benefits of such schemes, according to its proponents, is that it is supposed to support access to health care for women and female-headed households (Schneider, et al., 2001). Gender equity and empowerment are now recognized as necessary for improving health, among other development outcomes. Women have become an important conduit through which development policy is implemented. Micro insurance programs, for example, have explicitly targeted women due to their high repayment rates and the finding that increasing income opportunities for poor women has auxiliary benefits in the form of greater spending on education and health care for children (Mason & King, 2001).

In post-conflict countries these gender issues are even more salient than elsewhere. Demographic changes due to higher male death rates leave the population with a sharply increased proportion of vulnerable female-headed households. As a result, women of necessity enter the paid labor market in much higher numbers. In the societal upheaval following violent conflict, gender norms are often challenged. This is partly due to economic necessity – basic needs within the household cannot be met by strictly enforcing traditional gender norms and keeping women out of the paid labor force. It is also due to the space created in wider political processes – from the writing of new

---

[35] Some CHI schemes have evolved from traditional risk pooling mechanisms, such as the tontine in West Africa.

constitutions, to land reform laws etc. – where gender-equitable language can be written at the start of the process. For these reasons, the scope for as well as the benefits of CHI programs in terms of promoting gender equity potentially are more pronounced in post-conflict societies. Yet little research has been done on these effects in the area of access to healthcare.

Post-genocide Rwanda provides a useful case study to examine these issues. As a result of heavy donor support the country has adopted a CHI initiative called *Mutuelle de santé* as its signature healthcare policy. The CHI initiative did not explicitly target women, but it was designed to provide low cost health insurance for rural poor and vulnerable groups including female-headed households.

After the genocide there were important demographic changes in Rwanda's population, most notably a sharp rise in female and child-headed households, making gender issues more salient. Health outcomes worsened dramatically during and after the civil war, genocide, and displacement of over one-third of the population, as evidenced by rising maternal and infant mortality. The maternal mortality rate rose from 500/100,000 live births in 1992 to 1071/100,000 live births in 2000 (Ministry of Health, 2005). Similarly, infant mortality rose from 85/1000 live births in 1992 to 107/1000 live births in 2000 (Ministry of Health, 2005). The post-genocide Government of Rwanda (GoR) has been heralded as a leader in tackling gender inequities – referred to by some as a 'gender revolution'[36]. Rwanda now has the highest female proportion (56 percent) in parliament in the world (the constitution reserves 30 percent of the seats for women).

---

[36] See (Baines, et al., 2008).

To the best of my knowledge, however, there has been no attempt to assess the gender impacts of CHI schemes using nationally representative data. Accordingly in this chapter I examine the determinants of access to health care in Rwanda, using a nationally representative dataset from 2005 and 2006 (the EICV survey), at which time the Mutuelle de Santé had been a nationwide policy for five years. In particular, I examine whether women and female-headed households are more likely to be members of such an initiative. The expectation is that female-headed households would be more likely to enroll in a CHI scheme, as women tend to be more risk averse and place a greater priority on healthcare for family members. I find that, contrary to these expectations, female-headed households are significantly less likely to partake of such programs. This result is robust to the inclusion of several controls. The rest of the chapter is organized as follows: Section 3.2 provides a review of the literature and Rwandan context; Section 3.3 presents the methodology, data and discussion of results; Section 3.4 concludes.

3.2 Background

Most developing countries face two main obstacles in the health care sector: financing a viable health care sector when avenues for taxation are limited, and providing a basic level of health care that is both equitable and accessible for the population.

A number of policy initiatives have been put forward as ways to address the problems of financing and provisioning of health services. Point-of-service user-fees were common during the 1980s and 1990s. There is now a substantial body of research on the effects of user-fees that has found financing and provisioning of health services to

those who need them, to be contradictory goals (Bijlmakers, et al., 2006)[37].

Improvements in equity of health care have been achieved at the expense of revenue

generation via user fees. Similarly, strategies for generating revenue have accompanied

declines in equity of access for health care. Of particular concern has been the sharp

decline in demand for health services by the poor (McPake, 1993; Palmer, et al., 2004) or

impoverishment of the poor due to large out-of-pocket expenditures for health care

(Bennet, et al., 1998). In addition user-fees have been found to impose disproportionate

costs on women who are usually primary caretakers (Jackson & Pearson, 1998). The

failures of user-fees to provide either sufficient revenue or provide health care to poorer

sections of the population have led to the development of alternative forms of community

financing.

Community-based health insurance (CHI) schemes have become increasingly

widespread in developing countries[38]. CHI are non-profit pre-payment plans for

healthcare organized at the level of a community (defined by geographic boundary or

socio-economic group) based on voluntary membership that provide risk-pooling[39]

---

[37] The World Bank has recently supported countries that have wanted to move away from user-fees (World Bank, 2007).

[38] The Joint NGO Briefing paper cites that around 2 million people in Africa were covered by CHI in 2005.

[39] Most definitions of CHI include voluntary membership as a defining feature though this may change as countries adopt mandatory membership (as recently adopted in Rwanda). It is not entirely transparent the reason for the shift to mandatory membership in Rwanda. One explanation is that the level of revenue generation at voluntary membership levels was not sufficient to generate sufficient revenue for the healthcare sector as a whole. Another reason is that with voluntary membership large number of the population could opt out of the scheme if quality or services were unsatisfactory. This latter scenario occurred in one district for the pilot MHI.

(Carrin, et al., 2005; Vialle-Valentin, et al., 2008). CHI schemes are also referred to in the literature as mutual health organizations, medical aid societies, or micro-insurance programs (See Carrin, et al., 2005). Members of CHIs pay a fee that provides partial or full payment for a predetermined set of basic health services determined in collaboration with local healthcare providers. Many schemes use the majority of funds for periodic capitation-based payments to local healthcare providers. Co-payments for health services and approved medicines are common.

Research on the effectiveness of CHI has looked at five main functions: (i) revenue collection, (ii) risk pooling, (iii) access to healthcare, (iv) household income protection and (v) equity. The ability of CHI to provide significant revenue for the provision of health services generally has not materialized, although there is some evidence of modest improvements in revenue for local health clinics (Carrin, et al., 2005). Another potential benefit of CHI is the ability of members to pool risk across community members. There is little evidence, however, of CHI traversing risk across socio-economic groups (Carrin, et al., 2005).

A primary goal for CHI is increasing access to healthcare. There are a number of ways to measure this – utilization of different types of care is most common. Diop et al (2006) look at the impact of mutual health organization membership on use of priority healthcare services in Ghana, Mali and Senegal. They find some limited evidence of CHI increasing access to healthcare. In Ghana and Mali, CHI membership increased the likelihood of a sick person seeking professional health services. While this result was not found in Senegal, they did find that insured individuals were more likely to be hospitalized. Jutting (2004) examines the impact on poor people accessing health care

through CHI in rural Senegal. He finds evidence of CHI increasing access to health care for poor people. Berkhout and Oostingh (2008) surveying the current literature find evidence of CHI increasing access to healthcare.

The effectiveness of CHI on household income protection can be measured by examining out-of-pocket (OOP) expenditures on healthcare. There is little evidence that CHI reduces household expenditures associated with illness. There is some evidence that CHI does reduce OOP expenditures in the case of catastrophic illness. Jutting (2004) found evidence that CHI in rural Senegal decreased overall medical costs for hospital visits. Diop et al (2006) also find reduced OOP costs for hospitalization in Senegal and Ghana (though not for Mali). Similarly, Berkhout and Oostingh (2008) found evidence in the literature that CHI decreased expenditures for some catastrophic illnesses. One reason given for this finding is that individuals with CHI will be more likely than the uninsured to access outpatient curative care (i.e. the uninsured will not access medical services until an illness becomes severe and will therefore have more cost associated per episode of illness).

There are a number of ways we can look at CHI effectiveness in improving equity within the health sector. A common method is to examine horizontal health equity in access, need or out-of-pocket expenditures. Horizontal health equity is defined by Wagstaff and van Doorslaer (2000) as "equal treatment for equal medical need, irrespective of other characteristics such as income, race, place of residence, etc." In contrast vertical health equity is preferential treatment for those with greater healthcare needs (O'Donnell 2008).

CHI has been widely supported by governments and donors as a good mechanism for targeting those in the informal sector and those with low incomes. However, research on the equality of access for CHI has found low membership rates for the lowest income groups. Jutting (2004) finds that poor people in rural Senegal benefit from CHI but the extreme poor are excluded. Vialle-Valentin et al (2008) use the World Health Survey 2007 to examine CHI coverage for the poor in 20 low-income countries[40]. They find less than 2 percent of respondents in the WHS with CHI belong to the lowest income quintile. Similarly, Berkhout and Oostingh (2008) surveying the current literature find CHI worsens equity of health systems by excluding the poorest populations (unless they are actively subsidized by the government or NGOs).

Focusing on a vulnerable group, such as female-headed households, is another way to examine horizontal equity in access to health services. CHI has been advocated as a means for targeting such vulnerable groups within the rural poor. Smith and Sulzbach (2008) argue that CHI would reduce overall health payments for female-headed households and that they would be just as likely, if not more likely, to enroll (especially if the plans include pre and post-natal care). There has been little empirical work validating these claims. In one of the few studies, Diop et al (2006) find female-headed households in Ghana, Mali and Senegal are two to six times more likely to enroll in mutual health insurance. There is some evidence that CHI membership has improved access to emergency obstetric care for women (Ndiaye, et al., 2007). Looking at a CHI scheme in the DRC, Criel et al. (1998) found membership led to a higher uptake of C-sections.

---

[40] The countries included were: Bangladesh, Burkina Faso, Chad, Comoros, Côte d'Ivoire, Ethiopia, Ghana, India, Kenya, Lao PDR, Malawi, Mali, Mauritania, Myanmar, Nepal, Pakistan, Senegal, Vietnam, Zambia, and Zimbabwe.

Similarly, Smith and Sulzbach (2008) examine CHI and utilization of maternal health services in Ghana, Mali and Senegal. They find membership of CHI positively correlated with use of maternal health services.

Comparative cross-country research on the effectiveness of CHI is still limited[41]. Most research to date has been done at the level of country case studies and many of these have not been nationally representative. CHI schemes vary in organizational structure and benefits offered, making these comparisons difficult. From the studies mentioned above, however, we can conclude that CHI has not produced a magic bullet for solving revenue shortfalls for basic health provision or improved the equity of health access for the poorest populations. Within the literature there are still many aspects of CHI that deserve greater attention. In particular, a more detailed understanding of the way in which CHI has been unable to improve equity within the health sector – which groups have been excluded and why – may lead to institutional design and implementation that is more socially inclusive.

3.2.1 Rwandan Context

Rwanda is an interesting case study of the implementation of CHI in a post-conflict setting. After the genocide in 1994 donors paid for health services as part of emergency humanitarian aid. In 1996, as donor aid for health services declined, the GoR implemented user-fees at the level of prewar user charges. By 1999, utilization of health services was 0.24 annual consultations for primary health care per capita (Schneider et al. 2000). In other words, every fourth citizen went for a primary care consultation at a

---

[41] See Criel (1998).

health center per year. In 1999, the GoR introduced a pilot prepayment scheme for health care as a response to the failure of user-fees to provide revenue for local health clinics in combination with declining utilization rates[42]. Since 1999, the Ministry of Health has expanded the prepayment scheme called 'Mutuelle de sante' or mutual health insurance (MHI), nationwide. By 2004, there were 226 mutual health organizations covering 27 percent of the population over all 12 provinces (MoH 2004). By 2005, 39.4 percent of the population was covered by MHI. Table 3.1 gives MHI membership rates by province and data source.

Table 3.1 Mutual Health Insurance Membership Rates by Province

Province	# of Mutual Health Insurance (per sphere of influence of health centers) 2004	MHI membership rates	
		Rate of Subscription	EICV2*
Butare	30	25%	32%
Byumba	27	28%	50%
Cyangugu	7	16%	36%
Gikongoro	3	9%	28%
Gisenyi	11	33%	49%
Gitarama	36	45%	38%
Kibungo	33	46%	34%
Kibuye	5	16%	48%
Kigali Ngali	37	27%	48%
Kigali City	18	21%	24%
Umutara	8	10%	39%
Ruhengeri	11	25%	40%
Total	226	25%	39.40%

Source: Ministry of Health, Mutual Health Insurance Policy Document 2004
* Authors calculations

MHI schemes are set up to be autonomously managed non-profit community-based organizations that determine their benefit packages, annual premiums and subscription policy. Most MHI schemes in Rwanda cover a minimum package of basic

---

[42] The pilot prepayment scheme was introduced in three districts – Byumba, Kabgayi and Kabutare) with the financial support of USAID.

health care provided at local health centers, including all preventative, curative, prenatal, laboratory exams, drugs on the Ministry of Health's essential drug list and transportation to the local district hospital. Some MHI schemes additionally cover a limited number of services at a hospital. Annual premiums for MHI per household (2-7 persons) range from RWF 2500 ($4.65 USD 2003) in Kabutare to RWF 11500 ($21.39 USD 2003) in Kigali (Ministry of Health, 2004). Copayment at time of health service range from RWF 100 ($0.19 USD 2003) per disease episode to 25 percent of the real cost of care (Ministry of Health, 2004).

The main objectives of MHI were to (i) improve access to health care (especially for those in rural communities and the informal sector) (ii) improve equity, and (iii) mobilize domestic resources to improve financial viability of health services (MoH 2004). Until recently the only data available to examine MHI was a household survey conducted in 2000 (random subset from the 2000 DHS) of 2,518 households in the three districts where the pilot prepayment scheme was introduced in 1999 (see Schneider and Diop 2001). There was evidence that the pilot MHI improved access to health care. Schneider and Diop (2001) found MHI improved financial accessibility of health care for members by reducing costs and increasing probability of a visit to a health care professional[43]. Similarly, Kalk et al (2005) found that the MHI scheme improved financial access to health services.

---

[43] Schneider and Diop (2001) found enrollment in the mutuelle was determined by education of household head, household size, distance to health facility and radio ownership. They found the probability of enrollment in the mutuelle was equal across income. Schneider and Diop (2001) also mention the role church groups have played in facilitating membership of vulnerable groups (orphans, widows, HIV infected persons) in the three districts (page 20).

The effect of MHI on equity has been less clear. Schneider and Diop (2001) concluded that MHI didn't discriminate against the poor, as membership rates were equal across income groups. However, Kalk et al (2005) found that the MHI scheme failed to cover the very poor, using a different source of data.

There is limited evidence on the ability of MHI to mobilize domestic resources. Kalk et al (2005) analyze the financial flows in the health sector in two districts (Byumba and Butare), and conclude that unless the MHI scheme is integrated with other insurance schemes it will be unlikely to mobilize sufficient resources for the health sector. Schmidt et al (2006) analyze the financial capability of the population to contribute to community-based health insurance. Investigating the relationship between mobilization of resources and provision of CBHI across socio-economic groups, they find the two goals to be mutually exclusive.

The preliminary research on the effectiveness of MHI in Rwanda thus has produced a number of contrary results, in part due to employing different methodologies and different data sources. There are a number of important questions regarding equity and access to health care through MHI membership that require follow-up. Using nationally representative data collected after the MHI was scaled up nationwide I will provide clarity on a number of these issues.

3.3 Data and Analysis

This section presents the data, methodology and analysis, guided by the following three research questions:

1. Is enrollment in MHO's in Rwanda socially inclusive? Have poor and vulnerable groups been excluded from accessing mutual health insurance? Are women more or less likely to use the mutuelle program? Are women or female headed

households more likely to enroll? Are higher income or higher wealth households more likely to enroll? I will assess social inclusion of MHO by looking at the determinants of enrollment (taking into account adverse selection – women of child-bearing age, household size, households reporting more health problems etc.)

2. What are the determinants of access and use of health care services? Does MHO membership increase access and use of formal health care? Does wealth or income play a large role in determining access to health care or overall health status?

3. How successful is the MHI program in improving equity in the health system?

3.3.1 Data

There are two main sources of data now available for studying MHI in Rwanda, the 2005 Rwanda Demographic and Health Survey (RDHS-III) and the *Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda* (EICV2). For the purposes of this chapter I use the EICV2 as the DHS does not collect information on consumption or expenditures.

The EICV2 employed a two-stage stratified sample design[44]. A national sample of 6,900 households were selected and interviewed between October 2005 and October 2006[45]. The EICV2 was conducted to measure household expenditures, consumption and income, as well as demographic and socio-economic characteristics of the population. In this regard the EICV2 provides information on changes in the well-being of the

---

[44] The EICV2 used the 2002 General Population and Housing Census to construct the sampling frame.

[45] The EICV2 was designed to be geographically representative over a 12-month period, in order to take into account seasonality in consumption patterns (National Institute of Statistics Rwanda (NISR), 2006a).

population such as poverty, inequality, employment, living conditions, education, health and housing conditions, assets and household consumption.

3.3.2 Methodology

Table 3.2 provides mean data on demographic and socio-economic independent variables used in the regression analysis. Out of 34,785 individuals, 39.4 percent of the population had MHI. Over half the population is female and 24 percent of the population live in female-headed households[46]

Table 3.2 Sample Characteristics EICV2

	EICV2		
	MHI Members	MHI Non-members	Total Population
Number of Households			6900
Number of Individuals	12671	21990	34785
Weighted			
Percentage of Population	39.4%	60.6%	100%
Female	39%	61%	52.4%
In female-headed household	30%	70%	23.8%
With mutuelle health insurance	N/A	N/A	39.4%
With non-mutuelle health insurance	N/A	N/A	3.2%
Reporting illness in last two weeks	36%	64%	18%
Immobilized due to health condition in last two weeks	35%	65%	13.3%
Received consultation from a health care worker in last two weeks	46%	54%	6.3%
Reporting disability	37%	63%	3.5%
Percentage reporting chronic illness	38%	62%	4.4%
Rural	42%	58%	82.5%
Mean Income	89909.07	98000.87	94816.04
Wealth (principal components asset index)	2.66	2.43	2.52
Child to adult ratio	0.55	0.54	0.54
Household size	7.17	6.90	7.01
Level of education	1.1 (primary)	1.1 (primary)	1.1 (primary)
Age	20.9	20.2	20.5

---

[46] This analysis is conducted on the level of the individual. At the level of household, female headed households constitute a significantly higher percentage (29 percent). Female headed households have on average one less member in the household.

Eighteen percent of the population report illness in the two weeks prior to the study. Of those ill, 13.3 percent were immobilized due to illness. Just over six percent of the population report being seen by a health care professional in the two weeks prior to the study. There are low levels of reported disability and chronic illness (3.5 percent and 4 percent respectively). The majority of the population lives in rural areas (82.5 percent). The average income is RWF 94816 ($169.98 USD 2005). The average person has received some primary education. The average age is 21 years indicating a very young population. This is confirmed by the population pyramid in figure 3.1.

Figure 3.1 Age Pyramid, 2005-2006 (percent of population)
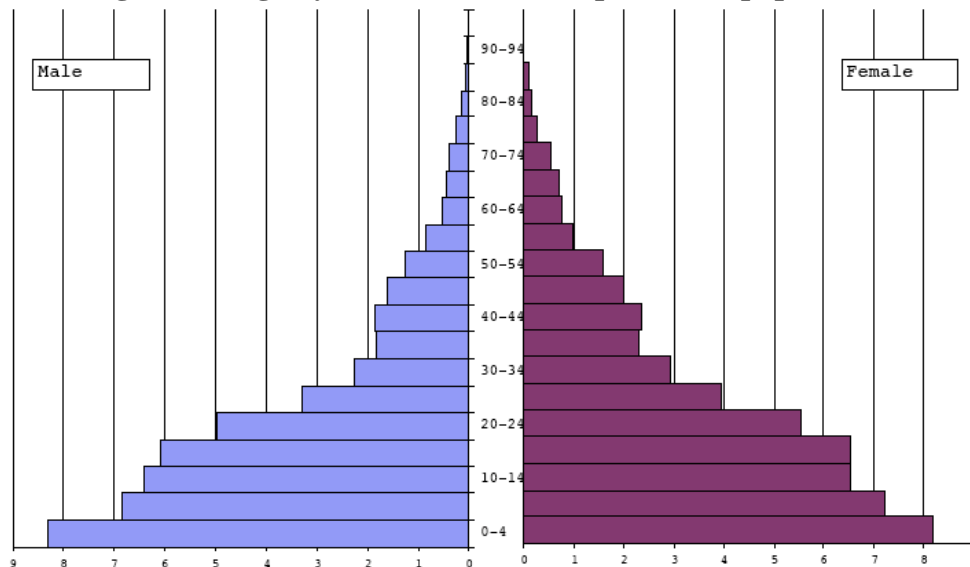
Source: (National Institute of Statistics Rwanda (NISR), 2006b p.44)

3.3.3 Determinants of Enrollment in Mutual Health Insurance

The following logistic model estimates that an individual will enroll in MHI, based on a number of socio-economic categorical variables and controls for province based variations.

$$\Pr(Y_i = 1) = \left[\frac{1}{1 + e^{-z}} \right]$$

$Y_i=1$ if individual has Mutual Health Insurance, else $Y_i=0$

where

$$Z_i = \beta_0 + \beta_i \mathbf{X}_i + \varepsilon_i$$

$\mathbf{X}_i$=[female headed household, gender, rural residence, income, wealth[47], child to adult ratio, household size, education, age, province dummies]

Table 3.3 presents the logistic regression results for the effects of a number of individual and socio-economic characteristics on the likelihood of MHI enrollment in Rwanda. Model (I) reports the base specification, model (II) reports wealth instead of income, and model (III) reports both income and wealth. There is little evidence that MHI membership attracts people with relatively higher healthcare needs (moral hazard). Those individuals reporting a chronic illness or disability do not have any statistically significant difference in MHI enrollment rates. The logistic regression results indicate that household type, rural residence, income level, wealth level, household size, education and age are important factors in determining MHI membership.

The population within female-headed households are much less likely (about two thirds as likely) to have MHI. In contrast, females compared to males are not more like likely to have MHI. This finding is surprising as there is evidence in the literature that women are more likely to demand more health care for their families than men (Jackson & Pearson, 1998; Mason & King, 2001). Additionally, there has been some evidence

---

[47] Wealth is calculated using principal components analysis. See Appendix A for detailed explanation.

indicating higher enrollment rates for female-headed households in CHI schemes in

Senegal, Mali and Ghana (Diop, et al., 2006). The Rwandan study of the MHI pilot

examined the determinants of enrollment but didn't find female-headed households

statistically less likely to enroll (Schneider, et al., 2001). It is likely that this difference

occurred due to heavy initial involvement of international donors in the design and

implementation of the pilot insurance scheme.

Table 3.3 Determinants of Mutual Health Insurance

	Model (I)	Model (II)	Model (III)
Disability	1.009	1.023	1.028
Chronic Illness	0.954	0.989	0.988
Female headed household (includes widows)	0.673**	0.713**	0.714**
Female	1.024	1.025	1.028
Rural	2.27**	2.406**	2.398**
Income (base=poorest 20%)			
second quintile	1.222**		1.049
third quintile	1.808**		1.392**
fourth quintile	2.193**		1.543**
richest 20%	1.935**		1.231**
Wealth (base=bottom 20%)			
second quintile		1.484**	1.41**
third quintile		2.265**	2.028**
fourth quintile		2.79**	2.408**
top 20%		2.939**	2.527**
Child to adult ratio (base=0)			
0.01-.5	1.027	1.106	1.072
0.51-.67	1.134	1.223*	1.21
0.68-1	1.061	1.157	1.144
Household size (base=1-2)			
3-5	1.216*	1.008	1.05
6-8	1.354**	0.926	1.01
9+	1.418**	0.88	0.975
Education (base=none)			
primary	1.151**	1.113*	1.11*
vocational	1.56**	1.431**	1.409**
secondary	1.179*	1.081	1.064
university	0.904	0.81	0.831
Age (base=0-17)			
18-29	0.774**	0.792**	0.787**
30-40	0.902	0.922	0.914
40+	1.142**	1.169**	1.163**
Observations	22294	22292	22292

EICV 2005

* significant at 5%; ** significant at 1%

Individuals living in rural areas are more than twice as likely to have MHI than their urban counterparts. This finding reflects one of the goals of the MHI program, to increase access to health care in the rural areas where most of Rwanda's population resides.

Household income is strongly associated with MHI membership. Higher income quintiles compared to the lowest quintile have greater likelihood of MHI membership. In model (I) the greatest disparity is found in the fourth income quintile that is more than twice as likely to have MHI compared to the poorest income quintile. The disparity is slightly lower for the richest quintile, probably due to this group being the most likely to have formal employment providing private health insurance.

These results indicate that MHI membership may actually worsen health inequity contrary to stated goal of the program – to increase health care access for the very poor. The previous study, by Schneider et al (2001), found equity-neutral effects, with households in the lowest quartiles just as likely as those in the highest quartile to have MHI. Using nationally representative data after the program was scaled up, I find strikingly different results.

Model (II) examines the impact of wealth on MHI membership. There is a growing body of literature that places greater emphasis on the role of wealth versus income in affecting health outcomes (Filmer, et al., 2000; Scholz & Levine, 2004). The two are clearly linked, but wealth may provide greater predictive power for health outcomes in survey data, as wealth information captures a stock that is less volatile over time than short-term income flows. The results from model (II) and (III) confirm the importance of wealth in MHI membership. The likelihood of MHI membership rises over

wealth quintiles. In model (III) the wealthiest quintile was 2.5 times as likely as the lowest wealth quintile to have MHI. The inclusion of wealth along with income (model (III)) dampens the impact of income across all quintiles (though it remains statistically significant).

Household size is positively correlated with MHI membership in model (I). Households with nine or more members are 1.42 times as likely to have MHI than households with 1 to 2 members. Many MHI schemes are based on household subscription fees – thus cheapening the membership fees per person in larger families. Household size loses any statistical significance, however, once wealth is taken into consideration in model (II) and (III).

The level of education affects MHI membership. The highest MHI rates found with individuals with vocational education (post-primary), who are 1.56 times as likely as those with no education to have MHI. The lowest MHI rates are among university educated individuals, who are 0.9 times as likely to have MHI than those with no education. This finding is not surprising, as we would expect university-educated individuals to be the most likely to have formal sector employment that provides healthcare benefits.

Individuals in the 40+ category are most likely to have MHI, followed by children (<18). The least likely are those in the 18-29 year old category, who are 0.77 times as likely as children to have MHI (model I). Again, this result is not unexpected as healthcare needs for the elderly and young tend to be higher.

Other attributes, such as the child-to-adult ratio, were not statistically significant in the determination of MHI membership.

3.3.4 Determinants of Access to Health Care

The following logistic model estimates the probability that an individual will access health care services based on a number of individual and socio-economic background characteristics:

$$\Pr(Y_i = 1) = \left[\frac{1}{1 + e^{-z}} \right]$$

$Y_i=1$ if individual has consulted a professional health care worker in the last two weeks, else $Y_i=0$

where

$$Z_i = \beta_0 + \beta_i \mathbf{X}_i + \varepsilon_i$$

$\mathbf{X}_i$=[female headed household, gender, mutual health insurance, other (non-mutual) health insurance, rural residence, income, wealth, child to adult ratio within the household, household size, education, age, province dummies]

Table 3.4 presents the logistic regression results. The main determinants of access to health care services were mutual health insurance membership, income and age, controlling for illness and regional variation. MHI membership increased the likelihood of a health consult by just over 2.5 times. Income was a strong predictor of access to healthcare, the effect rising across income quintiles. In model (I) the population in the richest quintile was 2.6 times more likely than those in the poorest quintile to receive a consultation with a health care professional. Wealth, included in models (II) and (III), shows no statistically significant relationship with access to healthcare. The inclusion of wealth along with income, model (III), increased the statistical importance of income levels in determining access to health.

Table 3.4 Determinants of Access to Health Care

	Model (I)	Model (II)	Model (III)
Female headed household (includes widows)	1.03	1.008	1.016
Female	1.005	1.002	1.003
Illness in last 2 weeks	154.271**	154.146**	153.315**
Health Insurance (base=none)			
Mutual Health Insurance	2.518**	2.599**	2.567**
Other Health Insurance	3.38**	3.654**	3.488**
Rural	0.815	0.751*	0.789
Income (base=poorest 20%)			
second quintile	1.375*		1.393*
third quintile	1.588*		1.645**
fourth quintile	1.888**		2.019**
richest 20%	2.581**		2.988**
Wealth (base=bottom 20%)			
second quintile		1	0.899
third quintile		1.17	0.953
fourth quintile		1.208	0.893
top 20%		1.29	0.721
Child to adult ratio (base=0)			
0.01-.5	1.595*	1.467	1.565*
0.51-.67	1.333	1.15	1.312
0.68-1	1.673*	1.431	1.662*
Household size (base=1-2)			
3-5	0.728	0.768	0.83
6-8	0.739	0.85	1.014
9+	0.62*	0.79	0.974
Education (base=none)			
primary	0.874	0.884	0.857
vocational	0.817	1.012	0.908
secondary	0.771	1.284	1.182
university	0.572	1.236	1.119
Age (base=0-17)			
18-29	1.481**	1.455**	1.47**
30-40	1.684**	1.646**	1.684**
40+	1.229	1.202	1.225
Observations	22294	22292	22292

EICV 2005

t statistics in parentheses:

* significant at 5%; ** significant at 1%

In models (I) and (III), higher child-to-adult ratios were associated with greater likelihood of accessing health care (though not significant across all three categories). Households with a child to adult ratio of 0.68-1 were 1.7 times as likely as households without any children to access healthcare.

In model (I) there is weak evidence that household size acted as a deterrent for access to healthcare. Households of 9 or greater were 0.62 times as likely to access

healthcare as compared to households of 1 to 2 members. However, in models (II) and (III) there is no statistically significant relationship between household size and access to healthcare.

Lastly, the likelihood of receiving access to health care rose across 18-29 and 30-40 age groupings. Individuals in the 30-40 age group were 1.7 times as likely to receive a health consult as 0-17 year olds (across all model specifications).

Other factors, such as gender, household type, rural residence, and education, had no statistical significance in determining use of health care services.

Table 3.5 presents the odds ratios for the effect of MHI on access to health by income quintile, controlling for chronic illness, disability, rural and province level differences. The question is whether MHI increases access to health for the population within each income quintile, by gender of household head. The differential gendered effects of MHI across income quintiles are strikingly. MHI does not increase access to healthcare for female-headed households in the poorest income quintile. In contrast, MHI for male-headed households in the poorest income quintile has the largest positive effect on access to health.

Table 3.5 Mutual Health Insurance and Access to Health Care by Income Quintile (Odds Ratio)

Income Quintile	Female-Headed Households	Male-Headed Households	All Households
1 (poorest)	0.99	2.01**	1.68
2	1.67*	1.36*	1.46**
3	2.65**	1.22	1.39**
4	1.21	1.62**	1.51**
5 (richest)	0.7	1.18	1.09

*significant at 10%; ** significant at 1%*

The positive equity effects of MHI are present for female-headed households that have higher income except for the richest income quintile. There is a statistically significant and positive relationship between MHI and access to health for female-headed households in the second and third income quintiles. For male-headed households, MHI enhances equity in access to health across income quintiles, but the relationship is only statistically significant in the first, second and forth quintiles.

Looking at the effect of MHI on access to healthcare for all households there is a statistically significant and positive association between MHI and access to healthcare for the second, third and fourth income quintiles.

These results suggest the complexity of understanding the equity impacts of community-based health insurance programs. Overall we can conclude that MHI is associated with higher levels of access to health care for the second, third and fourth income quintiles. The gendered disaggregation of these figures reveals that MHI has no impact on access to health for the poorest female-headed households. Yet for male-headed households in the lowest income quintile there is a strong and positive relationship. In other words, we can conclude that MHI in Rwanda has benefited the poorest in terms of access to health in male-headed households, while for female-headed households, MHI is only associated with rising access to health in higher income quintiles.

When we examine MHI and access to health care by wealth quintile the picture is somewhat different. Table 3.6 reports the odds ratio of access to health care by wealth quintile and gender of household head, again controlling for urban-rural, province, disability and chronic health problems. Across all quintiles except the wealthiest, MHI is

associated with higher levels of healthcare. Again, we would not expect the wealthiest

quintile to necessarily opt for MHI as this group is the most likely to be in the formal

sector receiving health insurance as part of their benefits package.

Table 3.6 Mutual Health Insurance and Access to Health Care by Wealth Quintile (Odds Ratio)

Wealth Quintile	Female-Headed Households	Male-Headed Households	All Households
1 (poorest)	1.73*	1.33*	1.44**
2	0.74	1.75**	1.39**
3	1.42	1.65**	1.60**
4	1.67	1.34*	1.38*
5 (richest)	1.58	1.01	1.13

*significant at 10%; ** significant at 1%*

The gendered effect of access to healthcare by MHI and wealth quintiles displays

a strikingly different pattern than that for income. For female-headed households, the

only statistically significant result is for those households in the lowest wealth quintile. In

contrast to income, female-headed households actually increase their access to health care

in the poorest wealth quintile. The result is not small – female-headed households in the

bottom wealth quintile are 1.73 times more likely to access health than those without

MHI, whereas for male-headed households, MHI is statistically associated with higher

levels of healthcare across all quintiles except the wealthiest.

3.3.5 Discussion of Results

I find the population within female-headed households statistically less likely to

have mutual health insurance, controlling for income, wealth, age, education, household

size, child to adult ratio within the household, province and rural residence. This finding is robust to model specification and occurs even though female-headed households have equal likelihood of need for health care services.

These results are quite different from the findings reported by Schneider and Diop (2001) who evaluated the pilot MHI program[48]. Schneider and Diop (2001) found no statistical difference in the membership rates between female and male-headed households. The main explanation for this may be that during the pilot program church groups were involved in targeting and subsidizing enrollment in MHI for vulnerable households – such as widows, HIV-infected individuals, orphans and indigents. When the MHI program was scaled up nationwide, it was implemented through the Ministry of Health as part of the governments decentralization program. It is likely that the resources and institutional structures for targeting vulnerable households were insufficient to ensure the same outcome as in the pilot project.

The original conception of MHI schemes was that they are initiated and operate at the level of communities, building on mutual aid and solidarity. The Rwandan case is very different from a community-based problem-solving initiative. As Kalk (2008 p.1729) writes "*the management of the [MHI] scheme is largely assured by civil servants under direct control of the Ministry of Health. It is thus more parastatal than autonomous or community based.*" In the Rwandan context it is unlikely that the top-down implementation of a health insurance program would foster greater solidarity or inclusion of marginalized populations. It is much more likely that there is great mistrust of the

---

[48] The pilot program was financed by USAID who contracted with PHRplus who also conducted the evaluation.

scheme managers – and this may be more pronounced for female-heads of household who experience gender-based discrimination in a multitude of ways[49].

Distrust of community members who are gatekeepers for government programs is not unfounded. Rwanda has a long history of political power leading to economic opportunity (Pottier, 2002; Prunier, 1998; Uvin, 1998; Verwimp, 2003). The community-based initiatives, such as MHI, that have emerged in Rwanda have all come from the central state. In this way the MHI scheme managers are gatekeepers with substantial power – including the ability to appropriate funds. Female-headed households may have greater awareness of their vulnerability to scheme managers and opt out of undemocratic processes where they have little option for recourse. In the technical report written on the development and implementation of the MHI pilot, lack of trust was given as a reason for lower membership rates. Schneider et al. (2000 p. 32) write "*Although representatives of the population manage prepayment schemes, people do not necessarily trust them.*" In his study of MHI programs, Hsiao (2001) found trust in managers and overall levels of social cohesion crucial factors in explaining peoples willingness to enroll.

Wariness of the MHI scheme and distrust of scheme managers is not unwarranted. On Jan 21st 2009, a news story broke detailing the arrest of 92 people in connection with defrauding Mutuelle de santé funds (Kimeny, 2009). According to article in The New

---

[49] There is no gender disaggregated data to support this argument. The Institute for Economics and Peace report high levels of distrust in Rwanda between citizens (http://www.visionofhumanity.org/gpi/results/rwanda/2009/). There are a number of sources documenting more pronounced gender discrimination in rural areas (especially for female headed households). The deputy mayor in Butare, Therese Uwayezu, reported in an interview on April 21st 2004 "you see the inequality of the sexes in the rural domain by comparing access to basic services, to resources and participation in decision-making." (Women for Women International, 2004 p.24).

Times, at least 230 million RWF (420,591 USD[50]) were embezzled, with most occurring at the level of cell coordinators (Kimeny, 2009).

There may also be demand-side issues operating at the level of household decision making. With clear gender norms around women's responsibilities to provide caring labor, female heads of household may choose to provide in-house care. Gender norms would dictate that in a household dominated by women, expenditures on health care could be delayed due to caring labor provided within the household. As such, female-headed households may choose to not participate in health insurance, but still utilize health care when dictated by medical necessity.

Alternatively, gendered perceptions of quality of care may deter female-headed households in enrolling. Several studies of CHI have identified low quality of health care as an impediment to scaling up these programs (Kamuzora & Gilson, 2007). A study of the Tanzanian CHI ('Community Health Fund') found low enrollment partly due to the low quality of care (Kamuzora & Gilson, 2007). Criel and Waelkens (2003) also found poor quality care at the local health clinic to be the main reason behind declining subscriptions for a CHI scheme in Guinea-Conakry.

In Rwanda, low quality of care and limited health services were identified as reasons for falling membership rates after the initial pilot project (Hatlebakk & Olsen, 2005; Ministry of Health, 2004). In years two and three of the pilot MHI scheme, declines in membership levels were reported. An evaluation of declining membership in the Byumba health district found limited quality of health services an important deterrent (Ministry of Health, 2004). An evaluation of Norwegian assistance to MHI similarly

---

[50] Conversion using 2008 exchange rate from World Bank's *World Development Indicators* (World Bank, 2010).

raised concerns about low quality of care, services provided and low levels of community participation (Hatlebakk & Olsen, 2005). Unfortunately, none of these studies assessed gendered differences in perceptions of quality of health care.

Other structural features of Rwandan society could also help to explain these disparities. Credit market distortions, whereby women are systematically discriminated against, may prevent female-headed households from maintaining payment of premiums. Poor access to credit was a major deterrent in poor and vulnerable groups ability to pay yearly premiums upfront in the pilot MHI project (Schneider & Diop, 2001). The EICV2 survey gathered information on household debt and savings. Female-headed households were less likely to be in debt than male-headed households (46.6 percent versus 50.2 percent respectively). More striking is the difference in savings between male and female-headed households: 40.7 percent of female-headed households reported savings, compared with 56.6 percent of male-headed households.

Gendered notions of risk and health status could also be operating. The way in which MHI associations solicit members may discriminate against households perceived as having poorer health or having higher risk for defaulting on payments.

In terms of equity, the MHI program has had mixed effects. Overall, there has been higher uptake of MHI by higher income and wealthier households, thereby exacerbating existing health inequities. However, of the households in the lowest wealth quintile and second lowest income quintile, MHI has increased the likelihood of accessing health services.

The equity impacts of MHI show strikingly different patterns by gender of the head of household. For male-headed households, MHI is associated with higher

likelihoods of accessing health services across all wealth quintiles except the highest wealth quintile, while for female-headed households, it is only the lowest wealth quintile that is associated with higher levels of access for health care. In terms of income, MHI is only associated with higher levels of health access for the second, third and fourth income quintiles. There is no association between MHI and higher levels of healthcare for the lowest income female-headed households.

The Rwandan case study provides several lessons for MHI as it is increasingly implemented across the developing world. Mutual health insurance falls well short of providing a solution to financing or equitable access to health care for the poor. While MHI is promoted as an alternative to user-fees the scheme as implemented in Rwanda displays many similar traits (can be seen as a reincarnation of user-fees).

3.4 Conclusion

Community-based health insurance schemes have been widely touted as a way to increase equitable access, especially for the rural poor, as well as a way to finance primary health care centers. Such programs therefore have been widely implemented throughout the developing world, including in some countries that have seen severe social conflict and breakdown of existing healthcare infrastructure. The Rwandan case has been widely seen, not least by the Rwandan government itself, as a success story. Much of the support for the program has been based on the findings of the pilot study done in 2000. This chapter has provided some reasons to temper the optimistic and unqualified findings contained therein. Nationally representative survey data, collected after the program was scaled up nationwide, suggest that vulnerable social groups are often excluded from full participation.

I find systematically lower membership rates for poor and vulnerable households. Given that they are expected to have greater levels of ill-health and that the program is supposed to be universally available (and especially targeted to the rural poor), this represents an important policy failure. Female-headed households, in particular are less likely to be enrolled. Given the demographic changes wrought by the genocide, female-headed households are both more numerous and more vulnerable than in other situations, and as such, they may be expected to be more likely to access such services. The general belief among development theorists is that women are more willing to invest in healthcare and education. It is a short step from there, and from the successes of the microcredit revolution, to imagining that making micro-insurance programs available will allow for a self-sustaining and gender-equitable healthcare system. The results presented here are contrary to such an *a priori* expectation.

The gendered disparity in membership rates is particularly troubling in a country recovering from civil war and genocide where access to health care is a crucial component of the overall development strategy. It also reflects difficulties in implementing policies that are genuinely gender equitable despite well-meaning intentions of policy makers.

These findings -- apart from sounding a note of caution against the prevailing over-optimism surrounding health-care delivery in Rwanda -- have relevance for the further implementation of development policy. In the case under consideration, it may be that a top-down approach has created a program that is similar in its framing, if not in its details, to the discredited idea of user fees. It is perhaps not surprising, then, that vulnerable populations are less likely to utilize the program effectively, since personal

usage is uncertain, but the costs are real and proportionately higher[51]. A bottom-up

approach that takes into account community dynamics, including the particular

vulnerabilities facing women and the poor, and then tries to develop a community-based

insurance scheme may be less likely to show such starkly inequitable results. Without

adequate cognizance of these issues, the current policy, while a step in the right direction,

may serve to exacerbate existing social disparities and prevent the achievement of a

healthy population.

---

[51] A Rwandan Proverb famously states: "In a court of fowls, the cockroach never wins his case".

CHAPTER 4

INTIMATE PARTNER VIOLENCE, FEMALE EMPLOYMENT AND MALE BACKLASH IN RWNADA

4.1 Introduction

"Most survivors describe the genocide as a bloodbath during which rape was inevitable for practically all females – implying that, whether or not they have chosen to describe what happened to them, nearly all the women and adolescent girls who survived the genocide are now living with the traumatizing memory of a brutal sexual attack that they had suffered or witnessed firsthand."

(Donovan, 2002)

"Civil conflicts--..--have specific forms of violence, including state terror enacted by agents or by vigilante groups or paramilitaries with state complicity directed primarily against innocent civilians; much of this violence is again gender specific, with women being targeted in specific ways through gender-based humiliation and torture. Moreover, many feminist scholars have argued that sexual violence against women specifically is a constitutive aspect of war. While it is clear that war is gendered, what is less recognized is that the post-war period is equally gendered. What happens to women victims of war violence? What role does righting gender inequities play in post-war reconstruction?"

(Borer, 2009)

Intimate partner violence is the most widespread form of violence against women in the world today (Krug, et al., 2002). The World Health Organization Multi-country Study on Women's Health and Domestic Violence conducted surveys in eleven countries and found that the percentage of women who reported having ever experienced intimate partner violence ranged between 15-71 percent (Garcia-Moreno, et al., 2005). While violence against women is a common and constant feature of social life in many societies, gendered violence increases during periods of social unrest and civil strife. Researchers studying the experiences of a number of recent civil wars, including those in Rwanda, Serbia, Bosnia and Herzegovina, Liberia, Sierra Leone, Darfur and eastern Democratic Republic of Congo, have found that these civil wars have been marked by a

number of violent acts specifically against women, including rape, sexual slavery, forced pregnancy and sexual mutilation (Human Rights Watch, 1996b). If patterns of gendered violence during civil conflict are among the least well-understood aspects of civil war, even greater gaps in our understanding exist regarding the long-term patterns of gendered power and violence in countries affected by war. This said, there exists a small body of research examining the links between periods of social conflict, changes in male privilege, and longer term patterns of gendered conflict in the aftermath of war (Pillay, 2002; Seifert, 1996; Tina Sideris, 2002). Such studies provide insights into the ways in which the reconstitution of civil conflict can alter the social fabric and create complex tensions that can both strengthen and undermine women's relative position and vulnerability.

Civil war fractures society and previously established norms. Gender norms in particular are altered when men are either absent or unable to fulfill their previous roles of primary wage earners. Following civil conflict, women often enter the paid labor force due to necessity (large numbers of female-headed households) and greater employment opportunities (through the influx of targeted international aid and NGOs). From standard bargaining models, this should have the effect of empowering women and therefore reducing their vulnerability to violence from intimate partners. However, this relative female economic empowerment often occurs at the same time that men are experiencing high unemployment and frustration. To the extent that these phenomena change the dynamics of gender relationships, especially in an environment of psychological and emotional distress, there may be a propensity to an eruption of conflict within the household. In some cases this conflict is expressed non-violently, but in others it can be

accompanied by acts of physical and sexual violence, especially when the social mores of the society remain unchanged in other ways[52]. In this sense, the overt violence against women during the conflict can be said to 'retreat' into the domestic sphere.

These hypotheses have not been expressly tested using standard economic methodology. This chapter seeks to address these issues by examining the correlates of intimate partner violence in post-genocide Rwanda using data from a widely used and standard survey – the Demographic and Health Survey (DHS). Rwanda is a particularly apt case study as large-scale physical and sexual violence occurred during the genocide, with estimates ranging from 250,000 to 500, 000 women raped (Human Rights Watch, 1996b). Using data from the 2005 DHS, in which women were surveyed alone and which included questions on intimate partner violence, I explore three separate but interlinked issues.

First, I seek to identify the most common correlates of intimate partner violence. The DHS survey allows for the separate examination of three categories of intimate partner violence: physical, emotional and sexual violence. Unlike similar studies done in different contexts (see for example, Panda & Agarwal, 2005), I disaggregate the results by the kind of violence experienced. Given these three sorts of violence are different both in conception and as forms of male domination, it is important to see whether there are

---

[52] The experience of violence against women after periods of conflict is a relatively neglected area of research[52]. Notable exceptions are Meintjes et al. (2002), Pillay (2002) and Sideris (2002). Pillay (2002) outlines four elements, not all of which are mutually exclusive, which underlie male violence against women in the aftermath of war. These are the growing power of women, the social acceptance of violence against women, eroding concepts of masculinity, and changes in the economic power of men and women. In Rwanda, post 1994, all of these elements are arguably present.

differences in their patterns and prevalence. I find that distinct patterns are evident by sub-category.

Second, I examine the possible link between women's and men's labor market engagement and the propensity for violence. As suggested above, patterns of labor market involvement and their effect on gender relations are complex and potentially non-linear. The main finding in this chapter is that their is a positive and significant female wage effect on the probability of being a target of sexual violence, controlling for other potential risk factors in the case of Rwanda. I define relative male disempowerment as a situation where the woman works and receives payment while her spouse lacks paid employment. Women in a relationship where men are disempowered are twice as likely to be the victims of sexual assault compared to women who are not in such a relationship. These findings provide support for sociological theories of male disempowerment or 'male backlash'. The findings run counter to canonical bargaining models that predict that greater female economic empowerment leads to greater bargaining power and lower levels of violence for women. As such they suggest the need to re-conceptualize the character of intra-household bargaining between women and men.

A central notion in bargaining theory is that a fall-back position of leaving the household is a feasible option for both men and women. Where such options are practically difficult (even if theoretically possible) because of legal difficulties and prevailing norms, a more nuanced understanding of household conflict and cooperation may need to be developed. In particular, one may expect to see what at first may seem counterintuitive: women's economic empowerment leading to greater propensity for conflict, as prevailing norms are challenged and men react with sexual violence as a form

of control. Interestingly, there is no evidence that women experience greater physical or emotional violence if they are in a relationship where the male is relatively disempowered. Such a finding suggests that sexual violence may constitute a different and more complex form of male domination.

A third contribution of this chapter is to explore the long-term correlation between exposure to genocide and postwar intimate partner violence. I find variation in genocide death rates to be positively and significantly correlated with sexual and emotional violence in 2005. This suggests that more violence-prone provinces during war are also ones in which women experience higher rates of violence afterwards.

The next section contextualizes the study in post-genocide Rwandan society, discussing the explicit gender-based violence of the war and the ways in which legal and societal institutions have reacted to this experience in the years that followed. Section 4.3 briefly summarizes current literature on intimate partner violence in developing countries. Section 4.4 presents the data, methodology and estimation strategy employed to look at the prevalence and correlates of intimate partner violence. Section 4.5 concludes.

4.2 Gender-Based Violence in Rwanda

In the period leading up to the 1994 genocide, anti-Tutsi propaganda in the media was explicitly gendered, promoting the notion of extreme sexual promiscuity in Tutsi women. As such they were portrayed as threats to Rwandan (and in particular Hutu) society. Four of the highly publicized 'Hutu 10 commandments' explicitly addressed gender relations:

-- Every Hutu should know that a Tutsi woman, wherever she is, works for the interest of her Tutsi ethnic group. As a result, we shall consider a traitor any Hutu who: marries a Tutsi woman; befriends a Tutsi woman; employs a Tutsi woman as a secretary or a concubine.

-- Every Hutu should know that our Hutu daughters are more suitable and conscientious in their role as woman, wife, and mother of the family. Are they not beautiful, good secretaries and more honest?

-- Hutu woman, be vigilant and try to bring your husbands, brothers and sons back to reason.

-- The Rwandese Armed Forces should be exclusively Hutu. The experience of the October [1990] war has taught us a lesson. No member of the military shall marry a Tutsi.

(Green, 2002)

Moderate Hutu women were also the targets of the media propaganda machine. For example, the deputy prime minister, Agathe Uwiringiyimana was portrayed as sexually promiscuous and a threat to the nation prior to the genocide (Powley, 2004). Uwiringiyimana was murdered within hours of assuming the post of prime minister after the plane crash that killed President Habyarimana and triggered the beginning of the genocide.

Women experienced high levels of sexual violence during the genocide. Estimates range from a lower bound of 250,000 to an upper bound of 500,000 women raped during the period[53]. The end of the genocide did not bring with it the end of sexual violence against women. There are numerous cases of young women captured and detained in sexual slavery both during and after the genocide (Human Rights Watch, 1996a). A term was even coined for women who found in hiding by militias – *ceiling brides* or *women of*

---

[53] This estimate is based on the standard method of using number of pregnancies from rape to estimate number of rapes. It is estimated that between 2000 and 5000 rape related pregnancies occurred (Human Rights Watch, 1996a).

the ceiling[54]. These women were seen as 'war booty' and were held against their will and routinely raped (Human Rights Watch, 1996a, 2004).

Since 1994, there have been many legal changes to enhance gender equity and to increase the political and institutional participation of women in Rwandan society[55]. Rwanda now boasts the largest political representation of women in the world, with 56 percent of the Rwandan parliament female (UNIFEM, 2008). A host of legal changes have been made and incorporated into the constitution ratified in 2003, whereby women are now legally recognized as equal to men. Laws have also changed giving women some limited rights to household assets in the case of death of a husband[56].

The senate passed the first law specifically on the prevention and punishment of gender-based violence on July 15th 2008. Prior to this, gender-based violence, including sexual violence, was punishable under article 30 in the Rwandan Penal Code 1977. However, there were substantial limitations in the Rwandan Penal Code that lacked a definition of rape[57]. The 2008 law addresses many of the previous gaps – including definitions of gender-based violence and rape. While an extremely progressive document intended to provide clear legal mandate for prosecuting crimes, there are some surprising

---

[54] This term arose because the women were hidden by their captors or found hiding in the space between the ceiling and the roof of homes.

[55] The Rwandan constitution stipulates that at least 30 percent of decision making positions be filled by women.

[56] While inheritance laws have been reformed it is unclear whether this has led to substantial changes in gendered inheritance norms.

[57] Failing to define different acts of gender-based violence has led to widely different interpretations in the law and inconsistent verdicts (Afeefa Abdur-Rahman, et al., 2006; Human Rights Watch, 2004).

inequities in punishments. For example, rape and conjugal rape have the same definition apart from the identity of the perpetrator, yet punishment for rape is imprisonment for 10-15 years while for conjugal rape it is 6 months-2 years. Punishment for adultery now carries a longer imprisonment term than conjugal rape.

Despite these new laws, spousal abuse remains common in contemporary Rwandan society. A 2004 study on gendered violence by the Ministry of Gender and Family Promotion (MIGEPROFE) and International Rescue Committee (IRC) found 53.8 percent of women reporting domestic violence by their partners within the last year[58] (Ministry of Gender and Family Promotion (MIGEPROFE), 2004). Intimate partner violence takes place in the context of widespread gender inequities. Women who leave abusive relationships have often been subjected to harsh gender penalties – ranging from lack of legal rights in ownership or user rights of household assets such as land, to losing parental rights such as custody of children[59].

4.3 Intimate Partner Violence in Developing Countries

Empirical research in developing countries (using comparable methodologies) on the prevalence, incidence and determinants of intimate partner violence is sparse, and

---

[58] The survey was administered to 722 women in five of the country's eleven provinces – though only 477 women were interviewed .It found that 32.4 percent of women reported verbal or physical abuse by someone other than their spouse or sexual partner over the five years preceding the survey (Ministry of Gender and Family Promotion (MIGEPROFE), 2004).

[59] Heads of household were defined as 'male' regardless of occupation or position within the household (article 206 of civil code book 1). Also, male ownership of assets extended to children. Article 41 of the Law on gender-based violence does try to redress polygamous or unlawful marriages with multiple wives by mandating equal distribution of property (without infringing on child rights of property).

much of the work is concentrated in understanding its public health ramifications. The WHO Multi-country Study on Women's Health and Domestic Violence against Women, which collected data from over 24000 women in 10 countries, is the most comprehensive study to date (Garcia-Moreno, et al., 2005). Its findings lend support to previous studies[60] in which a higher prevalence of intimate partner violence was found among women who have lower levels of education, greater financial dependence, a family history of violence, lack wider social support networks, have a partner who abuses alcohol, have an unemployed partner, or live in a context that endorses or accepts violence against women.

Age: While older women have had longer potential exposure to violence, a number of studies have found increased violence against younger women. Pande and Agarwal (2005) posit that this relationship exists because young women have been married for shorter periods, indicating more unstable relationships, where men are more likely to use violence and women haven't yet learned how to alter their behaviors.

Household Composition: Household composition has been found to be important in determining likelihood of intimate partner violence, though there are some discrepancies in the results. A number of studies have found a positive correlation between intimate partner violence and number of children (Kishor & Johnson, 2004; Martin, et al., 1999). Relatively high fertility rates within households may give a broad indication of male spousal control, sexual violence, or may be class and socioeconomically driven indicating greater levels of stress and/or women's lack of

---

[60] In a review of the international studies on intimate partner violence, Krahé, Bieneck, & Möller find only five studies on prevalence rates for domestic violence in developing countries (Krahé, et al., 2005). Much of this work examines socioeconomic differences, gender roles and cultural acceptance of violence.

access to reproductive healthcare. More children, however, could also lead to greater protection – especially in the case of male children. Bloch and Rao (2002) found the presence of male children was associated with lower levels of intimate partner violence in rural India. In a study of East Africa, Gonzales-Brenes (2004) found that the death of a male child increased the probability a women had experienced intimate partner violence.

Intergenerational Transmission of Violence: Research on intimate partner violence has found strong evidence of intergenerational transmission of violence for men and women (Garcia-Moreno, et al., 2005; Kishor & Johnson, 2004; Krug, et al., 2002). Thus, a boy who sees his father beat his mother is more likely to beat his wife later in life. Conversely, a girl who witnesses her father beat her mother is more likely to experience violence from her husband later in life. It is thought that a family history of spousal violence increases the likelihood of violence as perpetrator or victim as it sets a precedent, normalizing violence against women by their partners.

Education: Education has been associated with lower levels of intimate partner violence in some studies (Garcia-Moreno, et al., 2005; Kishor & Johnson, 2004). It is thought that higher levels of education reflect greater levels of female empowerment including more awareness of female rights and more resources when dealing with a violent partner. Pande and Agarwal (2005) suggest higher levels of education indicate alternative methods of resolving conflict. Higher levels of female education may also reflect greater exit options for women to leave abusive relationships.

Equally important may be a husband's level of education. Kishor and Johnson (2004) find that husbands with secondary or higher levels of education are less likely to have been violent within the year preceding the DHS survey.

Relative education differences have received less attention in the literature, but may be another important dimension of male disempowerment. Men whose partners have higher education levels may feel insecure or threatened, and resort to violence to reassert control.

Economic Status: Domestic violence affects all social classes, though there is some evidence that rates are higher for poorer groups (Heise, 1998). Most studies use current consumption or income measures of economic status, yet measure lifetime experience of violence. Measures of wealth that capture longer-term economic status of households might be more fruitful. It is thought that there are a number of triggers (such as psychological stress) associated with economic poverty that lead to higher rates of spousal tension that spill over into violence (Panda & Agarwal, 2005). Panda and Agarwal (2005) also hypothesize that under-reporting of domestic violence occurs among higher class women who are more likely to be embarrassed or feel the social stigma associated with violence (Panda & Agarwal, 2005). As sexual violence has the most stigma, it is more likely to be underreported than other forms of violence, but it is unclear whether differences in reporting rates would systematically vary by economic class.

The relationship between work status and intimate partner violence has produced mixed results. Kishor and Johnson (2004), comparing nine countries, found women working for cash experienced less violence in the last year in Egypt, more in India, and found no relationship in the seven other countries. In six out of nine countries they found women working for cash reported higher levels of ever-experienced violence (Kishor & Johnson, 2004). Similarly to education, we would expect working women to be more empowered and to have greater resources in dealing with a violent spouse. It is thought

that employed women would have a stronger fall-back position as her own employment reduces financial dependence upon her husband.

The effect of female employment may critically depend on the employment situation of her partner. A number of studies have found male unemployment a significant predictor of intimate partner violence (Heise & Garcia-Moreno, 2002; Krahé, et al., 2005). Male unemployment is associated with higher levels of stress and frustration that is thought to affect levels of spousal violence.

The relative employment difference between partners may be critical to understanding patterns of intimate partner violence. Here the effect could go both ways. On the one hand female employment and male underemployment or unemployment may give women a stronger fall-back position and thus experience less violence. Or, women who work may actually experience greater violence as men respond violently as a form of 'male backlash'. In a comparative study of two communities in Kenya and Tanzania, Silberschmidt (2001) finds that economic disempowerment of men relative to women undermines the material foundation of patriarchy and increases the prevalence of sexually aggressive behavior of men.

Social Support: A number of studies have found higher levels of intimate partner violence among women who have low levels of natal family support (Counts, et al., 1992; González-Brenes, 2004; Heise & Garcia-Moreno, 2002; Panda & Agarwal, 2005). Social support, especially from a woman's own family, is thought to deter violence by providing important psycho-social support for women, viable exit options and social disapproval of the husband's actions.

Alcohol Abuse: One of the strongest predictors of intimate partner violence is alcohol consumption (Garcia-Moreno, et al., 2005; Heise & Garcia-Moreno, 2002; Krahé, et al., 2005). There is debate within the literature on the nature of the relationship. Some researchers hypothesize that alcohol consumption decreases inhibitions and impairs judgment resulting in aggressive and violent behavior (Heise & Garcia-Moreno, 2002). It is also thought that alcohol consumption may increase inter-marital tensions by causing more arguments, which in turn results in more violence.

Female Attitudes Towards Intimate Partner Violence: Recent studies have found some surprisingly similarity across cultures of attitudes regarding female actions that justify spousal violence (Krug, et al., 2002). These include disobedience, inadequate care for children or home, not having food ready on time, refusing sex, and suspicions of infidelity.

4.4 Prevalence and Correlates of Intimate Partner Violence in Rwanda

This study uses data collected in the Rwandan Demographic and Health Survey in 2005 (RDHS-III) that included a module on female domestic violence. The domestic violence module was administered in half of the households interviewed, to 4,066 randomly chosen women. Due to the sensitive nature of the questions, a female interviewer conducted the domestic violence questionnaire in private without other family members present or in the close proximity[61]. Due to the extremely personal and sometime deeply traumatic nature of these experiences, it is unrealistic to expect a large

---

[61] For a more detailed methodological discussion see National Institute of Statistics Rwanda (NISR) & ORC Macro (2006).

survey to capture the full extent of intimate partner violence. Hence the data presented in this chapter are likely to be underestimates of the true level of sexual violence.

The questionnaire covered three broad types of violence: physical, sexual, and emotional violence, using an abbreviated version of the conflict tactics scale (CTS) developed by Strauss (1990). Detailed information was collected on spousal violence for ever-married or cohabiting women, including divorced, separated or widowed women. Of the 4,066 randomly chosen women, 1,341 were currently married, 995 were cohabiting, 157 were widowed, and 39 were divorced.

Respondents were asked whether they had experience a range of different acts that covered a spectrum from less to more severe forms of emotional, physical and sexual violence[62]. The questionnaire gathered data to assess both the prevalence of intimate partner violence over their adult life and within the last year.

The DHS survey includes some socio-economic background for each of the respondents. Data on consumption expenditures or income measures were not collected, but information on household assets and characteristics is available. This information can be used to generate a proxy for household wealth, using principal component analysis, following the methodology developed by Filmer and Pritchett (1999; 2001) (see Appendix A). Socio-economic background information on the woman's current spouse was also collected, including age, education, and employment.

A major drawback of the empirical work on intimate partner violence is the aggregation of several forms of violence (in the case of the 2005 WHO study where

---

[62] Measuring violence by asking whether someone has experience specifically defined acts is preferable to asking about violence per se as it avoids some of the cultural/interpretation difficulties in this type of research.

results given were an aggregation of physical and sexual violence)[63]. It is unclear whether different forms of violence will have the same risk factors associated with them. In the 2005 WHO study, there was some overlap between physical and sexual violence. Yet, in three out of 12 countries a substantial number of women had experienced only sexual violence (Garcia-Moreno, et al., 2005)[64].

In a post conflict setting following widespread gendered violence during the conflict it is important to examine each type of violence separately. In the context of Rwanda, where high levels of sexual violence erupted during the conflict, it is pertinent that we examine the patterns of sexual violence independently.

Overall 38.6 percent of ever-married or cohabiting women report having experienced physical, emotional or sexual violence by their intimate partner at some time since age 15. Table 4.1 presents the prevalence of intimate partner violence by residence (urban/rural) and type of violence. Physical violence is the most common type of violence reported by ever-married women (35.6 percent), followed by sexual violence (13.9 percent) and emotional violence (13 percent). This same trend is observed among currently married women though the reported levels are slightly lower in each category. These results are consistent with data from other empirical studies (Heise, 1998; Krahé, et al., 2005; WHO, 2005).

---

[63] The DHS study *Profiling Domestic Violence: A Multi-Country Study* aggregates emotional, physical and sexual violence (Kishor & Johnson, 2004). Pande and Agarwal separate out emotional violence but use an aggregate of physical and sexual violence in their analysis (Panda & Agarwal, 2005).

[64] The data collected, in the WHO study, was disaggregated by physical, sexual and emotional types of violence. In the reporting of results, however, it aggregated physical and sexual violence.

Table 4.1 Prevalence of Intimate Partner Violence by Category of Violent Act for Ever-Married or Cohabiting Women (percentages)

Type of Violence	Rural [N=2132]	Urban [N=415]	Total [N=2547]
Intimate Partner Violence	38.8	36.9	38.6
Emotional	12.3	18	13
Physical	35	31.5	35.6
Sexual	12.7	22	13.9
Emotional			
Humiliated her in front of others	11.4	16.4	12.1
Threatened her or someone close to her with harm	5.6	9.5	6.1
Physical			
Pushed/Shaken/Thrown something at her	16.7	17.3	16.8
Slapped or arm twisted	28.3	24.6	27.8
Punched with fist or something harmful	14.9	14.6	14.9
Kicked or dragged her	8.4	9.5	8.6
Tried to strangle or burn her	2	3.5	2.2
Threatened with knife, gun or other weapon	1.5	2.5	1.6
Attacked with knife, gun or other weapon	1	1.7	1
Sexual			
Physically forced sexual intercourse when she did not want to	11.8	20.6	12.9
Forced to perform other sexual acts when she did not want to	5.8	9.6	6.3

There are some important regional differences in the prevalence and levels of different types of intimate partner violence. Ever-married women residing in urban areas report somewhat lower overall levels of intimate partner violence (36.9 percent versus 38.8 percent for rural women). Disaggregating among types of violence, physical

violence for urban residing women is lower (31.5 percent versus 35 percent for rural women), but levels of emotional and sexual violence are substantially higher. In particular, urban women report much higher levels of sexual violence (22 percent) compared to their rural counterparts (12.7 percent).

The most frequent domestic violence act reported by ever-married women was that they had been slapped or had their arm twisted (27.8 percent). The lowest frequency act was that a woman had been attacked with a knife, gun or other type of weapon (1 percent). Sexual violence in the form of forced sexual intercourse by their spouse is the fourth most common form of intimate partner violence (12.9 percent). Urban women report much higher levels of spousal rape (20.6 percent) compared to rural women (11.8 percent).

4.4.1 Violence By Selected Characteristics

Table 4.2 presents the prevalence of violence by type and selected characteristics for currently married or cohabiting women.

Household Characteristics: There is a positive association between a woman's age category and husband's age category and physical violence, with no apparent relationship between age and emotional or sexual violence. An intriguing pattern emerges in relation to number of children and intimate partner violence. As the number of children increases up until 8 kids, all three forms of violence rises, but from 9+ children the levels of violence decline across the board. There is no clear pattern related to the size of households[65].

---

[65] Number of household members is included as well as number of children as many families after the genocide took in relatives or close friends.

Contrary to expectations, women who have at least one male child living at home have a much higher incidence of physical violence (not found with emotional or sexual violence). There is also a positive association between the probability of physical violence and women who have lost a son. There are no discernible patterns between wealth quintile and any form of violence. A number of interesting patterns emerge looking at region and type of violence.

Social Characteristics: Women whose husbands limit their family and friend contact experience substantially higher rates of all types of violence, but in particular physical violence. Polygamy is associated with a higher incidence of emotional and physical violence. There is a notable rise in incidence across types of violence for women who report severe alcohol abuse by their husbands. Also notable is the higher violence for women who report witnessing their father beat their mothers. Lastly, we find that a higher intensity of killings during the genocide is associated with higher incidence of emotional and sexual violence across regions.

Labor Market Characteristics: The most evident pattern related to female employment is that women who are engaged in waged employment have a higher incidence of sexual violence. Women whose husbands are unemployed do not experience notably higher rates of violence across-the-board, though women whose husbands are employed but unpaid report higher rates of sexual violence. The relative employment difference shows a higher incidence of sexual violence among women who work for wages whose husbands are unpaid.

Table 4.2 Prevalence of Violence by Type and Selected Characteristics for Currently Married or Cohabitating Women (percentages)

Characteristics	Emotional Violence	Physical Violence	Sexual Violence
Household Characteristics			
Woman's Age			
17-26	9.6	29.4	13.5
27-36	9.8	31.5	11.9
37+	9.1	38.2	11.1
Husband's Age			
17-26	8	26.4	11.3
27-36	9.2	26.4	13.2
37+	10.2	34.7	11.6
Spousal Age Difference			
No difference	9	25.7	11.7
Wife>Husband	10.2	33.6	8.9
Wife<Husband	9.5	33.6	12.6
Woman's Education			
None	8.3	33.5	9.3
Primary	10.3	34.4	13.9
Secondary	7.8	18.5	6.5
Husband's Education			
None	9.8	34.7	12.8
Primary	9.8	35	12.6
Secondary	8	17.6	7.6
Spousal Education Difference			
No difference	9.3	33	13.2
Wife>Husband	11.9	36.3	13.6
Wife<Husband	8.5	30.8	8.7
Number of Household Members			
2-4	8.4	28.2	12.3
5-7	11.6	37.2	13.1
8+	6.1	31.4	8.8
Number of Children			
0	3.2	15.1	10.7
1-3	9.6	31	11.9
4-8	10.7	38.1	13.4
9+	8.8	36.5	8

Table 4.2 (Continued) Prevalence of Violence by Type and Selected Characteristics for Currently Married or Cohabitating Women (percentages)

Characteristics	Emotional Violence	Physical Violence	Sexual Violence
Household Characteristics (cont.)			
Male children living at home			
0	8.7	27.3	11.3
1+	9.8	34.9	12.4
Death of a male child			
No	9.6	32.3	12.5
Yes	9.4	34.4	11.2
Wealth			
Poorest Quintile	7.3	35.4	11.9
Second Quintile	11.8	37.3	12.7
Third Quintile	9.2	32.1	12.4
Fourth Quintile	9.2	32.3	12
Fifth Quintile	10.2	25.7	11.4
Region			
Urban	11.5	26.7	17.2
Rural	9.3	33.8	11.4
Social Characteristics			
Social Support			
Limited family contact	28	50.1	26.3
Limited girlfriend contact	25.7	50.7	20.8
Alcohol Abuse			
Does not consume alcohol	7	22.5	10.6
Less Severe Alcohol Abuse	8.4	36.1	11.4
Severe Alcohol Abuse	29.1	66.4	24.7
Female family history of IPV			
No	8.3	29	10
Yes	12.3	40.5	16.4
Polygamy			
One wife	9	32.1	12.1
More than one wife	18.4	48.1	12.5
Genocide Intensity			
Low-intensity	7.6	34.2	8.6
Mid-level intensity	10.1	30.3	14.3
High-level intensity	11.8	36.2	13.8

Table 4.2 (Continued) Prevalence of Violence by Type and Selected Characteristics for Currently Married or Cohabitating Women (percentages)

Characteristics	Emotional Violence	Physical Violence	Sexual Violence
Labor Market Characteristics			
Female Employment			
Unemployed	11.1	32.7	10.2
Working not paid	8.7	33.8	10.8
Working for Wages	9.7	31.9	15.8
Husband's Employment			
Unemployed	10.1	35.3	10.8
Working not paid	9.7	30.4	18.2
Working for Wages	9.1	32	11.1
Relative employment difference			
No difference	9.9	29.2	10.2
Wife>Husband	9.4	32	24.6
Wife<Husband	6.8	32	10.5

4.4.2 Multivariate Results

To investigate the correlates of intimate partner violence by selected characteristics I undertook logistic analysis. This was done separately for emotional, physical and sexual violence to assess potential differences in determinants. The dependent variables were defined as the following binary variables:

Emotional Violence} =1 if violence ever experienced, 0 otherwise

Physical Violence} = 1 if violence ever experienced, 0 otherwise

Sexual Violence} = 1 if violence ever experienced, 0 otherwise

Drawing on a typology of risk factors identified in the literature the following independent variables were used in the analysis:

Household Characteristics [age, education, household composition, number of children, wealth, region]

Social Characteristics [social support, alcohol abuse, history of violence, polygamy, genocide intensity[66]]

Labor Market Characteristics [unemployed, working without pay, working for wages, relative employment difference between husband and wife]

Table 4.3 presents estimates from the logistic specification of the correlates by type of violence, reporting odds ratios.

4.4.2.1 Household Characteristics

Age: There are no discernible patterns across age categories and type of violence. Older women are less likely to experience emotional or sexual violence although this result is not statistically significant. However, women with older husbands are more likely to experience emotional or sexual violence, although once again these coefficients are not statistically significant.

Education: I find little evidence of a consistent relationship between women's education and experience of violence. Somewhat surprisingly, women with primary education report higher levels of emotional, physical and sexual violence compared to women with no education (though this is only statistically significant for the latter). Unlike prior studies ,I do not find women with secondary or higher educations to experience a protective effect from education. However, I find strong statistical evidence

---

[66] Genocide intensity is a proxy for level of gendered violence by using deaths during the genocide as a percentage of province population. A census conducted by the Government of National Unity was released in 2002 which provides estimates of deaths by province during the genocide. A census conducted by the Government of National Unity was released in 2002 which provides estimates of deaths by province during the genocide (Davenport & Stam, 2003). There are a number of organization which have provided estimates of deaths during the genocide. All including the government census are contentious and subject to scrutiny (Davenport & Stam, 2003; Straus, 2006). I have chosen the government census as it is the only source that has records of deaths in each province – I interpret these estimates as an upper bound estimate of deaths.

that male secondary education reduces the likelihood of physical violence (by almost 60 percent).

Household Composition: There is no systematic pattern linking household size and the prevalence of intimate partner violence across categories. However, women in households where there are a larger number of children are more likely to experience emotional, physical and sexual violence (although the coefficients for sexual violence are not statistically significant). There is a monotonic relationship between the number of children and the prevalence of emotional and physical violence. Women with more than 9 children are more than 800 percent more likely to have experienced emotional violence and more than 2 times as likely to have experienced physical violence. I find limited evidence that sons living at home have a protective effect for emotional or physical (the odds ratios are less than 1 but not statistically significant). Unlike Gonzales-Brenes (2004), I find no statistically significant relationship between death of a son and prevalence rates by type of violence.

Wealth: There is no discernible relationship between wealth quintile and type of violence. Women in the second and fifth wealth quintiles report statistically significantly higher prevalence rates of emotional abuse, but there is no economic significance readily apparent in this result.

Region: For physical and emotional violence there is no systematic variation between rural and urban women. However, in relation to sexual violence urban women are statistically much more likely to have experienced sexual violence. Women in urban areas are over 80 percent more likely to have ever experience sexual violence from their partners. This result is at odds with the data collected by the 2005 WHO multi-country

study on domestic violence, which found that urban women much less likely to have

experienced sexual violence (Garcia-Moreno, et al., 2005).

Table 4.3 Logistic Estimation on Prevalence of Violence by Intimate Partners for Currently Married or Cohabitating Women (Odds Ratio)

Variable	Emotional Violence	Physical Violence	Sexual Violence
Woman's Age (r=17-26)			
27-36	0.763	1.044	0.808
37+	0.55	1.385	0.813
Husband's Age (r=17-26)			
27-36	1.112	1.201	1.2
37+	1.319	0.934	1.132
Woman's Education (r=none)			
Primary	1.17	1.23	1.583*
Secondary	1.213	0.949	0.704
Higher	-	-	9.475
Husband's Education (r-none)			
Primary	0.886	1.05	0.914
Secondary	0.748	0.441**	0.573
Higher	-	-	0.305
Household Size (r=2-4)			
5-7	1.248	1.171	0.905
8+	0.54	0.787	0.61
Number of Children (r=0)			
1-3	4.074*	2.778**	1.022
4-8	5.115*	3.490**	1.414
9+	9.182**	3.858**	1.362
Son Effect (r=no sons at home)			
1+ sons living at home	0.924	0.974	1.193
Son Death Effect (r=no son death)			
1+ son death	0.963	0.849	0.869
Wealth (r=poorest quintile)			
Second Quintile	2.234*	1.288	1.159
Third Quintile	1.536	0.994	1.093
Fourth Quintile	1.644	1.093	1.139
Fifth Quintile	2.082*	1.056	1.089
Residence (r=rural)			
Urban	0.942	0.774	1.803**

* significant at 5%; ** significant at 1%

r=omitted category

[-] Observations dropped because n too small

Table 4.3 (Continued) Logistic Estimation on Prevalence of Violence by Intimate Partners for Currently Married or Cohabitating Women (Odds Ratio)

Variable	Emotional Violence	Physical Violence	Sexual Violence
Social Support			
Limited family contact	3.085**	1.668*	2.170**
Limited girlfriend contact	2.165**	2.044**	1.172
Husband's Alcohol Abuse (r=does not consume alcohol)			
Less severe alcohol abuse	1.725*	2.078**	1.433
Severe alcohol abuse	6.248**	6.165**	3.054**
Intergenerational IPV (r=father did not beat mother)			
Father beat mother	1.499*	1.681**	1.728**
Polygamy (r=husband has one wife)			
Husband has 1+ wives	1.888	1.6	0.977
Genocide (r=lower-level intensity)			
Mid-level intensity	1.398	0.823	1.650*
High-level intensity	1.980*	1.281	1.662*
Woman's Employment (r=unemployed)			
Working without wages	1.166	1.155	1.267
Working for wages	0.973	1.024	1.677*
Husband's Employment (r=unemployed)			
Working without wages	0.742	0.765	1.57
Working for wages	0.921	0.983	1.149
Observations	1868	1869	1867

* significant at 5%; ** significant at 1%
r=omitted category
[-] Observations dropped because n too small

4.4.2.2 Social Characteristics

Social Support: I find strong support for the protective role played by women's family and friends in reducing the likelihood of all three types of violence. Women whose husbands limits contact with her family are over 200 percent more likely to have experienced emotional violence, over 60 percent more likely to have ever experienced physical violence, and over 100 percent more likely to have ever experienced sexual violence. Women whose partners have limited her contact with girlfriends are over 100 percent more likely to have experienced emotional or physical violence. For sexual

violence this pattern is not observed, indicating an important distinction in the impact of social support by type of violence.

Alcohol Abuse: There is a systematic relationship between severe alcohol abuse and all forms of violence. Women whose husbands frequently get drunk are more than 500 percent likely to have ever experienced emotional or physical violence and more than 200 percent more likely to have ever experienced sexual violence. This result further corroborates extensive documentation of alcohol abuse correlated with intimate partner violence (Heise & Garcia-Moreno, 2002).

History of Violence: I find a strong and consistent pattern between type of violence and whether a woman witnessed her father beating her mother. The intergenerational effect is statistically significant across all three types of violence, but the strongest for sexual violence. A woman whose father beat her mother is more than 70 percent more likely to have ever experienced sexual violence. This finding is consistent with other research that has found strong intergenerational effects of violence (Garcia-Moreno, et al., 2005; Panda & Agarwal, 2005).

Polygamy: There is no consistent relationship between polygamy and the various forms of violence. This result is contrary to several small studies in central Africa which have found a positive association between polygamy and intimate partner violence (González-Brenes, 2004; McCloskey, et al., 2005).

Genocide: To test for the effect of levels of sexual violence during the genocide, I use intensity of killings by province as a proxy. While intensity of killings during the genocide does not tell us directly about levels of sexual violence, it is likely that there was a close association. For the logistic regression I create three binary categorical

variables: (i) high-level genocide intensity, (ii) mid-level genocide intensity, and (iii) low-level genocide intensity. I find a statistically significant correlation between prevalence of sexual violence for mid and high-level intensity of killings by province during the genocide (see table 4.3). Women in high-intensity provinces were over 60 percent more likely to have experienced sexual violence. The relationship is not found for physical violence, and is statistically significant for emotional violence only in high-level genocide intensity provinces. While not definitive, these findings lends support to earlier research on sexual violence which finds higher rates in societies where there has been widespread social upheaval and fraying of social and communal ties (Meintjes, et al., 2002; Meredeth Turshen & Clotilde Twagiramariya, 1998).

Labor Market Characteristics: Models of intra-household bargaining developed by economists predict greater female empowerment from increases in the woman's economic status, such as waged employment. I test this hypothesis in the context of Rwanda, examining both female and male employment. Table 4.4 presents the logistic regression results on violence by type and labor market characteristics, controlling for household and community-level effects. In the Rwandan context we do not find any statistically significant relationship between emotional or physical violence and employment status across model specifications. However, there is a strong positive relationship between female wage employment and the likelihood of having experienced sexual violence. Women who work and receive wages are 68 percent more likely to report having experienced sexual violence by their spouse than those who don't.

Table 4.4 Logistic Estimation on Prevalence of Violence by Type and Labor Market Characteristics

Variable	Emotional Violence			Physical Violence			Sexual Violence		
	(I)	**(II)**	**(III)**	**(I)**	**(II)**	**(III)**	**(I)**	**(II)**	**(III)**
Woman's Employment (r=unemployed)									
Working without wages	1.091	1.166		1.056	1.155		1.391	1.267	
Working for wages	0.97	0.973		0.922	1.024		1.682**	1.677*	
Husband's Employment (r=unemployed)									
Working without wages		0.742			0.765			1.57	
Working for wages		0.921			0.983			1.149	
Relative Employment Difference									
Woman working for wages and husband working without wages			0.594			0.815			2.043*

* significant at 5%; ** significant at 1%

Model (I) Ever Married Women sample

Model (II) & (III) Currently Married Women sample

It could be the case that women who work for wages have a higher tendency to report sexual violence, rather than having a higher incidence. To control for this potential problem, I examine reporting bias in women who work for wages reporting higher levels of all violence. I find no evidence of a consistent bias from women who work, and there is no logical explanation for women who work for wages reporting higher levels of sexual violence but not other forms of violence. I also examine women's attitude towards violence and find no difference between women who work for wages and those who don't.

The positive relationship between female wages and sexual violence runs counter to the logic developed in simple bargaining models – namely that greater female decision making and access to paid employment will increase bargaining power and thereby decrease domestic violence. Perhaps what is being observed is the contradictory nature of female empowerment. In some respects, access to paid employment may increase female

bargaining power, but at the same time it may create tensions within the household as male dominance is threatened.

Sociologists have proposed a theory of 'male backlash', wherein men respond with violence as women experience greater economic empowerment relative to men and culturally accepted notions of masculinity are threatened (Aizer, 2007). In a comparative study of two communities in Kenya and Tanzania, Silberschmidt (2001) found that economic disempowerment of men relative to women undermined the material foundation of patriarchy and increased the prevalence of sexually aggressive behavior of men. Similarly, Seifert (1996), examining prevalence of rape across countries, found a high incidence of rape in societies where male power has been destabilized.

To test for relative female empowerment (or relative male disempowerment) I create a binary variable that takes the value one when women receive wages and their partners are unpaid for their labor[67], and zero otherwise. The results are presented in model (III) in table 4.4. Once again there is strong evidence to support the argument that female economic empowerment relative to men adversely affects levels of sexual violence. The likelihood of a woman reporting sexual violence by her spouse is over a hundred percent higher for women who work for wages when their spouse is unpaid when compared with women who don't work for wages. This robust evidence for the male backlash effect implies the need to better understand changes in gender identity and social relations within the context of changing economic opportunities and post-war social insecurity.

---

[67] This does not include men who are unemployed. I separated out unemployed and working without pay, to be able to distinguish between subsistence farmers (who comprise the majority of the workforce) and the unemployed (a very small proportion of the workforce).

4.5 Conclusion

Gender violence and sexual torture in recent civil conflicts have become important areas of research. As part of this set of concerns, it is important that we understand the long-term impacts on society and the ways in which gendered violence continue to be experienced in countries emerging from civil war. In this chapter I have investigated the prevalence of intimate partner violence in post-genocide Rwanda. I find significant differences in the prevalence of different types of gendered violence. Women who live in urban areas, have a primary education (versus no education), and have wage employment experience significantly higher rates of sexual violence. I also find a positive and increasing relationship between the number of children a woman has and the prevalence of emotional and physical violence.

A second finding is that women who are employed but whose husbands are not, experience substantially more sexual violence. I interpret this finding as reflecting 'male backlash' as men react to losing power and gender norms are in flux. This finding is contrary to predictions found in the bargaining literature in economics where greater female economic empowerment is posited to result in more favorable outcomes for women. In a post-conflict society like Rwanda, the models of intra-household bargaining fail to take into account periods of widespread social upheaval where male power has been destabilized. Female economic opportunities, while important in their own right, may not bring about wider social change without addressing masculinity, patriarchal social relations and the ways in which gender inequities are played out within the household. These results also convey the importance of understanding both the long-term effects of various types of state-sanctioned violence, and the complex dynamics involved

in female economic empowerment during periods of social unrest when male patriarchy is directly challenged.

Finally, the chapter finds a strong correlation been the prevalence of sexual violence and the intensity of violence during the genocide. This points to an intriguing line for future research - to explore the way in which patterns of conflict affect gender violence in the aftermath.

CHAPTER 5

CONCLUSION

"The story which conventional economic theory unfolds, however, is a story about the autonomous and the independent. No wonder that the science should have problems dealing with those whose autonomy is temporarily or permanently limited or entirely lacking."

(Jochimsen, 2003 p.231)

Jochimsen's observation is indicative of a profound problem in the way that economists understand and analyze the experience of non-autonomous agents, in particular that of women. This lacuna becomes all the more limiting when the context being analyzed is one such as post-conflict Rwanda, where the normal course of life and development is irremediably altered. Women in such a scenario face both new opportunities and new vulnerabilities. The social and historical norms that circumscribed their activities before the genocide may persist but are in flux, and they are forced to engage with social and economic life in a very different set of circumstances than before.

This dissertation has focused on gendered vulnerabilities in post-conflict Rwanda. In doing so, it has shed light on the ways in which gendered norms and constraints work to shape behavior and outcomes in ways that may not have been predicted by standard economic theorizing. For example, in a world in which autonomous, unconstrained agents are offered a quasi-public good such as access to a health cooperative, those agents who are most likely to benefit from such a good will be most likely to join. Under such a scenario, women should be at least equal participants in such a program since it has been established that they are much more likely to spend on health care and education. Yet, in Rwanda, women are systematically less likely to be part of the *Mutuelle de Sante*, as documented in Chapter 3. Explanations for this may be sought in

existing gender norms, forms of public good implementation, and other features of post-conflict societies. Similarly, in a standard household bargaining model, the earning member is more powerful than the non-earning one and is less likely to face sanctions or threats from the non-earning one. Yet this is entirely reversed in post-conflict Rwanda, where women face more sexual violence if they earn and their partners do not (as established in Chapter 4). Once again, explanations need to be sought outside the standard economic tool box – in this case in the work of anthropologists who see this as the backlash effect when men lose power.

This concluding chapter summarizes the findings of the dissertation and points out directions for future work.

In chapter 2, "Decomposing Inequality and Poverty in Postwar Rwanda: The Roles of Gender, Education, Wealth and Location", I provided an overview of poverty and inequality in postwar Rwanda. There has been a small overall reduction in poverty, though this hides important differences based on household, education, assets and spatial characteristics. I found a substantial decline in poverty for female widow-headed households, but an increase in poverty for female non-widows. Education of head of household did act as a buffer to poverty, though physical assets and geographical location overshadowed these gains.

In my examination of consumption inequality I found that the sources of inequality between 2000 and 2005 have changed markedly. In the 2000 survey, education and urban residence accounted for the majority of observed inequality. By 2005, however, these conventional factors explained much less of the observed inequality. The most significant change is the rising importance of regional differences. Other factors

also now matter more for inequality—for example whether any household member has savings, the dependency ratio, and land holdings. These findings suggest there are important changes in the 'income generating functions' of Rwandan households, and that distribution of land and financial assets are increasingly important in determining the inter-household distribution of income.

In chapter 3 "Gender and Public Good Provisioning: Rwanda's Community-Based Health Insurance Scheme", I examined the inclusiveness of a community-based health insurance scheme. Community-based health insurance schemes have been widely touted as a way to increase equitable access, especially for the rural poor, as well as a way to finance primary health care centers. Such programs have therefore been widely implemented throughout the developing world, including in some countries that have seen severe social conflict and breakdown of existing healthcare infrastructure. The Rwandan case has been widely described, not least by the Rwandan government itself, as a success story.

I found systematically lower membership rates for poor and vulnerable households. Given that they are expected to have greater levels of ill-health and that the program is supposed to be universally available (and especially targeted to the rural poor), this represents an important policy failure. Female-headed households in particular are less likely to be enrolled. Given the demographic changes wrought by the genocide, female-headed households are both more numerous and more vulnerable than in other situations, and as such, they may be expected to be more likely to access such services.

The impacts of gendered disparity in membership rates are particularly troubling in a country recovering from civil war and genocide where access to health care is a

crucial component of the overall development strategy. It also reflects difficulties in implementing policies that are genuinely gender equitable, despite well meaning intentions of policy makers.

In chapter 4 "Intimate Partner Violence, Female Employment and Male Backlash in Rwanda" I looked at the prevalence of intimate partner violence in post-genocide Rwanda. I found significant differences in the prevalence of different types of gendered violence. Women who live in urban areas, have a primary education (versus no education), and have wage employment experience much higher rates of sexual violence. I also find a positive and increasing relationship between the number of children a woman has and the prevalence of emotional and physical violence.

A second main finding is that women who are employed but whose husbands are not experience substantially more sexual violence. I interpret this finding as reflecting 'male backlash' as men react to losing power and gender norms are in flux. These results convey the importance of understanding both the long-term effects of various types of state-sanctioned violence, and the complex dynamics involved in female economic empowerment during periods of social unrest when male patriarchy is directly challenged.

At the time of writing, work on gendered vulnerabilities in post-conflict settings remains in its infancy. It is true that there is great social and academic concern about gendered violence and inequities during a war, but the long-term prevalence of these problems following a war are rarely studied, and important questions (such as vulnerabilities of female-headed households) are empirical black holes. This work is only a beginning, in the sense that it has simply accounted for and traced the ways in which

vulnerabilities exist, persist and are changing in post-conflict Rwanda. Several questions remain (necessarily) unanswered and are part of a future research agenda.

Chapter 2 provided a broad overview of the way in which economic growth benefited some groups and excluded others. This analysis was primarily diagnostic. I looked at four important correlates (human capital, assets, geography and gender) of consumption income and examined their importance in determining the poverty of a household and its position in the income distribution. Future work in this area will seek to more carefully unpack each of these channels. My empirical investigation also illustrated important differences in income-generating activities between rural and urban households. Traditional sources of income account for much less of overall expenditures for rural households – future work will seek to answer what has replaced these traditional sources of income and how asset concentration is occurring.

In chapter 3, I examined the community-based health insurance scheme and found that female-headed households are much less likely to enroll. Future research in this area will delve into understanding how exclusion occurs at the community level, and what policies could redress the gender bias. It will also look at the health needs of particular groups and how adequately they are being addressed.

In chapter 4, I documented the experience against violence for women who are entering into a newly opened workforce. It is likely that the patterns and intensity of gender-based violence in Rwanda were affected by patterns and intensity of gendered violence during the genocide. More research is needed to establish this link empirically.

It is hoped that this study may constitute the beginning of a larger research program, in which scholars take seriously the unusual circumstances facing post-conflict

111

societies in designing their research questions. These should include questions of gendered vulnerabilities, especially since women suddenly become a larger part of the population. Such a research program will assist in designing policies that allow countries to recover from the severe trauma of war, with a keen eye on the welfare of the most vulnerable in such societies.

APPENDIX

A PRINCIPAL COMPONENTS ASSET INDEX METHODOLOGY

There is a growing body of research on developing countries which uses asset ownership to measure (Filmer & Pritchett 1999, 2001). Asset ownership is thought to be more accurate in capturing long-term measures of wealth, and is less susceptible to seasonality and recall bias than income or consumption data (Vyas & Kumaranayake, 2006).

Using EICV data for chapter 3 and DHS data for chapter 4, I construct an asset inequality index using principal components following the methodology developed by Filmer and Pritchett (1999, 2001). For each household i, the asset index A is given by the following formula:

$$\mathbf{A}_i = f_1 \left(\frac{a_{1i} - \sigma[a_1]}{sd[a_1]} \right) + ... + f_n \left(\frac{a_{ni} - \sigma[a_n]}{sd[a_n]} \right)$$

where f_n is the weight given by the principal component for the asset n, a_{1-n} represents the set of assets owned by each household, $\sigma[a_n]$ is the mean of asset n across all households and $sd[a_n]$ is the standard deviation for asset n across all households.

Following the methodology of Filmer and Pritchett (1999; 2001) I construct the index with the following variables: (i) a set of five dummies equal to one if the household owns a radio, bicycle, television, refrigerator, or motorcycle, (ii) a set of three dummy variables equal to one if a households water source is from a tap, spring or stream source, (iii) a dummy variable equal to one if the household has electricity, (iv) a set of three dummy variables equal to one if the household toilet is a flush toilet, pit or none, (v) a set of three dummy variables equal to one if the household has 1,2 or 3+ rooms for sleeping,

and (vi) a set of dummy variable equal to one if the household floor is made from earth,

cement or other material.

BIBLIOGRAPHY

Adams, R. H., & Page, J. (2003). *International migration, remittances, and poverty in developing countries*: The World Bank.

Adato, M., de la Briere, B., Mindek, D., et al. (2000). *The impact of PROGRESA on women's status and intrahousehold relations*. Washington DC: International Food Policy Research Institute.

Afeefa Abdur-Rahman, Bernadette Lee, Kerry Contini, et al. (2006). *GBV Programming in Rwanda: Actors, Activities, Collaboration, Coordination Final Report.* Women's Legal Rights Initiative Rwanda and Chemonics International.

Agarwal, B. (1994). *A Field of One's Own: Gender and Land Rights in South Asia*. Cambridge: Cambridge University Press.

Agarwal, B., Humphries, J., & Robeyns, I. (Eds.). (2006). *Capabilities, Freedom and Equality: Amartya Sen's Work From a Gender Perspective*. Delhi: Oxford University Press.

Aizer, A. (2007). Wages, Violence and Health in the Household. *National Bureau of Economic Research Working Paper Series, No. 13494*.

Amnesty International. (2004). *Lives blown apart: Crimes against women in times of conflict*. London: Amnesty International.

Ashraf, N., Karlan, D., & Yin, W. (2006). Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines. *The Quarterly Journal of Economics, 121*(2), 635-672.

Baines, E., Brown, S., & Thomson, S. (2008, October 13th). Inside Rwanda's Gender Revolution. *The Guardian*. Retrieved from http://www.guardian.co.uk/commentisfree/2008/oct/13/rwanda-gender

Bennet, S., Creese, A., & Monash, R. (1998). Health insurance schemes for people outside formal sector employment., *ARA Paper No.16*. Geneva: World Health Organization.

Berkhout, E., & Oostingh, H. (2008). *Health insurance in low-income countries: Where is the evidence that it works?* : Joint agency paper - Oxfam, Action for Global Health, Médecins du Monde, Save the Children, Plan, Global Health Advocates, Act Up Paris.

Bijlmakers, L., Dusseljee, J., & Jurgens, E. (2006). *The Role of User Fees and Health Insurance in Health Care Financing*. ETC Crystal and Partners in International Health (Ed.). Leusden: ETC Crystal.

Bloch, F., & Rao, V. (2002). Terror as a Bargaining Instrument: A Case Study of Dowry Violence in Rural India. *The American Economic Review, 92*(4), 1029-1043.

Blumberg, R. L. (2005). *Women's Economic Empowerment as the "Magic Potion" of Development?* Paper presented at the 100th Annual Meeting of the American Sociological Association. Retrieved from http://portal.unesco.org/shs/en/files/8696/11283330079Magic_Potion.pdf/Magic+Potion.pdf

Borer, T. A. (2009). Gendered War and Gendered Peace: Truth Commissions and Postconflict Gender Violence: Lessons From South Africa. *Violence Against Women, 15*(10), 1169-1193.

Bureau for Crisis Prevention and Recovery (BCPR). (2002). *Gender Approaches in Conflict and Post-Conflict Situations*. New York: United Nations Development Programme.

Carrin, G., Waelkens, M., & Criel, B. (2005). Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems. *Tropical Medicine and International Health, 10*(8), 799-811.

Counts, D. A., Brown, J., & Campbell, J. (1992). *Sanctions and Sanctuary: Cultural Perspectives on the Beating of Wives*. Boulder, CO: Westview Press.

Criel, B. (1998). District-based health insurance in sub-Saharan Africa. Part II: Case-studies. *Studies in Health Services Organisation & Policy, 10*, 91.

Criel, B., Van Dormael, M., Lefèvre, P., et al. (1998). Voluntary health insurance in Bwamanda, Democratic Republic of Congo. An exploration of its meanings to the community. *Tropical Medicine and International Health, 3*(8), 640-653.

Criel, B., & Waelkens, M. (2003). Declining subscriptions to the Maliando Mutual Health Organisation in Guinea-Conakry (West Africa): what is going wrong? *Social Science and Medicine, 57*(7), 1205-1219.

Date-Bah, E. (Ed.). (2001). *Jobs After War: A Critical Challenge in the Peace and Reconstruction Puzzle*. Geneva: International Labour Office (ILO),.

Davenport, C., & Stam, A. (2003). Mass Killing and the Oases of Humanity: Understanding Rwandan Genocide and Resistance: National Science Foundation.

Des Forges, A. (1999). *Leave None To Tell the Story: Genocide in Rwanda*. New York: Human Rights Watch.

Diop, F. P., Sulzbach, S., & Chankova, S. (2006). *The impact of mutual health organizations on social inclusion, access to health care, and household income protection: evidence from Ghana, Senegal and Mali*. Bethesda, MD: Abt Associates Inc.

Donovan, P. (2002). Rape and HIV/AIDS in Rwanda. *The Lancet, 360* (Supplement 1), s17-s18.

Duflo, E. (2000). Grandmothers and Granddaughters: Old Age Pension and Intra-household Allocation in South Africa. *National Bureau of Economic Research Working Paper Series, No. 8061*.

Fields, G. S. (2003). Accounting for Income Inequality and Its Change: A New Method, with Application to the Distribution of Earnings in the United States. *Research in Labor Economics, 22*, 1-38.

Filmer, D., Hammer, J. S., & Pritchett, L. H. (2000). Weak Links in the Chain: A Diagnosis of Health Policy in Poor Countries. *World Bank Research Observer, 15*(2), 199-224.

Filmer, D., & Pritchett, L. (1999). The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries. *Population and Development Review, 25*(1), 85-120.

Filmer, D., & Pritchett, L. (2001). Estimating Wealth Effects without Expenditure Data--Or Tears: An Application to Educational Enrollments in States of India. *Demography, 38*(1), 115-132.

Filmer, D., & Pritchett, L. H. (2001). Estimating Wealth Effects without Expenditure Data--Or Tears: An Application to Educational Enrollments in States of India. *Demography, 38*(1), 115-132.

Floro, M., & Seguino, S. (2003). Does Gender Have Any Effect on Aggregate Savings?: An Empirical Analysis. *International Review of Applied Economics, 17*(2), 147-166.

Folbre, N., Bergmann, B., Agarwal, B., et al. (Eds.). (1991). *Women and Work in the World Economy*. London: Macmillan Press.

Foster, J., Greer, J., & Thorbecke, E. (1984). A Class of Decomposable Poverty Measures. *Econometrica, 52*(3), 761-766.

Garcia-Moreno, C., Jansen, H. A. F. M., Ellsberg, M., et al. (2005). *WHO Multi-country Study on Women's Health and Domestic Violence against Women* Geneva: World Health Organization.

González-Brenes. (2004). Domestic Violence and Household Decision-making: Evidence from East Africa, *Working Paper Department of Economics*: University of California, Berkeley.

Green, L. L. (2002). Propaganda and Sexual Violence in the Rwandan Genocide: An argument for Intersectionality in International Law. *Columbia Human Rights Law Review, 33*, 733-776.

Hatlebakk, M., & Olsen, O. E. (2005). *Evaluation of NPA's support to Mutuelle, a voluntary health insurance scheme in Rwanda*. Bergen: Chr. Michelsen Institute.

Heise. (1998). Violence Against Women: An Integrated, Ecological Framework. *Violence Against Women, 4*(3), 262-290.

Heise, L., & Garcia-Moreno, C. (2002). Violence by Intimate Partners In Krug EG et al (Ed.), *World Report on Violence and Health*. Geneva: World Health Organization.

Hsiao, W. C. (2001). Unmet health needs of two billion: Is community financing a solution?, *HNP Discussion Paper*. Washington, DC: World Bank.

Human Rights Watch. (1996a). Shattered Lives: Sexual Violence during the Rwandan Genocide and its Aftermath. *HRW Index No.: 2084*. Retrieved from http://www.hrw.org/reports/1996/Rwanda.htm#P324_67660

Human Rights Watch. (1996b). *Shattered Lives: Sexual Violence during the Rwandan Genocide and its Aftermath*: Human Rights Watch.

Human Rights Watch. (2004). Struggling to Survive: Barriers to Justice for Rape Victims in Rwanda *Human Rights Watch, 16*(10(A)).

Jackson, C., & Pearson, R. (Eds.). (1998). *Feminist Visions of Development: Gender Analysis and Policy*. New York: Routledge.

Jochimsen, M. (2003). Integrating Vulnerability: On the Impact of Caring on Economic Theorizing. In D. Barker & E. Kuiper (Eds.), *Toward a Feminist Philosophy of Economics*. London: Routledge.

Johnson, B., & Sedaca, S. (2004). Diasporas, Émigrés and Development: Economic Linkages and Programmatic Responses. *A Special Study of the USAID Trade Enhancement for the Services Sector (TESS) Project.* Washington D.C.: USAID.

Justino, P., & Verwimp, P. (2006). *Poverty Dynamics, Violent Conflict and Convergence in Rwanda*: Households in Conflict Network.

Kabeer, N. (1994). *Reversed Realities: Gender Hierarchies in Development Thought*. London: Verso.

Kabeer, N. (1998). *'Money Can't Buy Me Love'? Re-evaluating Gender, Credit and Empowerment in Rural Bangladesh*. Brighton: University of Sussex, Institute of Development Studies.

Kamuzora, P., & Gilson, L. (2007). Factors influencing implementation of the Community Health Fund in Tanzania. *Health Policy Plan., 22*(2), 95-102.

Khandker, S. R. (1998). *Fighting poverty with microcredit: Experience in Bangladesh*. Washington DC: World Bank.

Kimeny, F. (2009, January 21). Rwanda: Over 90 Arrested in Mutuelle Funds Scam. *The New Times*.

King, E. M., & Mason, A. D. (2001). *Engendering Development: Through Gender Equality in Rights, Resources and Voice*. Washington D.C. and New York: World Bank and Oxford University Press.

Kishor, S., & Johnson, K. (2004). *Profiling Domestic Violence: A Multi-Country Study*. Calverton, MD: ORC Macro.

Koster, M. (2008). *Linking Poverty and Household Headship in Post-Genocide Rwanda*. Paper presented at the Households in Conflict Network (HiCN) Fourth Annual Workshop. Retrieved from www.hicn.org/FourthAnnualWorkshop_Koster.pdf

Krahé, B., Bieneck, S., & Möller, I. (2005). Understanding Gender and Intimate Partner Violence from an International Perspective. *Sex Roles, 52*(11-12), 807.

Krug, E. G., Dahlberg, L. L., Mercy, J. A., et al. (2002). *World Report on Violence and Health*. Geneva: WHO.

Lindsey, C. (2001). *Women facing War*. Geneva: International Committee of the Red Cross (ICRC).

Martin, S. L., Tsui, A. O., Maitra, K., et al. (1999). Domestic Violence in Northern India. *American Journal of Epidemiology, 150*(4), 417-426.

Mason, A., & King, E. (2001). *Engendering development through gender equality in rights, resources and voice*. Washington DC: World Bank.

McCloskey, L. A., Williams, C., & Larsen, U. (2005). Gender Inequality and Intimate Partner Violence Among Women in Moshi, Tanzania. *International Family Planning Perspectives, 31*(3).

McKay, A., & Greenwell, G. (2007). *Methods Used for Poverty Analysis in Rwanda*. Oxford Policy Management and National Institute for Statistics Rwanda (NISR). Kigali, Rwanda: Republic of Rwanda.

McPake, B. (1993). User Charges for Health Services in Developing Countries: A Review of the Economic Literature. *Social Science & Medicine, 36*(11), 1397-1405.

Meintjes, S., Pillay, A., & Turshen, M. (Eds.). (2002). *The aftermath : women in post-conflict transformation*. London, New York: Zed Books.

Ministry of Finance and Economic Planning (MINECOFIN). (2000). *Participatory Poverty Assessment 2000*. Kigali, Rwanda: Republic of Rwanda.

Ministry of Finance and Economic Planning (MINECOFIN). (2002). *A Profile of Poverty in Rwanda: An analysis based on the results of the Household Living Conditions Survey 1999-2001*. Kigali, Rwanda: Republic of Rwanda.

Ministry of Finance and Economic Planning (MINECOFIN). (2007). *Economic Development and Poverty Reduction Strategy 2008-2012*. Kigali, Rwanda: Republic of Rwanda.

Ministry of Gender and Family Promotion (MIGEPROFE). (2004). *Violence Against Women*. Kigali: Republic of Rwanda.

Ministry of Health. (2004). *Mutual Health Insurance Policy in Rwanda*. Kigali: Government of Rwanda.

Ministry of Health. (2005). *Annual Report 2005*. Kigali: Republic of Rwanda.

Musahara, H., & Huggins, C. (2005). Land Reform, Land Reconstruction: A Case Study of Rwanda. In Chris Huggins and J. Clover (Ed.), *From the Ground Up: Land Rights, Conflict and Peace in Sub-Saharan Africa*. Pretoria and Cape Town: Institute of Security Studies.

National Institute of Statistics Rwanda (NISR). (2006a). *Preliminary Poverty Update Report, Integrated Living Conditions Survey 2005/06 (Enquête Intégrale sur les Conditions de Vie des Ménages)*. Kigali, Rwanda: Republic of Rwanda.

National Institute of Statistics Rwanda (NISR). (2006b). *Preliminary Poverty Update Report: Integrated Living Conditions Survey 2005/06*.

National Institute of Statistics Rwanda (NISR). (no date). *Methodology in Setting the Poverty Line*. Kigali, Rwanda: Republic of Rwanda.

National Institute of Statistics Rwanda (NISR), & ORC Macro. (2006). *Rwanda Demographic and Health Survey 2005*. Calverton, Maryland: NISR and ORC Macro.

National Poverty Reduction Programme Ministry of Finance and Economic Planning (MINECOFIN). (2002). *Government of Rwanda Poverty Reduction Strategy Paper*. Kigali, Rwanda: Republic of Rwanda.

Ndiaye, P., Soors, W., & Criel, B. (2007). A view from beneath: community health insurance in Africa. *Tropical Medicine and International Health, 12*, 157-161.

O'Donnell, O., Doorslaer, E. v., Wagstaff, A., et al. (2008). *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation*. Washington, DC: World Bank.

Orozco, M. (2003). *The future trends and patterns of remittances to Latin America*. Paper presented at the Remittances as a Development Tool. Retrieved from http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35076694

Palmer, N., Mueller, D. H., Gilson, L., et al. (2004). Health financing to promote access in low income settings--how much do we know? *The Lancet, 364*(9442), 1365-1370.

Panda, P., & Agarwal, B. (2005). Marital Violence, Human Development and Women's Property Status in India. *World Development, 33*(5), 823-850.

Pillay, A. (2002). Violence Against Women in the Aftermath. In S. Meintjes, A. Pillay & M. Turshen (Eds.), *The Aftermath: Women in Post-conflict Transformation*. London, New York: Zed Books.

Pottier, J. (2002). *Re-Imagining Rwanda. Conflict, Survival and Disinformation in the Late Twentieth Century*. Cambridge: Cambridge University Press.

Pottier, J. (2006). Land Reform for Peace? Rwanda's 2005 Land Law in Context. *Journal of Agrarian Change, 6*(4), 509-537.

Powley, E. (2004). *Strengthening Governance: The Role of Women in Rwanda's Transition A Summary*. Paper presented at the United Nations Office of the Special Adviser on Gender Issues And Advancement of Women (OSAGI) Expert Group Meeting on "Enhancing Women's Participation in Electoral Processes in Post-Conflict Countries". Retrieved from
http://www.un.org/womenwatch/osagi/meetings/2004/EGMelectoral/EP5-Powley.PDF

Prunier, G. (1998). *The Rwanda Crisis: History of a Genocide*. London: C Hurst & Co Publishers Ltd.

Reyntjens, F. (2004). Rwanda, ten years on: From genocide to dictatorship. *African Affairs 103*(411), 177-210.

Schneider, P., & Diop, F. (2001). *Syopsis of Results on the Impact of Community-Based Health Insurance on Financial Accessibility to Health Care in Rwanda*. Washington, DC: The World Bank.

Schneider, P., Diop, F., & Bucyana, S. (2000). *Development and Impementation of Prepayment Schemes in Rwanda*. Bethesda, MD: Partnerships for Health Reform Project, Abt Associates Inc.

Schneider, P., Diop, F., & Leighton, C. (2001). *Pilot Testing Prepayment for Health Services in Rwanda: Results and Recommendations for Policy Directions and Implementation*. Cambridge: Abt Associates Inc.

Scholz, J. K., & Levine, K. (2004). U.S. Black-White Wealth Inequality: A Survey. In K. Neckerman. (Ed.), *Social Inequality*. New York: Russell Sage Foundation.

Seifert, R. (1996). The second front : The logic of sexual violence in wars. *Women's Studies International Forum, 19*(1-2), 35-43.

Sen, A. K. (1976). Poverty: An Ordinal Approach to Measurement. *Econometrica, 44*(2), 219-231.

Sen, A. K. (1999). *Development as Freedom*. Oxford: Oxford University Press.

Shorrocks, A. F. (1982). Inequality Decomposition by Factor Components. *Econometrica, 50*(1), 193-211.

Sideris, T. (2002). Rape in War and Peace: Social Context, Gender, Power and Identity. In S. Meintjes, A. Pillay & M. Turshen (Eds.), *The Aftermath: Women in Post-Conflict Transformation*. London, New York: Zed Books.

Sideris, T. (2002). Rape in War and Peace: Social Context, Gender, Power and Identity. . In S. Meintjes, A. Pillay & M. Turshen (Eds.), *In The Aftermath: Women in Post-Conflict Transformation*. New York: Zed Books.

Silberschmidt, M. (2001). Disempowerment of Men in Rural and Urban East Africa: Implications for Male Identity and Sexual Behavior. *World Development, 29*(4), 657-671.

Silberschmidt, M. (2001). Disempowerment of Men in Rural and Urban East Africa: Implications for Male Identity and Sexual Behavior. *World Development 29*(4), 657-671.

Smith, K. V., & Sulzbach, S. (2008). Community-based health insurance and access to maternal health services: Evidence from three West African countries. *Social Science & Medicine, 66*(12), 2460-2473.

Sorensen, B. (1998). *Women and Post-Conflict Reconstruction: Issues and Sources*. Geneva: United Nations Research Institute for Social Development (UNRISD).

Stiglitz, J. (1999). Incentives and Institutions in the Provision of Health Care in Developing Countries: Toward an Efficient and Equitable Health Care Strategy, *Paper presented at the IHEA Meetings*. Rotterdam, June 7th 1999.

Straus, S. (2006). *The Order of Genocide : Race, Power, and War in Rwanda*. Ithaca, N.Y.: Cornell University Press.

Strauss, M. A. (1990). Measuring Intrafamily Conflict and Violence: The Conflict Tactics (CT) Scales. In M. A. Strauss & R. J. Gelles (Eds.), *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families* (pp. 39-47). New Brunswick: Transation Publishers.

Strode, M., Wylde, E., & Murangwa, Y. (2007). *Labour Market and Economic Activity Trends in Rwanda: Analysis of the EICV2 Survey*. Retrieved from http://statistics.gov.rw/images/PDF/eicv%20labour%20market%20and%20economic%20 activities%20trends.pdf.

The United Nations Development Fund for Women (UNIFEM) (Ed.). (1998). *Women's Land and Property Rights in Situations of Conflict and Reconstruction: A Reader*. Kigali, Rwanda: The United Nations Development Fund for Women (UNIFEM).

Turshen, M., & Twagiramariya, C. (1998). *What Women Do In Wartime : Gender and Conflict in Africa*. New York: Zed Books.

Turshen, M., & Twagiramariya, C. (1998). *What women do in wartime : gender and conflict in Africa*. London ; New York: Zed Books.

Uchida, H., & Nelson, A. (2008). Agglomeration Index: Towards a New Measure of Urban Concentration, *World Development Report Reshaping Economic Geography Background Paper*. Washington D.C.: World Bank.

UNIFEM. (2008). Rwandan Women Secure 56% of Parliamentary Seats in Historic Election Result, *UNIFEM Press Release, *. Kigali: UNIFEM.

Unitied Nations Development Programme (UNDP). (2009). *Human Development Report 2009. Overcoming Barriers: Human Mobility and Development*. New York: Unitied Nations Development Programme.

Uvin, P. (1998). *Aiding Violence: The Development Enterprise in Rwanda*. West Hartford, CT: Kumarian Press.

Verwimp, P. (2003). The political economy of coffee, dictatorship, and genocide. *European Journal of Political Economy, 19*, 161-181.

Vialle-Valentin, C. E., Ross-Degnan, D., Ntaganira, J., et al. (2008). Medicines coverage and community-based health insurance in low-income countries. *Health Research Policy and Systems, 6*(11).

Vyas, S., & Kumaranayake, L. (2006). Constructing socio-economic status indices: how to use principal components analysis. *Health Policy and Planning 21*(6), 459-468.

WHO. (2005). *WHO Multi-country Study on Women's Health and Domestic Violence against Women*. Geneva: World Health Organization.

Women for Women International. (2004). *Progress toward empowerment and gender equity in rwanda*: Women for Women International.

World Bank. (2005). *Introduction to Poverty Analysis*. Washington D.C.: World Bank.

World Bank. (2007). *Healthy development. The World Bank strategy for health, nutrition and population results*. Washington, DC: World Bank.

World Bank. (2010). *World Development Indicators*. Washington D.C.: World Bank.

Wyss, K. (2006). A Thousand Hills for 9 Million People. Land Reform in Rwanda: Restoration of Feudal Order or Genuine Transformation, *FAST Country Risk Profile Rwanda, Working Paper*. Bern: Swiss Peace Foundation.