Yes They Can:
Genocide, Political Participation, and Female Empowerment

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Abstract: We study how genocide can lead to female empowerment, using data from Rwanda. We exploit exogenous variation in transport costs that affected the number of militiamen arriving in each village. We find that in high-violence villages, women are healthier, better educated, wealthier, hold more decision-making power, are less likely to accept and experience domestic violence, work in better jobs, and enjoy more sexual and financial autonomy. In terms of mechanisms, gender imbalances – generated by the militias targeting men – caused a power vacuum that women filled as household heads and local politicians. In office, they provide more public goods. Finally, it seems that younger women are carrying these changes and that gender norms changed. To corroborate the importance of the initial gender imbalance, we exploit exogenous variation in RTLM radio reception. Radio-induced violence targeted women. Given the male surplus, we find negative or no effects on female outcomes.

Key words: Political Mass Killings, Genocide, Ethnic Conflict, Political Participation, Public Goods Provision, Gender Norms, Domestic Violence

JEL Codes: D72, D74, J16

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1 Introduction

Can war and genocide lead to female empowerment in the long-run? In most wars, it is men who fight and women who stay behind. During the two World Wars, women in the US took on key positions in the household and industry (Acemoglu et al., 2004; Rose, 2018). This eventually led to the first wave of feminism and women's suffrage. After the wars, the men returned home, and the 1950s and 1960s were male-dominated eras (Goldin, 1991; Goldin and Olivetti, 2013). Besides fighting away from home, men may also be more likely to get killed – again, allowing women to take over household and government positions. For instance, after the Rwandan Genocide from 1994, 70 percent of the population was female. Today, Rwanda ranks 6th on gender equality in the World Economic Forum, just behind the Scandinavian countries, and the parliament has the highest percentage of women in the world (61.3 percent, (IPU and UN-Women, 2020)).

In this paper, we analyze whether the Rwandan Genocide can possibly explain these effects. During approximately 100 days, the Rwandan government – lead by extremists of the ethnic Hutu majority – conducted an extermination campaign against the Tutsi population that resulted in an estimated 0.5 to 1 million deaths. Empirical evidence on the legacy of political mass killings on female empowerment is scarce. In particular, causality is difficult to establish since socioeconomic shocks are likely to jointly determine both violence and future female outcomes.

To make progress, we build on Rogall (2021) and exploit exogenous variation in armed groups' transport costs. During the genocide, the extremist Hutu government sent around the army and militiamen to promote and execute the killings. These men were affected by the rain that fell along the dirt roads to each village.[1] Exploiting only seasonal weather variation during the 100 days of the genocide, Rogall (2021) finds that those villages further away from the (tarred) main road and with more rainfall along the way from the village to the main road received fewer militiamen. He provides ample evidence that the exclusion restriction holds.

First, we estimate the impact of transport costs (and thus army and militiamen) on later female outcomes. Rich Demographic and Health Survey data allows us to give a detailed picture of female empowerment some 15 to 20 years after the

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[1]Note that a village refers to the administrative unit of a *sector* in Rwanda – with an average size of almost 17 square kilometers and 5,500 inhabitants.

genocide. In particular, we find evidence that women in high armed-group violence villages are healthier, better educated, wealthier, have more decision-making power within the household, and are less likely to accept and experience domestic violence. Furthermore, they are more likely to work in high-skilled jobs and enjoy more sexual and financial autonomy.

In terms of magnitudes, a 10 percent increase in genocide violence is associated with a 1 to 5 percent increase in our women's outcomes. To understand the mechanisms, we build again on Rogall (2021), who shows that the instrument induced violence by external perpetrators who targeted particularly adult males. These externals were often better trained and equipped and headed large-scale operations. For instance, Rogall (2021) finds that transport costs are significantly negatively related to the existence of a mass grave site in a village (we confirm this result with our DHS sample). Furthermore, transport-cost-induced violence leads to a decrease in the adult male population and a decline in the number of males in general (Rogall, 2021). Once more, we can confirm this finding using our DHS sample on sibling deaths: women in high-violence villages are more likely to lose an adult brother than a sister or younger brother.[2]

Next, we show that armed-group violence leads to an increase in the number of households with female heads and the number of female politicians elected into the local government. Moreover, elected women are also better educated. Consistently, these villages see an increase in public goods provision, for instance, in health care and road building. In terms of magnitudes, a 10 percent increase in genocide violence leads to a 1 to 2.5 percent increase in political participation and a 2 to 10 percent increase in public goods provision.[3]

We also track the effects over time. Using three rounds of DHS data (2005, 2010, and 2015), we show that the effects are strongest for the two recent peri-

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[2]To give an interpretation, Verwimp (2006) shows that especially working-age adult men were more likely to die by firearms in large-scale massacres. The most vulnerable – women, young children, and the elderly – were more likely to die from a machete or club. Since the genocide was strategically planned to kill as many Tutsi as possible, and bullets were in short supply, Verwimp (2006) argues that bullets were used to kill those who were more likely to escape or resist, i.e., adult men. Because the army and militia mostly used firearms, high armed-group violence should have led to a female surplus.

[3]Scaling the reduced-form effects above by the effects on political participation gives an elasticity of around 1 to 2, thus a 10 percent increase in the fraction of female politicians leads to a 10 to 20 percent increase in women's outcomes. Naturally, this exercise, somewhat unrealistically, assumes that genocide violence only affects women's outcomes via the political participation channel.

ods. Moreover, further analysis points to a reversal of fortune. The immediate short-term consequences of men's mass killing are likely negative, leaving households in poverty: families lost their former male household heads, and the militia looted their assets (Brück and Schindler, 2009). We show that some six years after the genocide, households that experienced violence indeed produce lower agricultural output and consequently consume less. However, eventually, the situation reverses.

Consistent with the delayed positive effects, it seems that especially the younger generations of women are carrying the success. Anecdotal evidence suggests that older generations were skeptical of the changes, whereas younger women watched their mothers (and other female role models) struggle and succeed. Consistent with this cultural, intergenerational transmission mechanism, we find that the effects, especially for domestic violence, are mostly driven by non-migrant women. Finally, we show that parents invest more in their pre-school daughters, thereby increasing their cognitive and non-cognitive abilities.

Importantly, by 2010/15, men have already replaced women as household heads again, but the positive socio-economic and political participation effects remain. Furthermore, men are also more likely to develop more feminist views (although this finding is weaker). Thus, it seems that the initial imbalance in gender ratios led to a change in gender norms, which prevail even after gender ratios have normalized again.

Our data do not support the classic marriage market argument put forward by Becker (1981) – where a male shortage should lead to worse marriages and outcomes for women and, thus, for instance, more domestic violence. One of the reasons for this is that it likely became socially acceptable to stay single due to the substantial reduction in men. We find evidence that women delay their marriage, thus avoiding bad matches. On a more general note, our results highlight the limitations of the Becker model. The equilibria in the marriage market seem to also depend on social norms and women's identities rather than only supply and demand.

We can also rule out a number of possible alternative explanations. For instance, it is unlikely that strong reconstruction efforts after the genocide explain the positive effects. It is also unlikely that selective killings based on human capital or migration are driving the results.

To corroborate the importance of the initial gender imbalance, we also exploit exogenous variation in the village reception of a state-sponsored radio station (RTLM) that called for killings of the Tutsi minority (Yanagizawa-Drott, 2014). Using the local variation in reception induced by Rwanda's hilly terrain to identify causal effects, Yanagizawa-Drott (2014) finds that villages with good reception experienced significantly higher participation levels in the killings. RTLM-induced violence was local, committed with low-technology weapons (e.g., machetes and clubs) targeted at women and children.[4] We thus first document that RTLM violence leads to a male surplus. And consistently, we find negative or no effects on female outcomes.[5]

We add to the literature in several ways. The paper first contributes to the literature on how shocks to the male-female ratio affect females' labor market outcomes and attitudes. For instance, Grosjean and Khattar (2018) explore the short and long-run effects of male convicts being sent to Australia on cultural attitudes and labor outcomes, e.g., finding more conservative beliefs towards women working outside the home and lower female labor participation today.[6] Others have looked at high male incarceration in the US (Charles and Luoh, 2010) or the transatlantic slave trade effects, which led to a female surplus in many African countries (Teso, 2018). Several other papers have used the decrease in male-to-female ratios after World Wars I and II to analyze short and long-term effects on the labor market (e.g., Abramitzky et al. (2011); Boehnke and Gay (2020); Acemoglu et al. (2004)). However, besides providing a more detailed picture of female empowerment, including, for instance, domestic violence and various gender norms, our paper also allows us to shed more light on the mechanisms, for example, via political participation, and the short-term timing of empowerment. Furthermore, different from

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[4]Importantly, as the station's transmitters were destroyed with the end of the genocide, the temporary shock in exposure to RTLM allows us to examine the long-term effects of genocidal violence. The broadcasts contained no content that would directly affect productivity or gender equality, such as information about sex education or health. Instead, the content was primarily music mixed with ethnically-charged propaganda and direct encouragement to participate in the killings of Tutsi (Kimani, 2007).

[5]We rule out that differences in compliers are driving the different results for local and external violence.

[6]In a related paper, Baranov et al. (2019) analyze the effects of the Australian convict-induced male surplus during the 18th and 19th centuries on contemporaneous masculinity norms, for instance violent behavior, male suicide, and occupational gender segregation. In a similar vein, two other papers explore the impact of the inflow of men during the Gold Rush in the US (Aguilar-Gomez and Benshaul-Tolonen, 2018; Brodeur and Haddad, 2018).

most of the work cited above, we focus on a developing country, where gender inequality is often one of the most pressing issues (Jayachandran, 2015).[7]

This paper also speaks to a growing literature on the effects of females in political office. For instance, Chattopadhyay and Duflo (2004) show that female leaders invest more in public goods that benefit women, in particular health (Bhalotra and Clots-Figueras, 2014) and education (Clots-Figueras, 2012). Furthermore, Beaman et al. (2009) find that women in politics can change voter attitudes and pave the way for future generations of women leaders. We add to this literature by showing that putting women in power increases not only public goods provision but female welfare along several other dimensions.[8]

Moreover, our paper contributes to the literature on the effects of the genocide in Rwanda on later outcomes (Schindler and Brück, 2011; Serneels and Verpoorten, 2013; Akresh and de Walque, 2008) by producing novel evidence on the positive effects of large-scale armed-group-lead violence and the adverse effects of local RTLM-induced violence on female empowerment. One paper close to ours is La Mattina (2017), who finds that women in high-violence areas experience *more* domestic violence in post-genocide Rwanda. However, La Mattina does not distinguish between external and local violence and might, therefore, be picking up a weighted average of the two. Thus, while seemingly contradicting at first, our paper highlights the importance of rigorous identification.

Fourth, the paper is related to the general literature on civil war and ethnic conflict. To our knowledge, this paper is the first to show how different types of violence in the same conflict can affect socioeconomic outcomes differently. Moreover, Justino et al. (2012) and Buvinic et al. (2013) survey this literature through a gendered lens, vehemently calling for more well-identified studies on the effects of conflict for women. This paper starts filling the gap. In recent years, a number of studies have exploited within-country variation to estimate the effects of conflict on various outcomes such as economic performance (Miguel and Roland, 2011; Brakman et al., 2004; Abadie and Gardeazabal, 2003; Davis and Weinstein, 2002), political engagement (Bellows and Miguel, 2009), social cohesion (Gilligan et al., 2014; Voors et al., 2012), with a special focus on human capital and health (Al-

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[7]Teso (2018) is a notable exception but stresses mostly labor market outcomes.

[8]Others have looked at the effects of female politicians on corruption (Brollo and Troiano, 2016), female labor force participation (Ghani et al., 2013), foreign policy (Koch and Fulton, 2011), the reporting of crimes against women (Iyer et al., 2012) and conflict (Dube and Harish, 2020).

derman et al., 2006; Chamarbagwala and Morán, 2011; Shemyakina, 2011).[9] Few papers have looked at how the effects of violence vary by gender. One exception, related to our work, is García-Ponce (2017), who finds that exposure to violence during Peru's Shining Path insurgency leads to more female political participation. However, García-Ponce (2017) does not have information on election outcomes (only candidates) and further emphasizes behavioral responses as a result of experiencing violence rather than gender imbalances as the main mechanism.[10] Besides, our identification strategy allows us to analyze several other outcomes.

The remainder of the paper is organized as follows. Section 2 provides some background information on the Rwandan Genocide and its aftermath. Section 3 presents the data used for the analysis, and Section 4 outlines the empirical strategy. Sections 5 to 9 discuss the results. Section 10 concludes with possible policy implications.

2   Institutional Background

Armed Groups and Genocide   Rwanda's history is strongly influenced by the tensions between Hutus and Tutsis, the two largest ethnicities in the country. These tensions culminated in the genocide from 1994.

After president Habyarimana's airplane was shot down on April 6, 1994, extremists within the Hutu-dominated parties, known as the Akazu, managed to take over important government positions and initiate a 100 day lasting period of genocide. On the same night of the airplane crash, the Presidential Guard went around Kigali, targeting moderate politicians, journalists, and civil rights activists. The various militia groups and the Hutu army, around 45,000 to 50,000 men, were sent around the country to help with the killings. The two infamous militias were the Interahamwe ("those who work together") and the Impuzamugambi ("those with a single aim") who were mostly recruited from the pool of unemployed and

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[9]Starting in the late 1970s with Organski and Kugler (1977) there are also numerous cross-country studies that have looked into the effects of civil conflict on economic recovery and growth (Cerra and Saxena, 2008; Chen et al., 2008). The approach taken in this paper is to exploit village-level variation, and therefore, it is a limitation that we are unable to estimate the aggregate socioeconomic effects of the genocide.

[10]Bargain et al. (2019) also emphasize a behavioral mechanism by showing that female participation in the Arab Spring demonstrations positively change women's perceptions about their rights.

disaffected youth in the big cities. At the beginning of the nineties, these groups started receiving military training from the Presidential Guard and the army. They were usually equipped with AK-47 assault rifles, grenades, and slashing knives or machetes (Prunier, 1995) and responsible for many of the most gruesome killings as well as torture and sexual violence.

The mass killings ended in mid-July, when the RPF rebels (a Tutsi rebel group that had formed in the north) conquered the capital Kigali, defeating the Rwandan army and the various militia groups. Estimates reveal that approximately 800,000 people, mostly belonging to the Tutsi minority, were killed in those 100 days. There was no foreign intervention. More detailed accounts can be found in Straus (2006), Des Forges (1999), Gourevitch (1998), and Prunier (1995).

The Aftermath   Traditionally, Rwandan women were constrained in their choices and heavily discriminated against. They were not allowed to own land, obtained less education than men, were forced to work worse jobs, and were generally at the mercy of their husbands or other men (see Schindler (2010) for more details).

This started to change after the genocide. With most of the genocide victims being men, the killings created large gender imbalances. At the aggregated national level, women made up around 70 percent of the population in 1994.[11] Thus, women were forced to take on responsibilities in their families and local communities as well as leading roles in the political sphere. In 1996, the first women councils were established. These councils gave women experience in voting and campaigning before the first post-genocide elections in 2003, where women secured 48 percent of the seats in parliament.

The women councils were part of a bigger decentralization effort that shifted political power from the national level to the grassroots. Since women did not historically have political experience, this shift allowed them to gain experience at the local levels and then move up the ranks. In leading positions, they quickly gained influence for promoting and enhancing the protection of women's and children's rights. For instance, the first step towards a more sweeping prohibition of sexual violence was child rape's criminalization in 2001 (Hunt, 2017). This was followed by a general gender-based violence law that finally criminalized all forms of sexual violence, including domestic violence, such as marital rape. The progress was

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[11]There was significant local variation – which we exploit.

spurred by a gender quota system that set a 30 percent for women in elected positions in 2003. Other major milestones were progressive land and inheritance laws from 1999 and 2013, respectively, allowing women to own and inherit property, especially land, and own property in legal marriages jointly.

Our paper also helps to shed light on a recurring discussion in Rwanda, namely that while all these laws did shift de jure power to women and Rwanda is today one of the world's most gender-equal countries at the national level, everyday practice often lacked behind. For instance, gender-based violence is still prevalent and although reporting rates for sexual violence have increased, there is still significant under-reporting due to stigma, retaliation, or women's economic dependence on the perpetrator.

Our results suggest that increased female influence at the national level is not sufficient to empower women overall. Rather, local variation in women's de facto power can be explained by local variation in different exposure to the genocide and the resulting difference in gender ratios.

An important follow-up question is whether Rwanda's women supporting institutional environment is itself a result of the genocide and the gender imbalances or rather a *sui generis* enabling condition (exogenous to Rwanda and potentially driven by President Kagame) which allowed women to thrive at least in those places with fewer men. While the cross-sectional data at hand does not allow us to directly answer this question, anecdotal evidence points to the former as the likely answer: the genocide left Rwanda's institutional organization in ruins. With most former government officials dead or out of the country, the new RPF administration, themselves with little government experience, had to draw on capable, trusted women (Hunt, 2014). Men, not only among the majority of victims and in lower supply, were furthermore associated with the genocide's horrors and, therefore, less trusted to rebuild the nation. Women, on the other hand, were seen as *"powerful symbols of healing and rebirth"* (Herndon and Randell, 2013, p. 75) and thus reconciliation.

3 Data

We combine several sources of data to construct an individual/village-level dataset. Instead of providing a large summary statistics table for all our outcome variables,

we report means and standard deviations for the various dependent variables under each regression. Summary statistics for our explanatory variables are reported in Table 1.

Transport Cost Data   The transport cost data set is taken from Rogall (2021) and comprises 1,433 or 90 percent of the total 1,575 Rwandan villages (officially called sectors).[12]

To construct the instrument, armed groups' transport costs, Rogall (2021) uses the National Oceanic and Atmospheric Administration (NOAA) database of daily rainfall estimates for Africa. More specifically, he computes the amount of rainfall during the 100 days of the genocide over a 500-meter buffer around the distance line between each village centroid and the closest point on the main road and interacts it with the distance to the main road. Similarly, using a village boundary map, he also computes rainfall in each village. Figure A.1 illustrates how the instrument is constructed.[13]

Violence   To show that our instrument is correlated with genocide intensity and scale the reduced-form effects, we use participation in violence. Since no direct measure of participation rates is available, we follow Yanagizawa-Drott (2014) and Rogall (2021) and use prosecution rates for crimes committed during the genocide as a proxy. The data is taken from a nationwide village-level dataset, provided from the government agency "National Service of Gacaca Jurisdictions," which gives the outcome of the almost 10,000 Gacaca courts set up all over the country to prosecute the genocide criminals.[14] The data includes perpetrators that mostly belong to the army and the militia or are members of local armed groups such as policemen, thus it captures both external and local armed-group violence.

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[12]Unfortunately, the matching in that data is imperfect, as several villages either have different names in different data sources (such as the Gacaca violence data), or use alternate spelling. Moreover, sometimes two or more villages within a commune have identical names, which prevents matching. As these issues are idiosyncratic, the main implication is likely only a lower precision in our estimates. A commune (142 in total) is an old administrative unit above the village.

[13]For more details, especially a discussion on data quality and ruling out systematic biases, see Rogall (2021).

[14]A natural concern when using prosecution instead of actual participation data is survival bias or other systematic biases. For instance, in places with many killings there might have been no witnesses left thus resulting in low prosecution rates. Using data from numerous other sources, Rogall (2021) shows that these concerns are unwarranted.

Household Survey Data   We use household survey data from two different sources. Together they cover the time period from 1999 to 2015.

The first socio-economic household data is taken from the first wave of the Integrated Household Living Conditions Survey (EICV1)[15] conducted from 1999 to 2001. In total, 31,192 individuals in 6,240 households of 486 villages were surveyed on various socio-economic and demographic factors regarding consumption, agricultural production, and education. The data is representative at the national level. This data is matched by village names within communes to the transport cost data. Recall from above that the Rogall (2021) dataset uses about 90 percent of the total number of villages. Consequentially, we match about 90 percent of the villages in the EICV survey (444 of the total 486 villages). As these issues are idiosyncratic, the main implication is likely only a lower precision in our estimates.

The second set of socio-economic household data is taken from the last two waves of the DHS, conducted in 2010 and 2015, again representative at the national level. We use individuals in 11,674 households in 660 villages who were surveyed on various socioeconomic factors regarding for instance education and health. This DHS data comes with GPS locations and is spatially merged with the transport cost data. We also complement this data with the 2005 wave of the DHS data to track changes over time, for this data we match 346 villages.

Given the matching issues outlined above, we match about 90 percent of the total number of surveyed villages for all three DHS data sets.

Election Data   Local election data from 2011 is obtained from the National Electoral Commission (NEC).[16] The data covers elections held at the cell level, which is the second lowest administrative unit in Rwanda and one unit below the village level. The members of the cell council – all citizens from the cell above 18 years – directly elect the cell executive committee members.

The cell executive committee is elected for five years and the number of its members depends on the population size of the cell. In 2001 Rwanda significantly decentralized its administration and shifted power to local governments. Thus, local governments hold executive power for various public goods, e.g. building regulations, social protection, health services, water and electricity, rural road con-

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[15]EICV stands for Enquete Integrale sur les Conditions de Vie des menages.
[16]www.nec.gov.rw

struction and transport. Importantly, education is handled at higher administration levels. Within these areas, the local cell committee is responsible for *"identifying and prioritizing local needs, designing development plans, mobilizing development resources and finally implementing the plans."* (CLGF, 2017, p. 177).

In 2003, the Rwandan government changed the constitution, introducing a uniform gender quota that requires every administrative body to have at least 30 percent women. In our data the average share of women is 53 percent and consistently all council committees have at least 30 percent women.

We also have information on whether a local committee seat is won by a member of the National Women's Council (NWC). This council, supported by the Rwandan Ministry of Gender and Family Promotion, is a national organ to explicitly promote gender equality. About 18 percent of the cell seats are won by NWC members. Besides gender, the data also includes information on politicians' education.

The data covers all 2,068 Rwandan cells which we spatially match to the violence and instrument data (a cell boundary map is provided by the Rwanda Geoportal). Again, due to the matching issues described above we are able to match 1,901 cells – 90 percent of the total.

Additional Data Population data for 1991 as well as distance from the village centroid to the nearest major town and the nearest major road as well as distance to the capital Kigali and the former Tutsi kingdom capital Nyanza are taken from Rogall (2021).

Public goods data is provided by the Rwanda Geoportal and contains a recent map of the road network, which we use to measure road length, and maps with the locations of social housing projects, schools, and health facilities as well as access to electricity. To be consistent with the election data we spatially aggregate this data at the cell level and then match it to the transport costs data. Again, we recover 1,901 cells.[17]

Finally, Rogall (2021) provides data on the number of days that the RPF Tutsi rebels were present in each village and the location of mass graves based on satellite maps from the Yale Genocide Studies Program.

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[17]Note that these are the only public goods that we found data for.

RTLM Reception   Our placebo independent variable is predicted RTLM radio coverage at the village level, taken from Yanagizawa-Drott (2014), who uses RTLM transmitter locations and a high precision topographical map of Rwanda (SRTM) to construct the data. As the country is littered with hills and valleys, there is substantial local variation in topography.[18] Figure A.2 shows a map of the radio coverage variable.[19]

Yanagizawa-Drott (2014) also provides data on essential control variables such as distance of each village to the nearest radio transmitter, village altitude, as well as dummy variables indicating whether a village's mountains are sloping north, south, east or west. Summary statistics for all these variables are shown in Table A.1 in the appendix.

The RTLM sample is somewhat smaller than the transport cost instrument sample. We match 8,912 households in 465 villages for the socioeconomic DHS data (rounds 6 and 7) and 1,347 cells for the local politician data.

4   Empirical Strategy

Identification   Our identification strategy rests on two assumptions. First, villages with heavier rainfall along the shortest route between the main road and the village experienced lower levels of armed-group violence and the more so, the further they were from the main roads (first stage). This is the result of Rogall (2021). Second, conditional on the control variables (explained in detail below), distance to the main road interacted with rainfall along the way to the village does not have a direct effect on socioeconomic outcomes other than through armed-group violence (exclusion restriction).

The exclusion restriction is unlikely to be true without further precautions. The instrument, composed of distance to the main road and rainfall, is probably correlated with access to markets, health centers, education, rain-fed production and, therefore, income.

To address this problem, we follow the identification strategy in Rogall (2021). To summarize, in order to take into account the general living conditions of indi-

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[18]For further details about the data, see Yanagizawa-Drott (2014).

[19]White areas on the map indicate an absence of data. This is either because of the presence of national parks and Lake Kivu, or because of difficulties in matching villages across datasets.

Table 1: Summary Statistics

	Mean	Std.Dev.
A. Endogenous Variables		
# Prosecuted Militiamen	58.380	80.42
Mass Grave in Village	0.056	0.23
B. Exogenous Variables		
1991 Population, '000	5.511	2.97
Rainfall between Village and Main Road, genocide period, 1994	121.292	34.11
Rainfall between Village and Main Road, genocide period, 10-year average	206.665	37.82
Rainfall in Village, genocide period, 1994	121.002	33.45
Rainfall in Village, genocide period, 10-year average	205.372	38.68
Rainfall in Village, growing season, 1994	242.246	64.65
Rainfall in Village, growing season, 10-year average	614.899	117.00
Distance to the Main Road	6.743	6.10
Distance to the Capital Kigali	60.014	30.63
Distance to the Border	23.075	13.94
Distance to old Tutsi Kingdom Capital Nyanza	65.429	30.60
Distance to Main City	23.905	16.53
Village Area	16.896	17.24
Number of Days with RPF Presence	45.180	42.72

Notes: There are 660 observations for each variable. All variables are measured at the village level. The # Prosecuted Militiamen are prosecutions against organizers, leaders, army and militia, local police. Population is the population number in the village from the 1991 census. The rain variables are measured in millimeters. The ten-year average is for the years 1984 to 1993. The distance variables are measured in kilometers. Village Area is measured in square kilometers. Days with RPF Presence gives the number of days the Tutsi rebels were present in each village.

viduals in each village, we control for distance to the main road interacted with long-term average rainfall (years 1984 to 1993) during the 100 calendar days of the genocide period along the way between village and main road as well as all main effects.[20] Therefore, we only exploit seasonal weather variation in the year of the genocide. Furthermore, we control for rainfall in the village during the 100 genocide days in 1994 and its long-term average. Finally, we always control for the village population. In the following analysis, we will call these "standard controls." To control for broad geographic characteristics, we include 11 province fixed effects.

The genocide partially overlaps with the growing season which potentially affects (expected) rural income. Thus, we also control for the total amount of rainfall in the village during the 1994 growing season and its long-term average as well

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[20]These are distance to the main road, rainfall along the way between village and main road during the 100 days of the genocide in 1994 and its long-term average.

as the interaction of the two with the distance to the main road (called "growing season controls").

Rogall (2021) provides a battery of tests to show that, given these controls, the exclusion restriction holds, i.e. that the instrument unlikely affects socioeconomic outcomes other than through external armed groups.

Specification To show that higher transport costs caused less violence in our DHS sample, and reproduce the main result in Rogall (2021), we estimate the following first-stage equation

$$(1) \qquad log\left(h_{jp}\right) = \alpha + \beta \left[log(Dist_{jp}) \times log\left(Rain_{jp}\right)\right] + \mathbf{X}_{jp}\pi + \gamma_p + \epsilon_{jp},$$

where h_{jp} is our measure of armed-group violence, $Dist_{jp}$ is the distance to the nearest main road and $Rain_{jp}$ is the amount of rainfall during the period of the genocide along the way between the main road and each village j in province p. Furthermore, γ_p are province fixed effects and ϵ_{jp} is the error term. Given the controls in $\mathbf{X}_{jp}$, explained in detail above, the interaction term captures the armed groups' transport costs. We expect β to be negative.

We then run the following reduced-form regressions

$$(2) \qquad post\_y_{ijp} = \alpha' + \beta' \left[log(Dist_{jp}) \times log\left(Rain_{jp}\right)\right] + \mathbf{X}_{jp}\pi' + \gamma_p + \epsilon_{ijp},$$

where $post\_y_{ijp}$ is the post-genocide outcome of household i (or individual i) in village j in province p and the other variables are as before. Following Rogall (2021), we allow error terms to be correlated across villages within a 150 kilometer radius (Conley, 1999). Armed groups were sent around the entire country, so we expect errors to be correlated over long distances.[21] We also present instrumental-variable estimates.

5 First Stage

The first-stage relationship between transport costs and genocide violence is strongly negative at the 99 percent confidence level (regression 1 in Table 2), and this rela-

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[21]In particular, the cutoff of 150 kilometers coincides with the maximum distance to Kigali – the center of the country and the genocidal plan – in the sample of villages.

Table 2: First Stage – DHS (2010 and 2015)

Dependent Variable	# Militiamen, log			Mass Graves	
Sample	Full Sample	DHS Sample			
	(1)	(2)	(3)	(4)	(5)
Distance × Rainfall, 1994	−0.509	−0.719	−0.781	−0.080	−0.088
	[0.115]***	[0.181]***	[0.181]***	[0.028]***	[0.029]***
Standard Controls	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes
Additional Controls	yes	no	yes	no	yes
Province Effects	yes	yes	yes	yes	yes
R^2	0.50	0.48	0.50	0.07	0.08
N	1432	660	660	660	660

Notes: Mass Graves is a dummy taking on the value of 1 if a mass grave was found in a village. Regression 1 uses the full sample of villages from Rogall (2021). The sample in regressions 2 to 5 is restricted to the villages from DHS rounds 6 and 7. **Distance × Rainfall, 1994** is the instrument (distance to the main road interacted with rainfall along the way (a 500m buffer) between village and main road during the 100 days of the genocide in 1994). **Standard Controls** include village population, distance to the main road, rainfall in the village during the 100 days of the genocide in 1994, long-term average rainfall in the village during the 100 calendar days of the genocide period (average for 1984-1993), rainfall along the buffer during the 100 days of the genocide in 1994, long-term average rainfall along the buffer during the 100 calendar days of the genocide period (1984-1993), and the latter interacted with distance to the main road. **Growing Season Controls** are rainfall during the growing season in 1994 in the village, long-term average rainfall during the growing seasons in the village and both of these interacted with distance to the main road. **Additional Controls** are distance to Kigali, main city, borders, Nyanza (old Tutsi Kingdom capital) as well as population density in 1991 and the number of days with RPF presence. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. There are **11 provinces** in the sample. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

tionship holds when restricting the sample to those villages surveyed in the DHS (regressions 2 and 3).[22]

Regarding magnitude, the point estimate of -0.781 (standard error 0.181) in regression 3 suggests that a village with an average distance to the main road received 25 fewer militiamen, about 40 percent of the mean (58.38), following a one-standard-deviation increase in rainfall between a village and main road.

To interpret the main effects below it is essential to understand the type of violence that our instrument induced. Here, we build on Rogall (2021) who argues that by the very nature of the transport-cost instrument, it induced violence by perpetrators coming from outside of the village: army and militiamen. These army

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[22]Note that we also control for several important additional factors that potentially have direct effects on genocide violence: distance to the border, distance to main cities, distance to the capital Kigali and distance to Nyanza (the old Tutsi kingdom capital) as well as population density and the number of days the RPF was present in each village.

and militiamen were often better trained and equipped (firearms and grenades) and headed large-scale operations.

As a first test, Rogall (2021) shows that the transport-cost instrument maps negatively into whether the village has a mass grave site. Regressions 4 and 5 in Table 2 confirm this findings for our DHS sample. Thus, places that were harder to reach by army and militia during the genocide are less likely to have a mass grave site today.

6 Main Results – 2010 and 2015

6.1 Women's Outcomes and Attitudes

We first show that in villages with high levels of external armed-group killings women do better on various dimensions. The DHS data contains numerous questions on women's financial autonomy, sexual freedom, domestic violence, decision-making power within households, education, occupation, and health. It also includes a survey on men's outcomes and attitudes.

Because of the many outcome variables available in the DHS, we calculate various z-score measures, grouping outcomes into 11 different categories, and present the results for these (Table 3).[23] In the appendix, we also report all individual regressions (Tables A.3 to A.10). Note that some of the DHS outcomes are positively associated with female empowerment (e.g. "can get a condom"), others negatively (e.g. "needs permission to get medical help"). We account for that when calculating the indexes.

Education, Wealth and Health To start, women in high-violence villages are more likely to be better educated, wealthier, and healthier (regression 3 in Table 3). Both reduced-form and IV point estimates are highly significant at the 99 percent

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[23]Table A.2 in the appendix shows that the OLS results for all 11 outcomes are small and insignificant throughout. It is informative to compare the OLS results to the analogous IV estimates in Table 3 which are all larger in absolute value. Two reasons could explain the differences. First, random measurement error in the violence variable could bias the OLS estimates towards zero. Second, the IV estimates quantify the local average treatment effect (LATE) induced by transport costs and thus external militiamen. The OLS estimate (ATE) on the other hand, also includes the effects of local militiamen. These two opposing effects (external vs. local violence) likely offset each other, again pushing the OLS estimate towards zero.

Table 3: Main Effects (2010 and 2015)

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Distance × Rainfall, 1994	0.437 [0.167]***	0.281 [0.138]**	−0.664 [0.164]***	−0.317 [0.071]***	−0.301 [0.050]***	−0.090 [0.041]**	−0.294 [0.044]***	0.305 [0.278]	0.253 [0.097]***	0.077 [0.071]	0.051 [0.208]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	−0.00	0.00	0.00	0.00	−0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dep. Std.Dev.	3.99	2.69	3.00	2.38	1.83	1.89	2.21	6.17	2.80	1.77	4.05
R^2	0.05	0.04	0.11	0.04	0.02	0.01	0.03	0.01	0.01	0.01	0.01
N	24782	24797	24802	24802	23301	24800	24802	4951	4951	4950	4951
IV: External Militia Violence	−0.548 [0.229]**	−0.353 [0.205]*	0.831 [0.136]***	0.397 [0.066]***	0.374 [0.097]***	0.112 [0.059]*	0.369 [0.103]***	−0.360 [0.348]	−0.300 [0.123]**	−0.092 [0.084]	−0.061 [0.249]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent; **significant at 5 percent; ***significant at 1 percent.

confidence level. The z-score includes a dummy variable for literacy and reading the news, years of schooling as well as a wealth index.[24] As access to health and health status proxies, we use whether an HIV test was performed and results from the Rohrer index, respectively (details in Table A.3).[25] In terms of magnitudes, a one-standard-deviation increase in external genocide violence leads to about a 0.4 standard-deviation increase in the total index.

Financial Autonomy   When it comes to financial autonomy, women are more likely to work in skilled occupations, receive their earnings in cash (as opposed to in-kind), and own a house or land by themselves (details in Table A.4). Based on the estimates from regression 4, a one-standard-deviation increase in large-scale violence induces an increase of the financial autonomy index of 0.25 standard deviations.

Physical Autonomy   Our results further suggest that women's physical autonomy increases: they have better access to contraception, can request their partners to use a condom, and can refuse sexual intercourse if the partner cheats. Furthermore, their husbands are less likely to have other wives, with potentially positive effects on women's mental and physical health (Bove and Valeggia, 2009; Shepard, 2012) as well as lower HIV transmission (Bertocchi and Dimico, 2019). We also find that women are on average older at first cohabitation. This effect seems to be driven by a substantial drop in the number of girls underage at first cohabitation – a positive development outcome (Wodon et al., 2017; Leeson and Suarez, 2017). Consistently, they are also significantly older at first birth, driven by a drop especially for teenage pregnancies, with again likely positive long-term effects for these young women (Fitzenberger et al., 2013; Adda et al., 2017; Lundborg et al., 2017). In terms of magnitudes, according to the estimates from regression 5, a one-standard-deviation increase in external militia violence leads to an increase equal to approximately 0.3 standard deviations in the physical autonomy index (details in Table A.5).

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[24]Note that the wealth index measures household wealth, thus women live in richer families.

[25]The Rohrer's index is similar to the body mass index – normalizing an individual's weight by the third power of height (instead of the square).

Decision-Making Power   Their decision-making power within the household also seems to improve, although this effect is weaker. The results in regression 6 imply that a one-standard-deviation increase in external violence leads to a rise in the decision-making power index equal to approximately 0.1 standard deviations. Here, decision-making power is understood as to whether women are involved in deciding on large household expenditures, how to spend their husbands' money and their own medical insurance, and whether they need their husbands' permission to get medical help. Details in Table A.6 suggest that especially health-related decisions are driving the positive effects in regression 6.

Sexual Knowledge and Fertility   Furthermore, a one-standard-deviation increase in large-scale violence increases our sexual knowledge index by about 0.25 standard deviations. This implies that women are more likely to know about HIV, the ovulatory cycle, and contraception[26] in high-violence villages (see Table A.7). Moreover, women in these villages are more likely to want fewer children, another good development indicator (Duflo et al., 2015; Adda et al., 2017; Keats, 2018)

Domestic Violence   Finally, and maybe most importantly, women are less likely to accept and experience domestic violence.[27] The z-score in regression 1 includes whether women find beating by their husbands justified if the wife goes out without informing the husband, neglects the children, refuses to have sex or burns the food. The negative effect on accepting violence in regression 1 is driven by a strong negative effect on all four variables (details in Table A.8).

Furthermore, women in high-violence villages are also less likely to accept violence against children (both boys and girls, regression 2). Here, possible reasons for violence include the child disobeying, being impolite, or embarrassing the family (details in Table A.9). This result is not only indicative of a general drop in the acceptance of violence but also suggests that these positive effects are likely to be persistent. Starting with Curtis (1963) who asks whether violence breeds violence, a large literature in psychology and public health now documents a strong relationship between exposure to violence as a child (both as a victim and a witness)

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[26]Contraception, while having the right point estimate, is not significant.

[27]The husband of an interviewee (or other adult males) was present during less than 0.5 percent of the interviews. Results are robust to dropping those.

and violent behavior as an adult (Lindert and Levav (2015) give an overview). Thus the observed drop in domestic violence and corporal punishment may set off a virtuous cycle.

The magnitudes of the two effects are similar with a one standard-deviation increase in genocide violence reducing domestic violence attitudes by about 0.2 standard deviations.

Besides affecting attitudes, we also find a drop in women reporting to be the victim of domestic violence. The DHS data includes nine questions on this topic: whether a woman was pushed, punched, slapped, kicked, had arm twisted or hair pulled, was strangled or burnt, threatened with knife or gun, forced into unwanted sex, or unwanted sexual acts. We classify the first five as less severe violence while the last four are severe. We also separate out sexual violence. In regression 8, we report the z-score on all nine violence outcomes. While the IV estimate is negative, it is not significant. However, splitting the outcomes we find a strong significant drop in severe violence (regression 9). The IV point estimate suggests a 0.15 standard-deviation decrease in severe domestic violence following a one standard-deviation increase in genocide violence. We do not find strong effects for sexual violence or less severe violence (regressions 10 and 11). Details in Table A.10.

Anecdotal evidence suggests that women in power were able to raise awareness of the issue and lobby for better laws against domestic violence. Hunt (2017, p. 185) notes: *"(...) women around the world have been terrorized by sexual assault. (...) the women of Rwanda found a way to make that violence an occasion (...) of transformation. (...) To generate that shift, women had to elevate society awareness of the severity of the aggression (...)."*

6.2 Men's Outcomes and Attitudes

Fortunately, the DHS data also includes several questions on men's attitudes towards women. The results for these are presented in Tables A.11 to A.15 in the appendix. To summarize, the results are somewhat weaker than for female outcomes. However, for most cases the point estimates imply a positive effect on men's gender attitudes. Besides, whenever the results turn significant, the point estimates always have the right sign (except for one outcome: "ideal number of children"). For instance, the positive effects on household wealth for women are

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mirrored in men's results, thus men also tend to live in richer families (regression 5 in Table A.11).

Furthermore, men's sexual attitudes are positively affected: a one standard-deviation increase in genocide violence leads to a 0.2 standard-deviation increase in the men's sexual attitude index. This includes for instance that men are more likely to agree that women can refuse sex if their husband cheats on them (regression 3 in Table A.12) and men are less likely to ever having paid someone for sex (regression 4). In terms of sexual knowledge and fertility preferences, the results are more mixed. In particular, men favor more children rendering the overall index insignificant (regressions 4 and 5 in Table A.13). However, one result worth pointing out is that men are significantly more likely to know about the ovulatory cycle (regression 2).

Another strong result is shown in Table A.14. Men are more likely to agree that a woman should have a say on large household expenditures and the husband's money (regressions 2 and 4). In terms of magnitudes, a one standard-deviation increase in violence leads to a 0.3 standard-deviation increase in the decision-making power index.

Finally, results for domestic violence attitudes are shown in Table A.15. The questionnaire asks whether beating one's wife is justified when the wife goes out without telling, neglects the children, argues with her husband, refuses to have sex, burns the food, or cheats. The IV point estimates for all cases (except cheats) are negative, suggesting that men are less willing to beat their wives; however, it is only significant for the first case (regression 2).

6.3   Robustness Checks

We conduct a number of robustness checks. Our preferred specification includes controls for distance to the border, distance to main cities, distance to the capital Kigali and distance to Nyanza (the old Tutsi kingdom capital) as well as population density and the number of days the RPF was present in each village. In Table A.16 we show that all the result are robust to dropping these controls.

Next, in Table A.17 we add a number of individual and household controls. Note that we only show these specifications as a robustness check and not as our baseline specification since all of these are potentially bad controls, i.e. affected

by genocide violence themselves. Nevertheless, in Table A.17 we add controls for age, age squared, gender and age of the household head, number of household members, number of children under 5 in the household, and religion fixed effects. All our results are essentially identical.

Since we are using self-reported survey data, one concern is that large outliers may be driving the results. In Table A.18 we show that the results are robust to dropping the 99th percentile of each dependent variable.[28]

These results are also robust (in fact stronger) to controlling for average post-genocide rainfall (years 1995 to 2010/2015) during the 100 calendar days of the genocide period along the way between village and main road and its interaction with distance to the main road (Table A.19). Recall that the survey data is from 2010/2015, thus rainfall between 1995 and 2010/2015 may be a confounder.[29]

Finally, Figures A.3 and A.4 show the relationship between external armed-group violence and all our main outcomes graphically. Importantly, none of the effects seems to be driven by outliers.

7 Mechanisms

7.1 Type of Violence

To interpret the main effects above it is essential to understand the type of violence that our instrument induced. Above we already show that the instrument induced violence by external army and militiamen. Next we show that these men targeted a special population sub-group.

In particular, Rogall (2021) argues that armed-group violence seemed to have targeted primarily adult males. Using detailed data on the deaths of 59,050 victims from Kibuye Province in the west of the country (collected by IBUKA[30]), Verwimp (2006) shows that especially adult men (of working age) were more likely to die by firearms in large-scale massacres. The most vulnerable – women, young children

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[28]Note that we cannot perform this exercise for our domestic violence dummy variables outcomes.

[29]The results are also robust to controlling for average post-genocide rainfall in the village during the growing seasons and its interaction with distance to the road, as well as average post-genocide rainfall in the village for the genocide calendar period.

[30]IBUKA, which means "Remember," is a Rwandan genocide survivor organization which works to perpetuate the memory of the genocide.

and the elderly – were more likely to die from a machete or club. Since the genocide was strategically planned to kill as many Tutsi as possible, and bullets were in short supply, Verwimp (2006) argues that bullets were used to kill those who were more likely to resist or escape, i.e., adult men. Because firearms were mostly owned by the army and militia whereas the local population used machetes and clubs to kill, our instrument (picking up armed-group violence) should thus have produced a female surplus. We provide two pieces of evidence for this.

First, using data from the EICV1 survey conducted some 6 years after the genocide, Rogall (2021) shows that armed-group violence significantly increases the probability of having a female household head. A 10 percent increase in genocide violence leaves household with a 3.5 percent higher probability of having a female head. Additionally, he finds evidence that households are more likely to report having a widow and fewer men in general. In line with the predictions, he also finds that while it did not affect the fraction of adults in general, it did significantly decrease the fraction of adult males. His IV estimates suggest that a 10 percent increase in violence leads to a 2 percent decrease in the fraction of adult males.

Second, besides looking at the age and gender distribution of the survivors, we can also directly analyze deaths. The DHS data contains information on individuals' siblings, for example their gender and if they died – their age at death and year of death. This information allows us to back out the number of women, elderly men as well as children that were killed during the genocide. Table 4 provides the results. All outcomes above are normalized by the total number of killed siblings. The point estimates confirm that external violence did not target the most vulnerable. A 10 percent increase in large-scale violence leads to a 1 percent decrease in the fraction of killed woman, a 1.5 percent decrease in the fraction of killed vulnerable (i.e. woman and elderly men as well as boys), a 2 percent decrease in the fraction of killed children and a 5 percent decrease in the fraction of killed girls.

Interpretation and Anecdotal Evidence   The drop in the number of males likely forced women to take over more responsibilities within their households and local communities – with positive effects on (women's) welfare. To provide some anecdotal evidence, Hunt (2017, p. 72) notes "*At the grassroots level, too, women's leadership started out organically. They (...) converted proficiencies into newly required*

Dependent Variable	Fraction Females	Fraction Vulnerable	Fraction Children	Fraction Female Children
	(1)	(2)	(3)	(4)
Distance $\times$ Rainfall, 1994	0.025	0.060	0.045	0.048
	[0.011]**	[0.013]***	[0.017]***	[0.013]***
Standard Controls	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes
Dep. Mean	0.38	0.50	0.27	0.12
Dep. Std.Dev.	0.43	0.45	0.42	0.31
R^2	0.01	0.01	0.02	0.01
N	6897	6897	6897	6897
IV: External Militia Violence	-0.030	-0.072	-0.053	-0.058
	[0.014]**	[0.020]***	[0.018]***	[0.017]***

Notes: The data is taken from individuals of all three rounds of DHS data. All dependent variables are fractions of an individual's sibling deaths. For example, Fraction Vulnerable is the number of vulnerable male (the elderly and children) and all female sibling deaths normalized by the total number of sibling deaths. All deaths are restricted to siblings that died during the genocide. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

skills: (...) cleaning expanded to construction. Traditionally, women never helped build houses. Now, they were on site, pushing wheelbarrows, hauling bricks."

A Rwandan woman interviewed by Behnke (2019) notes *"They [women] had no choice (...). This is what happened to our society. We can't wait for men to tell us what to do – they are not here."* In a similar vein, another interviewee, Nadine Umutoni Gatsinzi, the secretary of Rwanda's Ministry of Gender and Family Promotion, adds *"Women realized they were now the head of the household, they have to take care of their children, they have to work."*

7.2 Political Office and Public Goods Provision

Local Politicians Besides taking over as household heads, this section provides evidence that women also take on government positions in their local cell commit-

Table 5: Women's Political Engagement

Sample	Women & Men			Women	Men
Dependent Variable	Fraction of Elected Women	Fraction of National Council		Fraction With Primary Education	
		Women	Disabled		
	(1)	(2)	(3)	(4)	(5)
Distance x Rainfall, 1994	−0.017	−0.013	0.000	−0.031	−0.001
	[0.006]***	[0.005]***	[0.002]	[0.014]**	[0.018]
Standard Controls	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes
Dep. Mean	0.53	0.18	0.17	0.44	0.45
Dep. Std.Dev.	0.09	0.07	0.07	0.24	0.21
R^2	0.10	0.05	0.06	0.19	0.17
N	1901	1901	1901	1899	1898
IV: External Militia Violence	0.055	0.042	−0.002	0.102	0.003
	[0.027]**	[0.021]**	[0.008]	[0.038]***	[0.056]

Notes: All regressions are run at the cell level. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

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Results are reported in Table 5. First, armed-group violence leads to an increase in the fraction of women elected for office in general (regression 1). Second, not only are more women elected, but the ones elected are also more likely to be members of the National Women's Council – a government organization that explicitly promotes gender equality (regression 2). As a placebo check, we show that armed-group violence is unrelated to whether a politician is a member of the Council for Disabled individuals (regression 3). Finally, not only are more women entering office but the elected ones are also better educated (i.e. finished at least primary school, regression 4); we do not find any effects on the education of elected men (regression 5). In terms of magnitudes, a 10 percent increase in armed-group violence leads to 1 percent increase in the fraction of elected females and a 2.5 percent increase in the fraction of seats won by National Women's Council members and the fraction of women with at least primary education.

Given the findings on gender imbalances above, one concern is that these re-

sults may merely reflect that the pool of male candidates is lower in high-violence villages. However, the DHS data suggests that by the time of the elections, 2011, gender imbalances – both in general and for the subset of potential candidates – have normalized.[31] It thus seems that the above results are not simply a mechanical effect. We provide evidence further below.

Local Public Goods   Several studies suggest that women care more about public goods such as health care and education (Duflo, 2003). Thus, the increase in the number of female politicians, and thereby access to executive power, should also translate into more local public goods spending. In Table 6, we test this. We use information about the length of the road system, the number of primary schools, the number of higher educational facilities, health care centers, social housing projects and whether a cell has access to electricity. Recall from the data section above that local administrations have executive power within all these areas except education. The results suggest a positive relationship between genocide violence and public goods provision. All relevant IV point estimates are positive and significant (regressions 1 to 4). The insignificant results for primary schools and higher educational facilities (regressions 5 and 6) is less surprising since these are managed at higher administrative levels. In terms of magnitudes, regressions 1 to 4 suggest that a 10 percent increase in genocide violence leads to a 2 to 10 percent increase in public goods provision.

Interpretation and Anecdotal Evidence   The documented drop in the number of males and in particular adult males not only forced women to take over more responsibility in their families but also left a political vacuum which again women filled. Consistent with the existing literature cited above, in these powerful positions women focused on providing important public goods and set examples for future (female) generations to come (we show below that the results are particularly strong for younger women).

To give some more anecdotal evidence, Alphonsine M., a Rwandan politician working her way up from the grass roots level, interviewed in Hunt (2017, p. 153-154) remembers: *"We [female politicians] kept in touch with women from the grass roots. (...) we went to visit them and said, '(...) You should participate in the elections – and not*

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[31]The subset of potential candidates covers adults between 18 and 85 years old.

Table 6: Public Goods Provision

Dependent Variable	Road Length, log	# Health Facilities	Social Housing, log	Access To Electricity	# Primary Schools	# Secondary Schools
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	−0.124	−0.076	−0.058	−0.151	−0.023	−0.055
	[0.039]***	[0.027]***	[0.034]*	[0.043]***	[0.086]	[0.049]
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	17.60	0.20	1.75	0.41	1.13	0.20
Dep. Std.Dev.	11.02	0.43	2.63	0.49	0.98	0.57
R^2	0.40	0.02	0.27	0.20	0.09	0.06
N	1901	1901	1901	1901	1901	1901
IV: External Militia Violence	0.344	0.212	0.160	0.418	0.065	0.152
	[0.167]**	[0.086]**	[0.093]*	[0.216]*	[0.233]	[0.123]

Notes: All regressions are run at the cell level. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

just as voters but as candidates!' (...) That gave them confidence to imagine what their future could be."

Furthermore, when interviewed on the credibility and responsiveness of female politicians, Governor Inyumba replied (Hunt, 2017, p. 338): *"I think that's why we women are more responsive as leaders, (...). It's our daily life. I understand issues of children, of health, even legal reform and access to land – we're the ones tilling the land."*

7.3 Effects over Time

To better understand the effects on female outcomes, we also track them over time. Above, we have documented strong positive effects of armed-group violence for some 15 to 20 years after the genocide. We now re-run our main results using data from the 5th DHS round from 2005 – some ten years after the genocide. The results reported in Table A.20 suggest that the positive effects of armed-group violence are not yet present in 2005: the point estimates are all close to zero and insignificant (except for domestic violence attitudes which already point towards a positive development). Importantly, these null effects are unlikely simply the result of a weak first stage. Table A.21 in the appendix shows that the instrument is equally strong

for the subset of 2005 DHS villages (regressions 1 and 2) with a point estimate identical to the one using the full sample of villages. It further maps negatively into whether a village has a mass grave site (regressions 3 and 4). Thus it seems to have taken about 15 to 20 years for the changes to become visible.

7.4   Intergenerational Transmission

Further consistent with this time lag, the effects seem to be driven by younger generations of women. In Table A.22 we split the 2010/2015 DHS sample into women younger and older than 18 at the time of the genocide. The results suggest that the effects are particularly strong for younger women, especially for the results on domestic violence. In contrast to the full sample, the point estimates are larger in absolute value and all highly significant (regressions 1 to 11). This is consistent with anecdotal evidence suggesting that older women were often reluctant to change. Fatuma interviewed in Hunt (2017, p. 223): *"We also had resistance, especially from old women, who were saying, 'Why don't we stick to tradition?' (...)."* On the other hand, young women especially seem to have been inspired by their mothers and political leaders. Mutamba, interviewed in Hunt (2017, p. 304), notes : *"We have this generation of leaders, like those of my age, who grew up seeing our mothers effectively cope (...). Managing in a crisis, being resourceful, keeping the children well, giving children our values, and maintaining our dignity. And we have male leaders who appreciate that."* Nadine Niyetigeka, a student interviewee, continues (p. 334): *"While I was growing up, we had some great women leaders, (...). They showed how powerful they were, (...). I believe that I will become a great leader..."*

To strengthen the argument that intergenerational transmissions matter, we show that the results are stronger for non-migrant women. In Table A.23, we split the sample into women that never left their home village (regressions 1 to 4), left at least once (regressions 5 to 8), and more than once (regressions 9 to 12) in the last 12 months.[32] The findings suggest that especially the effects on domestic violence (both attitude and experiences) seem to be driven by the non-travelers.[33] That

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[32]Ideally, we'd like to have data on migrants or native borns. Unfortunately, while these questions are asked in the DHS questionnaire they are not publicly distributed for Rwanda. However, we believe the last 12 months to be indicative of an individual's general migration behavior since people in Rwanda traditionally travel little (about half of the sample did not leave their home village).

[33]We only report the results on domestic violence. For all other indexes we find no significant

intergenerational transmission matters especially for domestic violence seems reasonable since it has particularly lasting and harmful impacts on children (Carrell and Hoekstra, 2010; Aizer, 2011).

Finally, we can directly look at parents' early childhood investments. The DHS data contains information on whether children between 3 and 5 years old have someone who reads to them, sings with them, tells them stories, takes them outside, plays with them, or counts and draws with them. All of these are important for a child's development of both cognitive and non-cognitive skills (Heckman et al., 2006; Attanasio et al., 2020). In Table A.24 we show the results for each outcome together with an index. Importantly, parents are significantly more likely to invest in girls: a one standard-deviation increase in genocide violence leads to a 0.25 standard-deviations increase in our early childhood investment index (Panel A, regression 1). For boys the total effect is smaller and insignificant, however still positive (Panel B, regression 1).

Consistently, we observe a significant increase in cognitive and non-cognitive skills for these children. In Table A.25 we report the results for various outcomes and a total index.[34] A one standard-deviation increase in genocide violence is associated with a 0.5 standard-deviation increase in the skill index for both boys and girls (regression 1 in Panels A and B). One reduced-form result worth mentioning is that girls are significantly more likely to act out (i.e. kick or hit). Kicking or hitting is usually regarded as boys' behavior and the strong increase for girls is thus likely indicative of a more equal upbringing and not necessarily a bad outcome (regression 10). (Schindler, 2010, p. 9) notes that traditionally *"Rwandan girls are brought up to be modest, reserved, silent, obedient, and with a submissive attitude."*

7.5 Outlook

Are the positive results on female outcomes likely to last in the future? Several pieces of evidence suggest that this is likely.

First, not only do we document positive effects on women's outcomes and attitudes but men's attitudes towards women seem to be positively affected as well.

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differences between the three sub-samples.

[34]Outcomes are for instance whether a child can identify letters, reads simple words, knows the numbers from 1 to 10, follows simple instructions, can concentrate on a task, gets along with other children, is allowed to "act out", and can pick up small objects with two fingers (fine motor skills).

Second, by the time we measure the positive effects above (i.e. 2010 and 2015) men have already replaced women as household heads again and gender ratios have returned to normal. Put differently, although women are potentially losing their dominating roles in the households (and their majority in society in general), the positive socio-economic effects remain.

The male replacement is documented in Table 7. The reduced-form effect of armed groups' transport costs on whether a household has a female head for 2005 is still negative and significant at the 99 percent confidence level (regression 1). The magnitude implied by the IV estimate, around 3 percent, is similar to the one using the EICV data from 2000/01 found in Rogall (2021). Thus, in 2005, households in high-violence villages are still more likely to have a female head. However, the effect disappears for later DHS rounds from 2010 and 2015 (regression 2). The same is true for the fraction of adult males (older than 18) in general. Here, the differences are small and insignificant for both 2005 and 2010/15 (regressions 3 and 4).

On a side note, to show, that gender ratios have also returned to normal within the age group of potential politicians, we rerun regressions 3 and 4, but restrict the sample to adults between 18 and 85 years of age (regressions 5 to 6). Again, we find no significant differences. Thus, the positive effect of genocide violence on female politicians from above is not simply a mechanical result of an increase in supply but seems to follow from a longer-lasting change in norms.

Finally, the documented drop in domestic violence and child beating and the increase in pre-school children's abilities may also have long-lasting positive effects and set off a virtuous cycle. Several studies show that children who experience or observe violent behavior are more likely to become violent adults themselves (Lindert and Levav, 2015; Lansford, 2009; Bernard and Bernard, 1983).

To offer an interpretation, it seems that the initial imbalance in gender ratios led to a change in gender norms which prevail even after gender ratios return to normal. This is supported by anecdotal evidence, for instance Hunt (2017, p. 308) interviews entrepreneur Janet Nkubana: *"Today, married women are more respected by their husbands (...) because of the change of attitude toward women (...). You're contributing equally, so you have equal rights. That means if a man beats you, you have to report it. (...) Women used to think they could not go on a construction site or drive trucks. 'Don't underestimate yourself!' That was the message."*

Table 7: Age and Gender Composition – Over Time

Dependent Variable	Female Head		Fraction Adult Male		Fraction Male Ages 18 to 85	
Sample	DHS from					
	2005	2010/15	2005	2010/15	2015	2010/15
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	−0.048	0.018	−0.008	−0.005	−0.009	−0.006
	[0.015]***	[0.013]	[0.009]	[0.008]	[0.009]	[0.008]
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	0.33	0.32	0.24	0.26	0.24	0.26
Dep. Std.Dev.	0.47	0.47	0.24	0.25	0.24	0.25
R^2	0.01	0.01	0.03	0.03	0.03	0.03
N	9073	23145	9073	23145	9073	23145
IV: External Militia Violence	0.088	−0.023	0.014	0.006	0.017	0.008
	[0.045]**	[0.019]	[0.017]	[0.010]	[0.018]	[0.010]

Notes: All fractions correspond to the household level, e.g. regressions 3 and 4 use the fraction of household members that are adult males (older than 18). Female Head is a dummy variable. The sample uses households from the three DHS rounds 5, 6 and 7. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

8 Alternative Mechanisms

Post-Conflict Reconstruction   We also rule out a number of potential alternative mechanisms. First, the positive socioeconomic effects estimated above might simply result from post-conflict reconstruction or assistance to survivors by the central government or some NGO. To rule out this possibility, we show that communities with high levels of armed-group violence are not more likely to report infrastructure construction *right after* the genocide, including schools, clinics, roads, bridges, mosques, churches, markets, or social housing. Regressions 1 to 8 in Table A.26 show that coefficients are insignificant throughout, except for markets, and in most cases, even negative. The point estimates for markets are significant at the 95 percent confidence level in both reduced form and second stage. However, the IV estimate is negative and furthermore, only about 1 percent of all communities report market construction. To correct for multiple hypothesis testing, we also construct

an index using the outcomes from regression 1 to 8. The IV point estimate is highly insignificant and, if anything negative (regression 9).[35]

Note that these null effects for public goods provision do not contradict the positive results on public goods from Table 6. The timing is important. While the former measures investments right after the genocide by the national government and local NGOs and is, therefore, a measure of post-conflict reconstruction, the latter measures local public goods provision some 20 years after the genocide and is thus more likely the result of good (female) governance.

Selective Killings A second alternative mechanism is that for some reason in high-violence villages, all the productive, more educated women and men survived – explaining the positive effects. Again, using the EICV survey data from 2000/01, Table A.27 shows that there is no correlation between the instrument and years of schooling, a good proxy for adult education. This is true both for the whole sample and only women.[36] Furthermore, the results do not seem to differ by whether a woman/individual experienced the genocide in their village or moved in afterwards.

Selective Migration A final mechanism could be selective migration. The positive effects might simply result from more successful and educated women migrating into high violence villages after the genocide. A number of findings suggest that this is unlikely. First, note from the preceding paragraph that highly educated women were not more likely to move into high-violence villages; if anything, regression 5 in Table A.27 suggests that lower educated women moved into these places.

This is not surprising: using again EICV survey data from 2000/01 – we next show that high violence villages did worse in terms of economic prospects than other villages some six years after the genocide; thus, they were unlikely traveling destinations. Results in Table A.28 suggest that, if anything, high violence villages experience a drop in agricultural income and consequently, consumption (total

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[35]The data for this test is taken from the EICV2000/01 survey which includes a community survey that asks about public goods provisions for the time period between the genocide and the survey.

[36]Note that we include only adults above 24 years who have already finished their education and where the effects of conflict are thus purely selection.

consumption and food consumption). Besides, using detailed migration data, we further show that the effects of armed-group violence on income and consumption are unaffected by whether the sample is restricted to those households who experienced the genocide in their village or using the full sample, including migrants. It is thus unlikely that migrants significantly differed from locals.

Finally, we directly rule out that educated women are more (or less) likely to migrate. The results in Table A.29 suggest that the instrument is unrelated to whether an individual with at least primary education (alternatively at least one year of schooling) migrated after the genocide. The results are identical for educated men.

Marriage Market   A common understanding in the economics of marriage literature is that a particular sex shortage should force the other sex to marry lower-quality partners (Becker, 1981). Put differently, the male shortage in high-violence villages should force women to marry less attractive men.[37] This goes against our positive findings from above; for instance, women do not end up with more violent partners. To reconcile, we look closer at the subset of women between the ages of 12 and 18, who would be of marrying age by the end of the genocide. For these women, the shortage of men should have been particularly pressing. Table A.30 reports the point estimates on our main outcomes for DHS rounds 5 and 6/7 separately. Importantly, the results mirror the ones for the full sample. Thus, we do not observe strong effects for 2005 (shown in Panel A) but positive effects on female outcomes throughout for 2010 and 2015 (Panel B, regressions 2 to 12).

Regression 1 delivers a possible explanation: women are delaying their marriage. In 2005, women are significantly less likely to be married (at least in the reduced form). At face value, the point estimate of 0.13 suggest that a 10 percent increase in genocide violence increases the likelihood of not being married by about 2 percent. By 2010/15, this difference in marriage rates disappears. Finally, since large numbers of women in that generation do not get married, likely it becomes socially acceptable. For instance, in 2005, 25 percent of the women between 12 and 18 during the genocide were not married. This number goes down to 5 percent for those older than 18 during the genocide.

These results indirectly show that women of the most pressing marrying age

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[37]Attractiveness can hereby refer to education, occupation, or engagement in domestic violence, etc.

do not fare worse. We can also present some more direct evidence that they do not end up with lower quality men. Panel A in Table A.31 suggests that the husbands of women (again from age 12 to 18 at the time of the genocide) in 2010/2015 are neither significantly older nor do they have significantly different years of schooling (regressions 1 to 4). If at all husbands of women in high-violence villages are more likely to work in higher-skilled occupations (regressions 5 and 6).

The findings change when we also include women that were younger than 12 years during the genocide. These women are significantly more likely to marry higher quality husbands (results in Panel B). Their husbands have significantly more years of schooling and are more likely to work in a skilled occupation (regressions 3 and 5). Besides, although husbands have more years of schooling, their wives still are better educated than them – reflective of the overall positive effects for women (regression 4). However, we do not find significant differences between their occupation skill levels (regression 6). Finally, we find no significant age differences (regressions 1 and 2).

9   Placebo – RTLM Hate Radio

Background   To corroborate the importance of the initial gender imbalance, we finally exploit local variation in the reception of the radio station RTLM (Radio Television Libre des Mille Collines) (Yanagizawa-Drott, 2014). This radio station, established in July 1993 by Hutu extremists, explicitly called upon the Hutu majority population to kill the Tutsi minority. Using the local variation in reception induced by Rwanda's hilly terrain to identify causal effects, Yanagizawa-Drott (2014) finds that villages with good reception experienced significantly higher levels of local participation in the killings.

RTLM-induced violence was different from armed-group violence analyzed above. RTLM reception lead to local, small-scale violence with perpetrators from the village who were often less experienced in killing and who used low-technology weapons such as clubs and machetes. Thus different from armed-group violence, RTLM coverage is unrelated to whether a village has a mass grave site or not.[38]

Second, the main targets of RTLM-induced violence seemed to have differed.

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[38]Results for the full sample are shown in Rogall (2021). In the appendix, we confirm these results using our DHS sample.

While armed-group violence targeted primarily men, local violence targeted women, children, and the elderly and thus produced a male surplus (Rogall, 2021). Consistently, women are less likely to be households or elected into a local political office. More details and empirical evidence, together with the identification strategy, are shown in the appendix.

Main Effects   Consistent with men staying in power in these places, we do not find positive effects on women's socioeconomic outcomes and attitudes. Rather, taken at face value, the point estimates on the various indexes suggest that women are worse off in RTLM-violence villages (Table 8 and details in Tables A.32 to A.39).[39] Most notably, woman are significantly more likely to accept wife beating (regression 1) on all dimensions (details in Table A.38) as well as violence against children (the index in regression 2 is almost significant at the 90 percent confidence level), they enjoy less physical autonomy (regression 5) and have less sexual knowledge (regression 7). However, these results, significant in the reduced form, are not significant in the second stage.[40] In the appendix we rule out an alternative mechanism, namely that women in local-violence villages fare worse not because of gender-ratios but rather because the perpetrators were locals who often stayed in the village after the genocide, forcing women to potentially see or even meet their abusers regularly.

10   Conclusion

Our results show that women living in villages that experienced large-scale violence by external army and militia groups have higher living standards some 15 to 20 years after the Rwandan genocide. Specifically, they are healthier, wealthier, better educated, have more decision-making power within the household, work in better jobs, are less likely to accept and experience domestic violence, and en-

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[39]Importantly, note that the differential results for RTLM-induced violence and transport-cost-induced violence are unlikely driven by differences in compliers. Although we cannot directly observe the set of compliers, Rogall (2021) provides evidence that both first stages work for various different sub-populations, for instance places with high and low population densities, high and low rain-fed production, near and far from the capital, high and low fractions of males, or fractions of adults.

[40]The insignificant second stages are less surprising here since the first-stage sample for the RTLM case is significantly smaller and thus delivers less precise estimates (Table A.40).

Table 8: Local Violence (RTLM) – Main Effects

Dependent Variable								Domestic Violence			
	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RTLM Radio Coverage	1.524 (0.813)*	0.545 (0.326)	−0.413 (0.667)	0.109 (0.201)	−0.460 (0.248)*	0.011 (0.134)	−0.250 (0.129)*	0.043 (1.099)	0.154 (0.370)	0.015 (0.310)	−0.111 (0.781)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	−0.00	0.00	0.00	−0.00	−0.00	−0.00	0.00	−0.00	−0.00	−0.00	−0.00
Dep. Std.Dev.	3.98	2.69	3.00	2.27	1.83	1.90	2.21	6.16	2.76	1.75	4.05
R^2	0.09	0.07	0.14	0.08	0.04	0.02	0.04	0.04	0.04	0.04	0.05
N	17877	17889	17892	17892	16822	17890	17892	3525	3525	3525	3525
IV: Local Militia Violence	2.131 (1.613)	0.759 (0.631)	−0.575 (1.027)	0.152 (0.242)	−0.658 (0.529)	0.016 (0.185)	−0.348 (0.278)	0.063 (1.534)	0.224 (0.534)	0.022 (0.433)	−0.162 (1.120)

Notes: The sample is restricted to women from DHS rounds 6 and 7. **Propagation controls** are: latitude, longitude, a second order polynomial in village mean altitude, village altitude variance, and a second order polynomial in the distance to the nearest transmitter. **Additional Controls** include distance to the road, distance to the border, distance to major city, population and population density, and sloping dummies. There are **122 communes** in the sample. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

joy more sexual and financial autonomy. On the contrary, women that experienced higher levels of local violence induced by RTLM radio reception do not have higher (if anything lower) living standards around 20 years after the genocide.

In terms of mechanisms, our findings suggest that the external militia's strategy to target primarily adult men lead to a power vacuum allowing women to take on key positions in household and government. In these positions, they provided more local public goods and set examples for younger generations. On the other hand, local violence targeted women and the resulting male surplus did not deliver female empowerment.

These findings have important policy implications: first, giving women the opportunity to take over (local) political responsibility seems to have positive welfare effects for both genders. Besides, these changes are mostly driven by younger women and take some time to develop – in Rwanda, about 15 to 20 years.[41] However, our results also suggest that once the positive effects materialize, they are likely to be persistent. Specifically, men's attitudes are (weakly) positively affected; domestic violence against women and children decreases which can offset virtuous cycles; by the time we measure the positive effects on gender outcomes and political participation, male-female ratios have returned back to normal.

Our findings also contradict the classic marriage market argument put forward by Becker (1981) – where a male shortage should lead to worse marriages and outcomes for women. Rather, the equilibria in the marriage market seem to strongly depend on social norms and women's identities. Thus, solely focusing on supply and demand may be misleading.

Second, to the best of our knowledge, this paper is the first to show that different types of violence in the same conflict can affect later outcomes very differently. Thus, the findings are also relevant for post-conflict reconstruction efforts. In particular, one should be cautious when generalizing the effects of conflict and following a one size-fits-all reconstruction approach might be misguided.

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[41] Although these numbers are probably an upper bound since Rwanda also had to overcome the horrors of the genocide. In other circumstances positive effects might be visible earlier.

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Appendix – Not For Publication

A Additional Tables and Figures

B Extensions to Section 9: Placebo – RTLM Hate Radio

A   Additional Tables and Figures

Table A.1: Summary Statistics – RTLM Sample

	Mean	Std.Dev.
A. Endogenous Variables		
# Prosecuted Militiamen	66.426	84.20
Mass Grave in Village	0.052	0.22
B. Exogenous Variables		
RTLM Radio Coverage	0.206	0.25
1991 Population, '000	5.470	2.74
1991 Population Density	507.386	672.41
Mean Altitude	1.690	0.24
Variance in Altitude	9.397	11.33
Distance to Transmitter	4.912	2.82
Distance to the Border	22.862	12.69
Distance to the Main Road	7.085	5.81
Distance to Main City	22.475	14.01
Fraction of Villages facing East	0.245	0.43
Fraction of Villages facing North	0.237	0.43
Fraction of Villages facing South	0.269	0.44

Notes: There are 465 observations for each variable. The # Prosecuted Militiamen are prosecutions against organizers, leaders, army and militia, local police. RTLM Radio Coverage is the fraction of the village that received the radio signal. Population is the population number in the village from the 1991 census. Population Density is measured per square kilometers. The distance and altitude variables are measured in kilometers. A village facing North/East/South is determined by the direction of the average slope of the village.

Table A.2: OLS – Indexes (2010 and 2015)

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Local and External Militia Violence	−0.050	−0.006	0.017	0.042	−0.005	−0.000	−0.001	−0.073	−0.060	−0.016	−0.013
	[0.042]	[0.018]	[0.019]	[0.028]	[0.007]	[0.016]	[0.014]	[0.073]	[0.040]	[0.025]	[0.035]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.05	0.04	0.11	0.03	0.02	0.01	0.03	0.01	0.01	0.01	0.01
N	24782	24797	24802	24802	23301	24800	24802	4951	4951	4950	4951

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls, Growing Season Controls and Additional Controls are defined in Table 2. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.4

Table A.3: Armed-Group Violence – Woman's Education, Wealth and Health

Dependent Variable	Index	Literacy	Schooling	Reads News	Wealth Index	Rohrer's Index	Tested for HIV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance × Rainfall, 1994	−0.664	−0.125	−0.135	−0.058	−0.184	−0.097	−0.108
	[0.164]***	[0.038]***	[0.069]**	[0.023]**	[0.071]**	[0.051]*	[0.022]***
Standard Controls	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.79	4.84	0.05	3.08	0.62	0.81
Dep. Std.Dev.	3.00	0.41	3.51	0.21	1.43	0.49	0.39
R^2	0.11	0.03	0.09	0.01	0.21	0.02	0.01
N	24802	24775	24791	24774	24802	12468	24760
IV: External Militia Violence	0.831	0.157	0.170	0.073	0.230	0.118	0.134
	[0.136]***	[0.034]***	[0.061]***	[0.024]***	[0.068]***	[0.078]	[0.043]***

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.5

Table A.4: Armed-Group Violence – Women's Financial Autonomy

Dependent Variable	Index	Works in Skilled Occupation	Receives Cash Earnings	Owns House	Owns Land
	(1)	(2)	(3)	(4)	(5)
Distance × Rainfall, 1994	−0.317	−0.112	−0.057	−0.083	−0.056
	[0.071]***	[0.078]	[0.040]	[0.038]**	[0.034]*
Standard Controls	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.13	0.66	0.08	0.10
Dep. Std.Dev.	2.38	0.33	0.47	0.28	0.31
R^2	0.04	0.09	0.05	0.01	0.01
N	24802	24773	20962	24793	24794
IV: External Militia Violence	0.397	0.141	0.068	0.104	0.070
	[0.066]***	[0.080]*	[0.038]*	[0.056]*	[0.051]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.5: Armed-Group Violence – Women's Physical Autonomy

Dependent Variable	Autonomy Index	Postpartum Abstinence	Woman Decides Contraception	Can Get Condom	Ask Partner To Use Condom	Condom Used Last Sex	Can Refuse Sex If Husband Cheats	Husband Has Other Wives	Age At First Cohabitation	Underage at First Cohabitation	Age At First Birth	Teen Pregnancy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Distance × Rainfall, 1994	-0.301	-0.031	-0.016	-0.165	-0.119	-0.105	-0.119	0.127	-0.051	0.076	-0.044	0.048
	[0.050]***	[0.032]	[0.012]	[0.025]***	[0.045]***	[0.027]***	[0.045]***	[0.023]***	[0.024]**	[0.020]***	[0.021]**	[0.018]***
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	-0.00	3.56	0.08	0.71	0.83	0.10	0.82	0.08	20.76	0.28	21.61	0.54
Dep. Std.Dev.	1.83	9.35	0.28	0.45	0.37	0.30	0.38	0.26	3.69	0.45	3.55	0.50
R²	0.02	0.01	0.01	0.02	0.03	0.02	0.03	0.01	0.06	0.03	0.04	0.03
N	23301	11210	6625	21960	12248	14228	12248	12516	15239	15239	15799	15799
IV: External Militia Violence	0.374	0.037	0.020	0.202	0.143	0.126	0.040	-0.154	0.062	-0.093	0.054	-0.058
	[0.097]***	[0.037]	[0.014]	[0.047]***	[0.066]**	[0.043]***	[0.019]**	[0.046]***	[0.034]*	[0.038]**	[0.030]*	[0.026]**

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.7

Table A.6: Armed-Group Violence – Women's Decision-Making Power

Dependent Variable	Index	Decides On Husband's Money	Decides On Large Purchases	Decides On Own Healthcare	Needs Permission To Get Medical Help
	(1)	(2)	(3)	(4)	(5)
Distance × Rainfall, 1994	−0.090	−0.045	0.038	−0.064	0.053
	[0.041]**	[0.032]	[0.028]	[0.032]**	[0.031]*
Standard Controls	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.04	0.10	0.21	0.97
Dep. Std.Dev.	1.89	0.20	0.30	0.41	0.16
R²	0.01	0.01	0.01	0.01	0.01
N	24800	12318	12548	12541	24795
IV: External Militia Violence	0.112	0.055	−0.046	0.077	−0.066
	[0.059]*	[0.038]	[0.034]	[0.037]**	[0.046]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.8

Table A.7: Armed-Group Violence – Women's Sexual Knowledge, Fertility Preferences

Dependent Variable	Index	Knowledge of Ovulatory Cycle	Knowledge of Contraception	Knowledge of HIV	Wants More Children	Ideal Number of Children
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	−0.294 [0.044]***	−0.098 [0.034]***	−0.034 [0.027]	0.053 [0.021]**	0.051 [0.039]	0.073 [0.031]**
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.16	0.99	0.90	0.56	3.32
Dep. Std.Dev.	2.21	0.37	0.07	0.30	0.50	1.45
R^2	0.03	0.02	0.00	0.02	0.01	0.03
N	24802	24779	24802	24501	20802	24561
IV: External Militia Violence	0.369 [0.103]***	0.123 [0.050]**	0.042 [0.034]	0.066 [0.024]***	−0.064 [0.055]	−0.092 [0.047]*

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.8: Armed-Group Violence – Domestic Violence Attitudes

Dependent Variable	Beating of Wife Justified If Wife					
	Index	Goes Out Without Telling	Neglects Children	Argues With Husband	Refuses To Have Sex	Burns Food
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	0.437	0.137	0.078	0.099	0.072	0.056
	[0.167]***	[0.043]***	[0.044]*	[0.040]**	[0.033]**	[0.034]*
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	−0.00	0.29	0.37	0.27	0.31	0.14
Dep. Std.Dev.	3.99	0.45	0.48	0.44	0.46	0.35
R^2	0.05	0.04	0.04	0.03	0.05	0.02
N	24782	24673	24701	24614	24311	24699
IV: External Militia Violence	−0.548	−0.172	−0.097	−0.123	−0.090	−0.070
	[0.229]**	[0.061]***	[0.051]*	[0.058]**	[0.052]*	[0.041]*

 Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.9: Armed-Group Violence – Violence Against Children Attitudes

Dependent Variable	Beating of Child Justified If Child			
	Index	Disobeys	Is Impolite	Embarrasses The Family
	(1)	(2)	(3)	(4)
Distance $\times$ Rainfall, 1994	0.281	0.106	0.098	0.078
	[0.138]**	[0.047]**	[0.044]**	[0.052]
Standard Controls	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes
Dep. Mean	0.00	0.64	0.61	0.60
Dep. Std.Dev.	2.69	0.48	0.49	0.49
R^2	0.04	0.02	0.03	0.03
N	24797	24786	24787	24771
IV: External Militia Violence	−0.353	−0.132	−0.123	−0.098
	[0.205]*	[0.071]*	[0.068]*	[0.071]

 Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.10: Armed-Group Violence – Domestic Violence Experience

Dependent Variable	Experienced the Following by Your Husband/Partner								
	Severe Violence					Less Severe Violence			
	Strangled or Burnt	Threatened w/ Knife or Gun	Forced Into Unwanted Sex	Forced Into Unwanted Sexual Acts	Pushed or Shook	Slapped	Punched or Hit	Kicked or Dragged	Arm Twisted Hair Pulled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance × Rainfall, 1994	0.103 [0.029]***	0.073 [0.038]*	−0.010 [0.042]	0.088 [0.033]***	−0.022 [0.055]	−0.014 [0.056]	0.018 [0.047]	0.022 [0.033]	0.049 [0.036]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.03	0.01
Dep. Std.Dev.	0.13	0.08	0.12	0.09	0.13	0.14	0.10	0.18	0.10
R^2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
N	4949	4948	4946	4948	4944	4948	4941	4946	4947
IV: External Militia Violence	−0.122 [0.047]***	−0.086 [0.043]**	0.012 [0.050]	−0.104 [0.040]**	0.026 [0.063]	0.017 [0.065]	−0.021 [0.056]	−0.026 [0.041]	−0.059 [0.045]

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.12

Table A.11: Armed-Group Violence – Men's Education, Wealth and Health

Dependent Variable	Index	Literacy	Schooling	Reads News	Wealth Index
	(1)	(2)	(3)	(4)	(5)
Distance $\times$ Rainfall, 1994	−0.223	−0.019	−0.050	0.025	−0.179
	[0.184]	[0.040]	[0.064]	[0.034]	[0.086]**
Standard Controls	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes
Dep. Mean	−0.00	0.81	5.04	0.11	3.26
Dep. Std.Dev.	2.80	0.39	3.66	0.31	1.39
R^2	0.14	0.02	0.07	0.07	0.19
N	11451	11436	11451	11446	11451
IV: External Militia Violence	0.293	0.024	0.066	−0.033	0.235
	[0.197]	[0.051]	[0.074]	[0.048]	[0.082]***

Notes: The sample is restricted to men from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.12: Armed-Group Violence – Men's Sexual Attitudes

Dependent Variable	Attitude Index	Wife Can Request Condom if Husband has STI	Wife Can Refuse Sex if Husbands Cheats	Ever Paid Someone For Sex	Paid Someone For Sex Last 12 Months	Children Should be Taught About Condoms
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	−0.228 [0.087]***	−0.011 [0.040]	−0.081 [0.037]**	0.086 [0.014]***	0.084 [0.026]***	0.032 [0.035]
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.98	0.87	0.08	0.03	0.90
Dep. Std.Dev.	2.29	0.13	0.33	0.27	0.14	0.30
R²	0.02	0.00	0.01	0.02	0.01	0.01
N	11343	11341	11329	11448	11448	11343
IV: External Militia Violence	0.299 [0.089]***	0.015 [0.050]	0.105 [0.059]*	−0.113 [0.029]***	−0.111 [0.031]***	−0.042 [0.052]

Notes: The sample is restricted to men from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.14

Table A.13: Armed-Group Violence – Men's Sexual Knowledge, Fertility Preferences

Dependent Variable	Index	Knowledge of Ovulatory Cycle	Knowledge of Contraception	Wants More Children	Ideal Number of Children	Contraception Is Womans Business	Contraception Makes Women Promiscuous
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance × Rainfall, 1994	−0.060	−0.107	−0.007	−0.009	−0.079	0.024	0.010
	[0.063]	[0.046]**	[0.014]	[0.068]	[0.028]***	[0.027]	[0.037]
Standard Controls	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.19	1.00	0.40	2.91	0.18	0.27
Dep. Std.Dev.	2.77	0.39	0.06	0.49	1.06	0.87	1.21
R^2	0.02	0.05	0.01	0.01	0.02	0.02	0.01
N	11451	11446	11451	5983	11440	11423	11422
IV: External Militia Violence	0.079	0.141	0.009	0.012	0.104	−0.031	−0.013
	[0.079]	[0.065]**	[0.017]	[0.084]	[0.043]**	[0.032]	[0.047]

Notes: The sample is restricted to men from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.15

Table A.14: Armed-Group Violence – Men's Responses to Women's Decision-Making Power

Dependent Variable	Woman Can Have A Say On			
	Index	Husband's Money	Husband's Healthcare	Large HH Purchases
	(1)	(2)	(3)	(4)
Distance × Rainfall, 1994	−0.375	−0.259	−0.020	−0.137
	[0.081]***	[0.041]***	[0.072]	[0.047]***
Standard Controls	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes
Dep. Mean	0.00	0.79	0.56	0.67
Dep. Std.Dev.	2.08	0.41	0.50	0.47
R^2	0.04	0.04	0.04	0.03
N	6461	5016	6458	6461
IV: External Militia Violence	0.456	0.346	0.024	0.167
	[0.090]***	[0.104]***	[0.087]	[0.038]***

Notes: The sample is restricted to men from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.15: Armed-Group Violence – Men's Domestic Violence Attitudes

Dependent Variable		Beating of Wife Justified If Wife					Beating of Son Justified If Son			
	Index	Goes Out Without Telling	Neglects Children	Argues With Husband	Refuses To Have Sex	Burns Food	Cheats	Disobeys	Is Impolite	Embarrasses The Family
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Distance × Rainfall, 1994	0.109	0.100	0.018	0.007	0.032	0.026	−0.040	−0.029	−0.020	0.010
	[0.292]	[0.027]***	[0.043]	[0.033]	[0.061]	[0.023]	[0.037]	[0.056]	[0.068]	[0.061]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.09	0.15	0.08	0.09	0.03	0.38	0.58	0.55	0.53
Dep. Std.Dev.	5.57	0.29	0.36	0.35	0.29	0.21	0.49	0.49	0.50	0.50
R²	0.04	0.02	0.03	0.01	0.02	0.01	0.03	0.03	0.03	0.02
N	11450	11420	11426	11410	11371	11425	11265	11445	11444	11399
IV: External Militia Violence	−0.144	−0.131	−0.024	−0.010	−0.042	−0.034	0.053	0.038	0.026	−0.014
	[0.391]	[0.054]**	[0.058]	[0.043]	[0.078]	[0.034]	[0.053]	[0.073]	[0.088]	[0.082]

Notes: The sample is restricted to men from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.17

Table A.16: Robustness Check I – Indexes (2010 and 2015) No Additional Controls

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Distance × Rainfall, 1994	0.436 [0.164]***	0.272 [0.146]*	−0.660 [0.185]***	−0.286 [0.072]***	−0.331 [0.045]***	−0.091 [0.036]**	−0.299 [0.061]***	0.287 [0.302]	0.232 [0.097]**	0.057 [0.068]	0.055 [0.227]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R²	0.05	0.03	0.11	0.03	0.02	0.01	0.02	0.01	0.01	0.01	0.01
N	24812	24827	24817	24832	23307	24816	24823	4961	4961	4960	4961
IV: External Militia Violence	−0.583 [0.229]**	−0.363 [0.229]	0.883 [0.191]***	0.382 [0.087]***	0.439 [0.111]***	0.122 [0.060]**	0.400 [0.132]***	−0.372 [0.410]	−0.301 [0.137]**	−0.074 [0.089]	−0.071 [0.298]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls and Growing Season Controls are defined in Table 2. All control variables are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.18

Table A.17: Robustness Check II – Main Effects (2010 and 2015) Household Controls

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Distance × Rainfall, 1994	0.441 [0.168]***	0.292 [0.135]**	−0.643 [0.154]***	−0.292 [0.069]***	−0.300 [0.050]***	−0.081 [0.045]*	−0.278 [0.040]***	0.282 [0.281]	0.254 [0.096]***	0.080 [0.070]	0.028 [0.214]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Household Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.06	0.05	0.16	0.17	0.04	0.03	0.07	0.01	0.01	0.01	0.01
N	24635	24650	24655	24655	23162	24653	24655	4920	4920	4919	4920
IV: External Militia Violence	−0.556 [0.231]**	−0.368 [0.199]*	0.810 [0.123]***	0.368 [0.063]***	0.376 [0.107]***	0.102 [0.071]	0.350 [0.099]***	−0.338 [0.348]	−0.305 [0.125]**	−0.096 [0.084]	−0.033 [0.247]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All village-level control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. **Household Controls** are age, age squared, gender and age of the household head, household size, number of children under 5, and religion fixed effects. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999).
*significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.18: Robustness Check III – Indexes (2010 and 2015) Top Censoring

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance × Rainfall, 1994	0.377	0.161	−0.605	−0.250	−0.283	−0.091	−0.289
	[0.120]***	[0.062]***	[0.140]***	[0.086]***	[0.051]***	[0.064]	[0.041]***
Standard Controls	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes
R²	0.05	0.03	0.10	0.06	0.02	0.01	0.02
N	22384	12115	24548	23752	23066	24495	24452
IV: External Militia Violence	−0.457	−0.208	0.755	0.320	0.353	0.113	0.362
	[0.147]***	[0.085]**	[0.119]***	[0.076]***	[0.095]***	[0.085]	[0.099]***

Notes: The sample is restricted to women from DHS rounds 6 and 7. We drop the 99th percentile of each dependent variable. We calculate various indexes, the composition of each index is given in the paper. Standard Controls and Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.20

Table A.19: Robustness Check IV – Indexes (2010 and 2015) Additional Rainfall Controls

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Distance × Rainfall, 1994	0.478 [0.189]**	0.303 [0.167]*	−0.561 [0.190]***	−0.319 [0.068]***	−0.278 [0.054]***	−0.104 [0.041]**	−0.275 [0.054]***	0.454 [0.232]*	0.364 [0.102]***	0.163 [0.070]**	0.089 [0.174]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Rainfall Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.05	0.04	0.11	0.04	0.02	0.01	0.03	0.01	0.01	0.01	0.01
N	24782	24797	24802	24802	23301	24800	24802	4951	4951	4950	4951
IV: External Militia Violence	−0.642 [0.282]**	−0.407 [0.255]	0.752 [0.196]***	0.428 [0.088]***	0.373 [0.102]***	0.140 [0.058]**	0.369 [0.117]***	−0.529 [0.294]*	−0.424 [0.124]***	−0.190 [0.083]**	−0.104 [0.209]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls and Growing Season Controls, and Additional Controls are defined in Table 2. **Additional Rainfall Controls** are average rainfall along the buffer between village and main road for 1995 to the survey collection year and its interaction with distance to the main road. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.21

Table A.20: Main Effects (2005)

Dependent Variable	Domestic Violence Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
							All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Distance × Rainfall, 1994	−0.386 [0.119]***	−0.054 [0.185]	0.005 [0.072]	−0.064 [0.086]	0.097 [0.071]	0.146 [0.130]	0.046 [0.405]	−0.131 [0.140]	0.052 [0.064]	0.178 [0.292]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dep. Std.Dev.	3.32	3.14	1.50	1.46	2.03	2.47	5.31	2.15	1.00	3.93
R²	0.10	0.17	0.20	0.04	0.01	0.06	0.01	0.02	0.03	0.02
N	9961	10023	10020	7239	10022	10023	2269	2269	2268	2269
IV: External Militia Violence	0.634 [0.379]*	0.088 [0.280]	−0.009 [0.119]	0.101 [0.120]	−0.160 [0.153]	−0.241 [0.285]	−0.091 [0.800]	0.259 [0.297]	−0.103 [0.132]	−0.350 [0.603]

Notes: The sample is restricted to women from DHS round 5. We calculate various indexes, the composition of each index is given in the paper. Note that the violence-against-kids-attitude questions are not available for the 5th DHS round. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.21: First Stage – DHS (2005)

Dependent Variable	# Militiamen, log		Mass Graves	
		Add. Controls		Add. Controls
	(1)	(2)	(3)	(4)
Distance $\times$ Rainfall, 1994	-0.419	-0.509	-0.073	-0.079
	$[0.211]$**	$[0.204]$**	$[0.034]$**	$[0.035]$**
Standard Controls	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes
Additional Controls	no	yes	no	yes
Province Effects	yes	yes	yes	yes
R^2	0.45	0.48	0.10	0.11
N	346	346	346	346

Notes: Mass Graves is a dummy taking on the value of 1 if a mass grave was found in a village. The sample is restricted to villages from DHS round 5. **Distance $\times$ Rainfall, 1994** is the instrument (distance to the main road interacted with rainfall along the way (a 500m buffer) between village and main road during the 100 days of the genocide in 1994). Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.22: Main Effects – Young versus Old

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A – Young Women (< 18 years)											
Distance × Rainfall, 1994	0.496 [0.173]***	0.306 [0.136]**	-0.678 [0.179]***	-0.342 [0.064]***	-0.266 [0.053]***	-0.175 [0.036]***	-0.287 [0.052]***	0.622 [0.333]*	0.323 [0.154]**	0.213 [0.089]**	0.299 [0.187]
R²	0.05	0.04	0.11	0.05	0.02	0.01	0.03	0.01	0.01	0.01	0.01
N	18863	18879	18883	18883	17595	18881	18883	3235	3235	3235	3235
IV: External Militia Violence	-0.631 [0.221]***	-0.388 [0.209]*	0.862 [0.142]***	0.435 [0.083]***	0.336 [0.093]***	0.223 [0.076]***	0.365 [0.104]***	-0.831 [0.457]*	-0.431 [0.215]*	-0.284 [0.127]**	-0.400 [0.254]
Panel B – Older Women (> 18 years)											
Distance × Rainfall, 1994	0.314 [0.267]	0.254 [0.171]	-0.556 [0.120]***	-0.286 [0.170]*	-0.408 [0.079]***	0.184 [0.113]	-0.382 [0.079]***	-0.664 [0.440]	-0.036 [0.178]	-0.300 [0.103]***	-0.628 [0.397]
R²	0.05	0.03	0.14	0.04	0.02	0.01	0.04	0.02	0.02	0.02	0.02
N	5919	5918	5919	5919	5706	5919	5919	1716	1716	1715	1716
IV: External Militia Violence	-0.373 [0.341]	-0.302 [0.218]	0.660 [0.156]***	0.339 [0.142]**	0.483 [0.147]***	-0.219 [0.153]	0.454 [0.160]***	0.628 [0.383]	0.034 [0.169]	0.284 [0.118]**	0.594 [0.332]*

Notes: The sample is restricted to DHS rounds 6 and 7. In Panel A, we use women younger than 18 during the time of the genocide. In Panel B, we restrict the sample to women older than 18 during the genocide. **We control for Standard Controls, Growing Season Controls, Additional Controls and Province Effects in all specifications, defined in Table 2.** All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent; **significant at 5 percent; ***significant at 1 percent.

A.24

Table A.23: Intergenerational Transmission

Sample	Non-Migrants				At Least Once Away				More Than Once Away			
Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Domestic Violence Total	Domestic Violence Severe	Domestic Violence Attitudes	Violence Against Kids Attitudes	Domestic Violence Total	Domestic Violence Severe	Domestic Violence Attitudes	Violence Against Kids Attitudes	Domestic Violence Total	Domestic Violence Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Distance × Rainfall, 1994	0.514 [0.200]**	0.392 [0.151]***	1.032 [0.589]*	0.595 [0.259]**	0.388 [0.151]**	0.191 [0.143]	−0.226 [0.249]	0.026 [0.086]	−0.130 [0.216]	0.092 [0.135]	−0.033 [0.344]	0.069 [0.131]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.06	0.05	0.02	0.01	0.05	0.03	0.02	0.02	0.05	0.03	0.03	0.03
N	13089	13101	2898	2898	11669	11672	2053	2053	5592	5593	846	846
IV: External Militia Violence	−0.676 [0.305]**	−0.513 [0.243]**	−1.620 [0.953]*	−0.934 [0.399]**	−0.465 [0.182]**	−0.229 [0.189]	0.220 [0.231]	−0.025 [0.084]	0.161 [0.290]	−0.115 [0.176]	0.033 [0.338]	−0.068 [0.131]

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.25

Table A.24: Parents' Investments – Girls and Boys

Dependent Variable		Someone in Household ... to/with Child					
	Index	Read Books	Told Stories	Sang Songs	Went Outside	Played	Named, Counted, Drew
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A – Girls Age 3-5							
Distance × Rainfall, 1994	−0.589	0.035	−0.068	−0.095	−0.151	−0.039	0.026
	[0.308]*	[0.043]	[0.051]	[0.031]***	[0.047]***	[0.049]	[0.041]
Dep. Mean	0.00	0.26	0.41	0.54	0.58	0.72	0.55
Dep. Std.Dev.	4.32	0.44	0.49	0.50	0.49	0.45	0.50
R^2	0.12	0.05	0.06	0.08	0.08	0.12	0.10
N	1174	1174	1173	1174	1173	1173	1174
IV: External Militia Violence	0.753	−0.044	0.086	0.121	0.192	0.050	−0.034
	[0.453]*	[0.065]	[0.075]	[0.057]**	[0.092]**	[0.066]	[0.054]
Panel B – Boys Age 3-5							
Distance × Rainfall, 1994	−0.277	−0.113	−0.032	−0.009	−0.011	0.035	0.004
	[0.358]	[0.03]***	[0.038]	[0.039]	[0.052]	[0.039]	[0.056]
Dep. Mean	−0.00	0.25	0.41	0.51	0.61	0.72	0.55
Dep. Std.Dev.	4.36	0.43	0.49	0.50	0.49	0.45	0.50
R^2	0.09	0.06	0.05	0.07	0.09	0.12	0.08
N	1242	1242	1242	1242	1239	1239	1242
IV: External Militia Violence	0.308	0.125	0.036	0.010	0.013	−0.038	−0.005
	[0.409]	[0.043]***	[0.042]	[0.043]	[0.059]	[0.043]	[0.063]

Notes: The sample is restricted to DHS rounds 6 and 7. In Panel A, we use girls between 3 and 5 years old. In Panel B, we restrict the sample to boys between 3 and 5 years old. We calculate the index in regression 1 using all the other outcomes in this table. **We control for Standard Controls, Growing Season Controls, Additional Controls and Province Effects in all specifications, defined in Table 2.** All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.25: Children Outcomes – Girls and Boys

Dependent Variable	Index	Can Identify At Least 10 Letters	Can Read 4 Simple Words	Knows All Numbers 1 to 10	Can Pick Up Small Objects	Is Healthy Enough To Play	Follows Simple Instructions	Does Things Without Help	Gets Along With Children	Acts Out (i.e. Kicks or Hits)	Is Not Easily Distracted
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A – Girls Age 3-5											
Distance × Rainfall, 1994	−1.131	−0.042	0.001	0.013	−0.117	0.002	0.012	−0.089	−0.013	−0.128	−0.045
	[0.556]**	[0.055]	[0.024]	[0.048]	[0.038]***	[0.043]	[0.044]	[0.060]	[0.024]	[0.056]**	[0.056]
Dep. Mean	0.00	0.24	0.03	0.16	0.89	0.63	0.81	0.78	0.97	0.17	0.27
Dep. Std.Dev.	4.02	0.43	0.16	0.36	0.31	0.48	0.39	0.42	0.16	0.37	0.45
R^2	0.08	0.10	0.03	0.07	0.09	0.06	0.05	0.04	0.03	0.15	0.10
N	1170	1165	1168	1167	1159	1167	1167	1168	1169	1170	1164
IV: External Militia Violence	1.437	0.053	−0.001	−0.016	0.150	−0.002	−0.015	0.112	0.016	0.162	0.057
	[0.474]***	[0.062]	[0.031]	[0.063]	[0.044]***	[0.054]	[0.059]	[0.075]	[0.027]	[0.115]	[0.073]
Panel B – Boys Age 3-5											
Distance × Rainfall, 1994	−1.376	−0.159	−0.008	−0.015	−0.070	0.048	−0.034	−0.129	−0.032	0.005	−0.101
	[0.355]***	[0.061]***	[0.023]	[0.027]	[0.027]***	[0.034]	[0.038]	[0.037]***	[0.020]*	[0.041]	[0.071]
Dep. Mean	0.00	0.24	0.03	0.13	0.89	0.61	0.79	0.75	0.97	0.21	0.29
Dep. Std.Dev.	3.87	0.42	0.16	0.34	0.31	0.49	0.41	0.43	0.16	0.41	0.45
R^2	0.06	0.08	0.04	0.06	0.08	0.06	0.05	0.03	0.04	0.17	0.10
N	1237	1236	1236	1235	1233	1236	1235	1236	1236	1237	1228
IV: External Militia Violence	1.534	0.177	0.009	0.017	0.078	−0.054	0.038	0.144	0.036	−0.006	0.115
	[0.396]***	[0.048]***	[0.025]	[0.030]	[0.036]**	[0.046]	[0.044]	[0.056]**	[0.025]	[0.045]	[0.072]

Notes: The sample is restricted to DHS rounds 6 and 7. In Panel A, we use girls between 3 and 5 years old. In Panel B, we restrict the sample to boys between 3 and 5 years old. We calculate the index in regression 1 using all the other outcomes in this table. **We control for Standard Controls, Growing Season Controls, Additional Controls and Province Effects in all specifications, defined in Table 2.** All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999).*significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.27

Table A.26: Armed-Group Violence – Public Goods, constructed between 1994 and 2001

Dependent Variable	Schools	Clinics	Bridges	Roads	Mosques	Churches	Markets	Imidugudu	Index using 1-8
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance × Rainfall, 1994	−0.054	−0.004	0.028	0.031	−0.028	0.056	0.027	−0.039	0.199
	[0.080]	[0.013]	[0.063]	[0.052]	[0.047]	[0.059]	[0.012]**	[0.062]	[0.752]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.15	0.01	0.08	0.12	0.03	0.39	0.01	0.31	0.00
Dep. Std.Dev.	0.36	0.12	0.27	0.33	0.17	0.49	0.09	0.46	0.36
R²	0.10	0.05	0.16	0.17	0.06	0.18	0.07	0.27	0.19
N	401	401	401	401	401	401	401	401	401
IV: External Militia Violence	0.071	0.005	−0.037	−0.040	0.037	−0.073	−0.035	0.051	−0.261
	[0.106]	[0.018]	[0.081]	[0.067]	[0.061]	[0.079]	[0.017]**	[0.082]	[0.978]

Notes: The dependent variables in regressions 1 to 8 are dummy variables indicating whether the corresponding public good (e.g. schools in regression 1) was built in the village after the genocide (data taken from a EICV community survey from 2000/01). The dependent variable in regression 9 is an index variable created using the outcomes from regressions 1 to 8. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.28

Table A.27: Armed-Group Violence – Human Capital, Adults

Dependent Variable	Years of Schooling					
Sample	Full Sample		In Village During Genocide		Moved in After Genocide	
	Females	All	Females	All	Females	All
	(1)	(2)	(3)	(4)	(5)	(6)
Distance × Rainfall, 1994	0.181	0.154	−0.038	0.222	0.462	−0.254
	[0.151]	[0.157]	[0.130]	[0.118]*	[0.611]	[0.500]
Standard Controls	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes
Additional Rainfall Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Individual Controls	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	2.39	2.86	2.20	2.58	3.03	3.74
Dep. Std.Dev.	3.11	3.28	2.92	3.01	3.59	3.90
R²	0.36	0.29	0.33	0.25	0.45	0.37
N	4253	7520	3267	5729	986	1791
IV: External Militia Violence	−0.265	−0.224	0.064	−0.344	−0.400	0.250
	[0.250]	[0.253]	[0.216]	[0.223]	[0.548]	[0.474]

Notes: The regressions use adults, thus older than 24 years. The data is taken from the EICV1 Survey conducted in 2000/2001. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Additional Rainfall Controls are average rainfall (from 1995 to survey collection year) along the buffer between village and main road and its interaction with distance to the main road. Individual Controls are age, and father's and mother's years of schooling. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.29

Table A.28: Armed-Group Violence – Consumption/Income

Dependent Variable	Consumption						Agricultural Income		
Sample	Full Sample		In Village During Genocide		Moved in After Genocide		Full Sample	In Village During Genocide	Moved in After Genocide
	Total	Food	Total	Food	Total	Food	Total	Total	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance × Rainfall, 1994	0.138 [0.119]	0.125 [0.082]	0.192 [0.098]*	0.124 [0.080]	0.114 [0.214]	0.195 [0.103]*	0.265 [0.142]*	0.240 [0.127]*	0.419 [0.332]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Rainfall Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	610.48	123.67	507.32	114.66	965.16	154.67	1373.86	1264.79	1796.35
Dep. Std.Dev.	1943.19	117.61	1413.69	100.38	3119.61	159.76	2338.65	2207.41	2750.03
R^2	0.12	0.07	0.10	0.05	0.23	0.16	0.12	0.11	0.20
N	5255	5255	4071	4071	1184	1184	4903	3897	1006
IV: External Militia Violence	−0.212 [0.163]	−0.191 [0.116]	−0.291 [0.124]**	−0.188 [0.114]*	−0.148 [0.271]	−0.253 [0.136]*	−0.266 [0.143]*	−0.244 [0.127]*	−0.452 [0.434]

Notes: All dependent variables are in logged per capita monetary values. Per capita refers to the consumption/income of the household, divided by the number of persons living in the household. Income is defined as output minus running costs. The data is taken from the EICV1 Survey conducted in 2000/2001. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Additional Rainfall Controls are average rainfall (from 1995 to survey collection year) along the buffer between village and main road and its interaction with distance to the main road. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses (Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.30

Table A.29: Armed-Group Violence – Selective Migration

Sample	All Women		Women With Some Educ.	Women With At Least Primary Educ.	All Men		Men With Some Educ.	Men With At Least Primary Educ.
Dependent Variable	Migrant With Some Educ.	Migrant With At Least Primary Educ.	Migrant	Migrant	Migrant With Some Educ.	Migrant With At Least Primary Educ.	Migrant	Migrant
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distance × Rainfall, 1994	0.002 [0.006]	0.004 [0.004]	0.002 [0.010]	0.003 [0.012]	−0.004 [0.005]	−0.000 [0.005]	−0.003 [0.007]	0.013 [0.014]
Standard Controls	yes	yes	yes	yes	yes	yes	yes	yes
Growing Season Controls	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes
Province Effects	yes	yes	yes	yes	yes	yes	yes	yes
R^2	0.05	0.05	0.06	0.07	0.05	0.04	0.05	0.07
N	7439	7439	4765	2194	5942	5942	4490	2004

Notes: All dependent variables are dummy variables. For instance, in regression 1 the dependent variable takes on the value of 1 if a woman is a migrant and has at least one year of schooling. In regression 3 the dependent variable takes on the value of 1 if a women is a migrant, however in this case we restrict the sample to women with at least one year of schooling. The data is taken from the EICV1 Survey conducted in 2000/2001. Standard Controls, Growing Season Controls, and Additional Controls are defined in Table 2. All control variables, except Number of Days with RPF presence, are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.30: Armed-Group Violence – Marriage Market (Women from 12 to 18)

| Dependent Variable | Ever Married | Domestic Violence Attitudes | Education, Wealth, Health | Financial Autonomy | Physical Autonomy | Decision Power | Sexual Knowledge, Fertility | Domestic Violence | | | |
| | | | | | | | | All | Severe | Sexual | Less Severe |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A – DHS 5											
Distance × Rainfall, 1994	0.068 [0.040]*	−0.034 [0.320]	−0.147 [0.284]	0.100 [0.067]	0.147 [0.130]	−0.041 [0.119]	−0.115 [0.115]	−0.960 [0.503]*	−0.476 [0.205]**	−0.019 [0.139]	−0.483 [0.370]
R^2	0.08	0.09	0.21	0.27	0.07	0.04	0.09	0.05	0.06	0.09	0.05
N	2035	2032	2035	2034	1781	2035	2035	648	648	648	648
IV: External Militia Violence	−0.130 [0.085]	0.063 [0.590]	0.281 [0.552]	−0.192 [0.157]	−0.258 [0.303]	0.079 [0.222]	0.220 [0.203]	1.731 [1.147]	0.859 [0.540]	0.034 [0.256]	0.871 [0.734]
Panel B – DHS 6/7											
Distance × Rainfall, 1994	0.012 [0.014]	0.394 [0.215]*	−0.473 [0.136]***	−0.347 [0.145]**	−0.281 [0.068]***	−0.063 [0.074]	−0.334 [0.083]***	2.290 [0.879]***	0.894 [0.447]**	0.455 [0.233]*	1.397 [0.445]***
R^2	0.02	0.06	0.12	0.07	0.03	0.02	0.04	0.04	0.04	0.04	0.03
N	4147	4145	4147	4147	4092	4147	4147	1306	1306	1306	1306
IV: External Militia Violence	−0.014 [0.015]	−0.480 [0.315]	0.576 [0.146]***	0.422 [0.158]***	0.347 [0.100]***	0.077 [0.090]	0.407 [0.135]***	−3.385 [1.253]***	−1.321 [0.616]**	−0.673 [0.324]**	−2.064 [0.669]***

Notes: The sample is restricted to women between the ages of 12 and 18 years at the time of the genocide. Panel A uses data from DHS round 5, Panel B uses rounds 6 and 7. We calculate various indexes, the composition of each index is given in the paper. **We control for Standard Controls, Growing Season Controls, Additional Controls and Province Effects in all specifications, defined in Table 2.** All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.32

Table A.31: Armed-Group Violence – Partner Match

Dependent Variable	Husband's Age	Absolute Age Difference	Husband's Schooling	Wife Has More Schooling	Husband in Skilled Occupation	Wife in Better Occupation
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A – Women between 12 and 18						
Distance × Rainfall, 1994	−0.023	−0.190	0.023	−0.001	−0.072	0.026
	[0.546]	[0.436]	[0.291]	[0.017]	[0.034]**	[0.013]**
Dep. Mean	37.10	5.34	4.90	0.35	0.27	0.03
Dep. Std.Dev.	7.49	6.16	3.84	0.48	0.45	0.18
R^2	0.02	0.02	0.09	0.01	0.17	0.01
N	3269	3269	3717	3715	3747	3745
IV: External Militia Violence	0.029	0.243	−0.028	0.001	0.090	−0.033
	[0.700]	[0.585]	[0.368]	[0.022]	[0.036]**	[0.022]
Panel B – All Women under 18						
Distance × Rainfall, 1994	−0.304	−0.157	−0.442	−0.021	−0.101	0.003
	[0.303]	[0.181]	[0.270]	[0.006]***	[0.034]***	[0.009]
Dep. Mean	32.90	5.04	4.72	0.35	0.30	0.04
Dep. Std.Dev.	7.52	5.58	3.63	0.48	0.46	0.18
R^2	0.01	0.01	0.09	0.01	0.17	0.01
N	8483	8483	9487	9482	9571	9566
IV: External Militia Violence	0.367	0.190	0.547	0.026	0.125	−0.004
	[0.362]	[0.208]	[0.277]**	[0.009]***	[0.032]***	[0.011]

Notes: The sample is restricted to DHS rounds 6 and 7. Panel A uses women between 12 and 18 years during the genocide. Panel B uses women younger than 18 years during the genocide (this includes unborn). Age Difference is defined as the absolute difference between the wife's age and the husband's age. Wife Has More Schooling/Wife in Better Occupation are dummy variables. A skilled occupation is work in clerical jobs, sales, professional/technical/managerial, services and skilled manual labor, the control group are unemployed, agricultural subsistence farming, agricultural employees, household and domestic services, and unskilled manual labor. **We control for Standard Controls, Growing Season Controls, Additional Controls and Province Effects in all specifications, defined in Table 2.** All control variables, except "Number of Days with RPF presence," are in logs. Interactions are first logged and then interacted. Standard errors correcting for spatial correlation within a radius of 150km are in parentheses, Conley (1999). *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.33

Table A.32: Local Violence – Women's Education, Wealth and Health

Dependent Variable	Literacy	Schooling	Reads News	Wealth Index	Rohrer's Index	Tested for HIV
	(1)	(2)	(3)	(4)	(5)	(6)
RTLM Radio Coverage	−0.134	−0.204	0.205	−0.215	−0.094	−0.008
	(0.131)	(0.248)	(0.127)	(0.200)	(0.112)	(0.096)
Propagation Controls	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes
Dep. Mean	0.79	4.85	0.05	3.05	0.63	0.81
Dep. Std.Dev.	0.41	3.47	0.22	1.43	0.48	0.39
R^2	0.04	0.12	0.03	0.25	0.04	0.02
N	17872	17884	17874	17892	8997	17859
IV: Local Militia Violence	−0.187	−0.285	0.287	−0.299	−0.140	−0.011
	(0.224)	(0.417)	(0.252)	(0.376)	(0.161)	(0.130)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.34

Table A.33: Local Violence – Women's Financial Autonomy

Dependent Variable	Works in Skilled Job	Receives Cash Earnings	Owns House	Owns Land
	(1)	(2)	(3)	(4)
RTLM Radio Coverage	0.027	−0.121	−0.013	−0.026
	(0.129)	(0.163)	(0.066)	(0.046)
Propagation Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes
Dep. Mean	0.12	0.66	0.08	0.10
Dep. Std.Dev.	0.33	0.47	0.27	0.31
R^2	0.11	0.11	0.03	0.03
N	17865	15095	17885	17887
IV: Local Militia Violence	0.037	−0.190	−0.018	−0.036
	(0.165)	(0.314)	(0.087)	(0.067)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.34: Local Violence – Women's Physical Autonomy

Dependent Variable	Postpartum Abstinence	Woman Decides Contraception	Can Get Condom	Ask Partner To Use Condom	Condom Used Last Sex	Husband Has Other Wives	Age At First Cohabitation	Underage at First Cohabitation	Age At First Birth	Teen Pregnancy	Can Refuse Sex If Husband Cheats
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RTLM Radio Coverage	−0.097	−0.047	−0.244	−0.173	−0.100	−0.147	−0.038	0.083	−0.053	0.141	−0.039
	(0.084)	(0.095)	(0.110)**	(0.142)	(0.118)	(0.116)	(0.087)	(0.073)	(0.076)	(0.081)*	(0.075)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	3.66	0.97	0.70	0.83	0.10	0.07	20.92	0.26	21.75	0.27	0.88
Dep. Std.Dev.	9.39	0.16	0.46	0.38	0.30	0.26	3.71	0.44	3.59	0.45	0.33
R²	0.02	0.04	0.04	0.07	0.03	0.02	0.07	0.04	0.05	0.03	0.04
N	8088	4750	15877	8767	10232	8973	10941	10941	11405	11405	8301
IV: Local Militia Violence	−0.165	−0.093	−0.336	−0.261	−0.157	−0.215	−0.056	0.124	−0.081	0.214	−0.055
	(0.177)	(0.191)	(0.257)	(0.217)	(0.225)	(0.208)	(0.135)	(0.134)	(0.115)	(0.150)	(0.093)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent; **significant at 5 percent; ***significant at 1 percent.

A.36

Table A.35: Local Violence – Women's Sexual Knowledge, Fertility Preferences

Dependent Variable	Knowledge of Ovulatory Cycle	Knowledge of Contraception	Knowledge of HIV	Wants More Children	Ideal Number of Children	Contraception Women Business	Contraception makes Women Promiscuous
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RTLM Radio Coverage	−0.030	−0.047	−0.015	0.062	0.128	0.139	0.177
	(0.125)	(0.037)	(0.091)	(0.127)	(0.105)	(0.122)	(0.081)**
Propagation Controls	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.17	0.99	0.90	0.55	3.27	0.18	0.28
Dep. Std.Dev.	0.38	0.07	0.30	0.50	1.41	0.89	1.22
R²	0.04	0.02	0.04	0.02	0.04	0.05	0.04
N	17871	17892	17670	15000	17704	8371	8370
IV: Local Militia Violence	−0.042	−0.065	−0.021	0.093	0.179	0.197	0.252
	(0.178)	(0.063)	(0.125)	(0.185)	(0.184)	(0.224)	(0.213)

Notes: The sample is restricted to women (men) from DHS rounds 6 and 7 in regressions 1 to 5 (regressions 6 and 7). All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.37

Table A.36: Local Violence – Women's Decision-Making Power

Dependent Variable	Decides On Husband's Money	Decides On Large Purchases	Decides On Own Healthcare	Needs Permission To Get Medical Help	Women Should Participate In Large Purchases
	(1)	(2)	(3)	(4)	(5)
RTLM Radio Coverage	0.068	−0.003	−0.093	0.030	−0.254
	(0.101)	(0.107)	(0.107)	(0.072)	(0.125)*
Propagation Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes
Dep. Mean	0.05	0.10	0.21	0.98	0.66
Dep. Std.Dev.	0.21	0.30	0.41	0.16	0.47
R^2	0.03	0.02	0.03	0.02	0.07
N	8832	9002	8998	17885	4642
IV: Local Militia Violence	0.105	−0.004	−0.136	0.042	−0.517
	(0.149)	(0.150)	(0.141)	(0.102)	(0.449)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.38

Table A.37: Local Violence – Violence Against Children – Attitudes

Dependent Variable	Beating of Child Justified If Child			
	Index	Disobeys	Is Impolite	Embarrasses The Family
	(1)	(2)	(3)	(4)
RTLM Radio Coverage	0.545	0.156	0.231	0.160
	(0.326)	(0.117)	(0.107)**	(0.117)
Propagation Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes
Dep. Mean	0.00	0.64	0.61	0.60
Dep. Std.Dev.	2.69	0.48	0.49	0.49
R^2	0.07	0.06	0.06	0.07
N	17889	17878	17882	17868
IV: Local Militia Violence	0.759	0.218	0.322	0.224
	(0.631)	(0.199)	(0.238)	(0.215)

Notes: The sample is restricted to women from DHS rounds 6 and 7. We calculate the index in regression 1 using all the other outcomes in this table. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.38: Local Violence – Domestic Violence Attitudes

Dependent Variable	Beating of Wife Justified If Wife				
	Goes Out Without Telling	Neglects Children	Argues With Husband	Refuses To Have Sex	Burns Food
	(1)	(2)	(3)	(4)	(5)
RTLM Radio Coverage	0.270	0.291	0.312	0.286	0.372
	(0.164)	(0.145)*	(0.182)*	(0.164)*	(0.195)*
Propagation Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes
Dep. Mean	0.29	0.37	0.27	0.31	0.14
Dep. Std.Dev.	0.46	0.48	0.44	0.46	0.35
R^2	0.06	0.07	0.07	0.09	0.07
N	17790	17812	17746	17527	17817
IV: Local Militia Violence	0.381	0.408	0.438	0.404	0.518
	(0.307)	(0.295)	(0.353)	(0.306)	(0.401)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.39: Local Violence – Domestic Violence Experience

Dependent Variable	Experienced the Following by Your Husband/Partner								
	Severe Violence				Less Severe Violence				
	Strangled or Burnt	Threatened w/ Knife or Gun	Forced Into Unwanted Sex	Forced Into Unwanted Sexual Acts	Pushed or Shook	Slapped	Punched or Hit	Kicked or Dragged	Arm Twisted Hair Pulled
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
RTLM Radio Coverage	0.031	0.114	0.025	−0.010	−0.012	−0.130	−0.073	0.074	0.030
	(0.111)	(0.197)	(0.200)	(0.160)	(0.171)	(0.173)	(0.220)	(0.156)	(0.205)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Dep. Mean	0.02	0.01	0.01	0.01	0.02	0.02	0.01	0.03	0.01
Dep. Std.Dev.	0.13	0.09	0.12	0.09	0.13	0.14	0.10	0.18	0.10
R^2	0.05	0.03	0.04	0.04	0.05	0.06	0.05	0.03	0.05
N	3524	3524	3523	3524	3521	3524	3517	3522	3524
IV: Local Militia Violence	0.045	0.166	0.037	−0.014	−0.017	−0.190	−0.104	0.108	0.043
	(0.156)	(0.313)	(0.279)	(0.224)	(0.241)	(0.302)	(0.326)	(0.239)	(0.284)

Notes: The sample is restricted to women from DHS rounds 6 and 7. All outcome variables are standardized. The reported means and standard deviations refer to the unstandardized outcomes. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.41

Figure A.1: Construction of Transport Costs

- •   Village centroids
- ——   Main roads
- ——   Shortest distance between main road and village centroid
- ■   500m rainfall buffers
- ☐   Village polygons

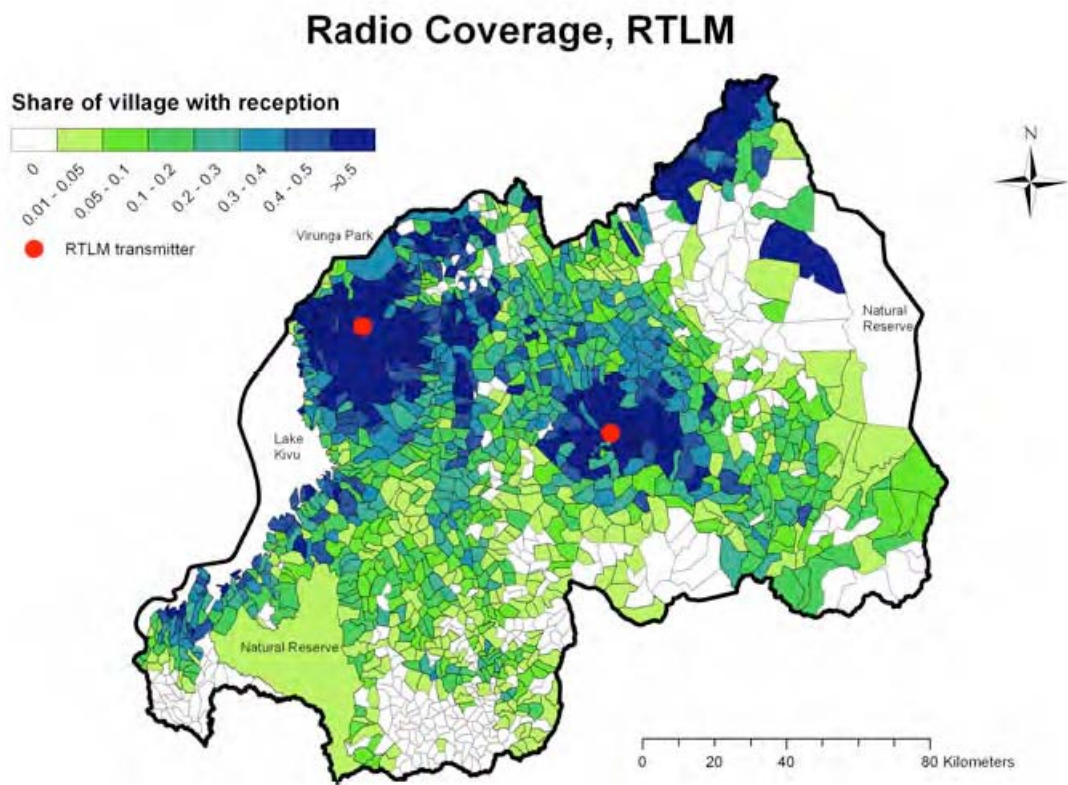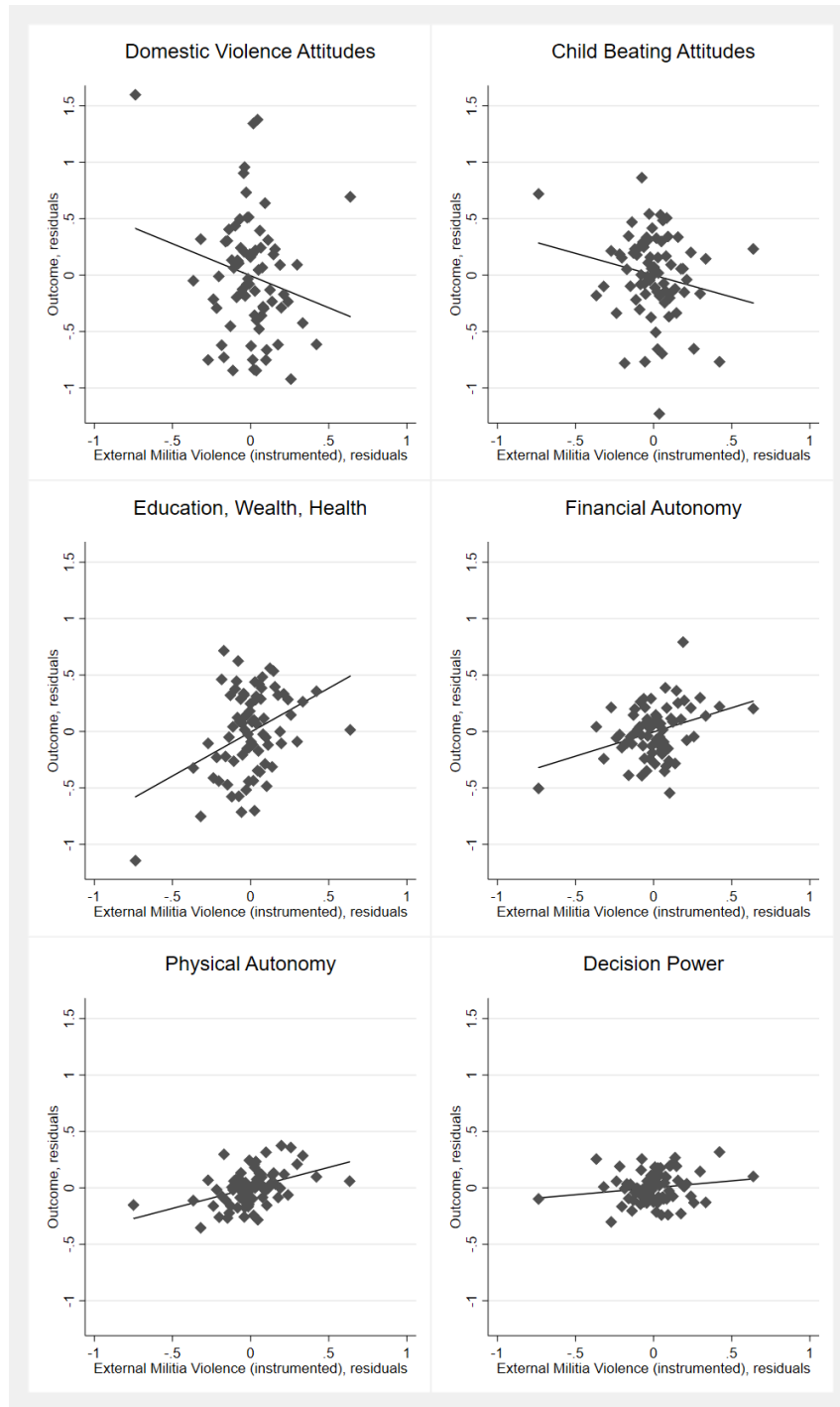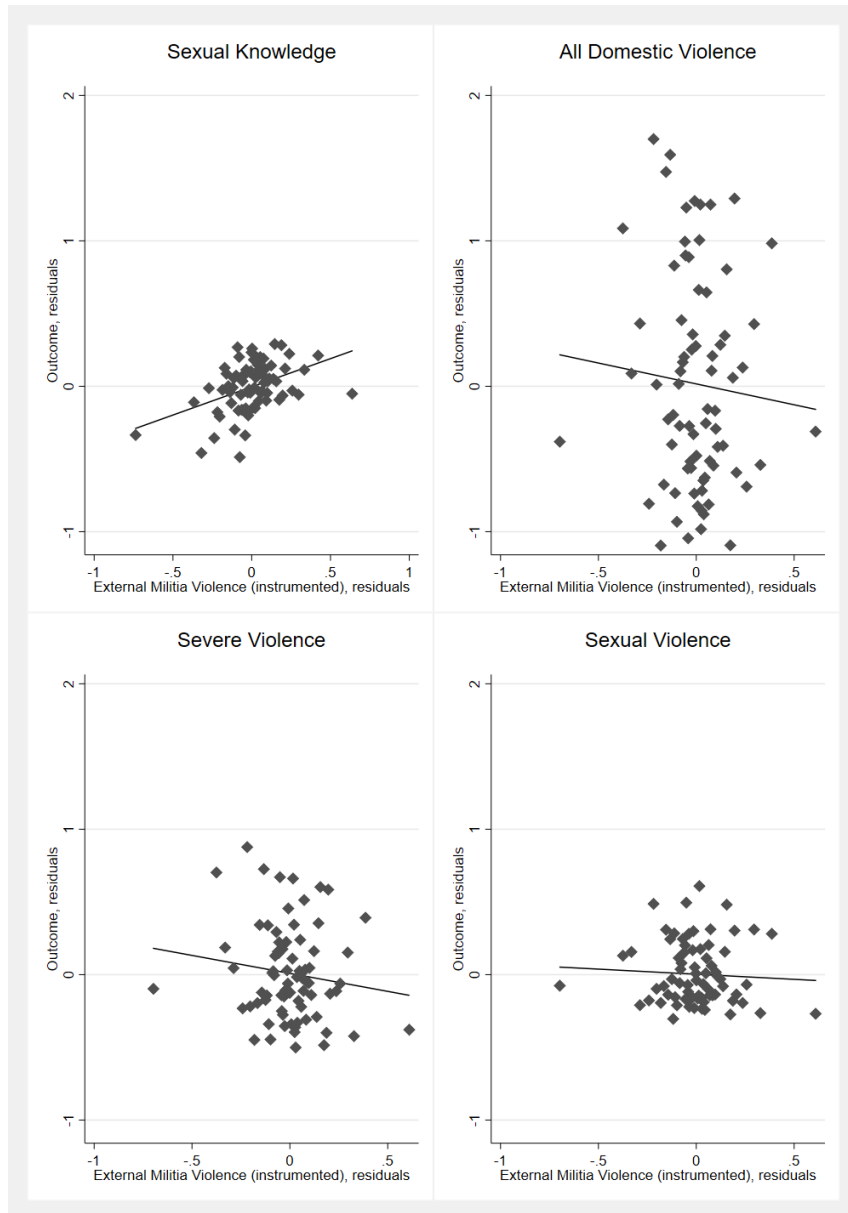**Figure A.2:** Rwandan Villages, Radio Coverage

A.43

Figure A.3: Relationship between External Violence and Main Outcomes I

Notes: Observations are grouped into 75 equal-sized bins. We use all baseline controls and province effects to construct residuals.

Figure A.4: Relationship between External Violence and Main Outcomes II

Notes: Observations are grouped into 75 equal-sized bins. We use all baseline controls and province effects to construct residuals.

B   Placebo – RTLM Hate Radio

B.1   Media and RTLM – Institutional Background

Before the genocide, Rwanda had two national radio stations: RTLM and Radio Rwanda. RTLM started broadcasting in July 1993, using two transmitters. One 100 Watt transmitter was placed in the capital, Kigali, and another 1000 Watt transmitter was located on Mount Muhe, one of the country's highest mountains. The government-owned Radio Rwanda had been broadcasting some propaganda before the genocide, but RTLM's broadcasts were by far the most extreme and inflammatory. Members of the Hutu Power founded RTLM with President Habyarimana backing it (Des Forges, 2007). With the start of the genocide, RTLM became the voice of the new interim government. The broadcasts lasted throughout the genocide and only ended when RPF rebels seized power in mid-July 1994 (International Criminal Tribunal for Rwanda ICTR, 2003).

RTLM called for the killings of the Tutsi and claimed that preemptive strikes were a necessary response for "self-defense" (Frohardt, 2007; International Criminal Tribunal for Rwanda ICTR, 2003). After April 6, 1994, the radio broadcasts made it clear that the government would not protect the Tutsi minority from attacks and that Hutus would not be held accountable for the killings. Instead, the radio station, as well as government officials, encouraged the killing of Tutsis.

Alternative print media also existed. There were some 30 to 60 independent newspapers at the time of the genocide, including political opposition publications (Higiro, 2007; Alexis, 2003). However, these newspapers' circulation and readership were limited, especially in rural areas, because of relatively low literacy rates; for most people, radio was the only source of information (Des Forges, 2007). Consistently, Yanagizawa-Drott (2014) finds that RTLM had a significant effect on Hutu participation in violence against the Tutsi; its broadcasts account for approximately 10 percent of the Tutsi deaths.

B.2   Identification Strategy

The RTLM identification strategy builds on two assumptions. First, villages with high RTLM coverage experienced higher genocide violence. This is the result of Yanagizawa-Drott (2014) who uses local variation in radio coverage to establish causality. Below, we reproduce these results. Second, RTLM coverage does not have a direct effect on any of the socioeconomic outcomes but rather only works through genocide violence. Even

though this assumption cannot be directly tested, we can provide some indirect evidence.

There are two main concerns. The exclusion restriction would be violated if some other radio station, whose broadcasts possibly affect economic well-being or female empowerment, were to use the RTLM transmitters. This is not the case, however – both RTLM transmitters were destroyed at the end of the genocide, and the broadcasts stopped.

The exclusion restriction would also be violated if the RTLM broadcasts in 1994 provided information about female empowerment issues such as domestic violence, or sexual education, and etc. This concern is also likely to be unwarranted. First, anecdotal evidence suggests that RTLM's broadcasts mainly involved stirring up hatred against the Tutsi minority and playing modern music (Kimani, 2007). Second, to directly assess content relevant for socioeconomic outcomes, we obtained and analyzed a 10 percent sample of RTLM's broadcasts and did not find any evidence that RTLM was broadcasting content that could directly affect economic or female performance.[1]

Specification To show that the broadcasts caused more violence, and reproduce the main result in Yanagizawa-Drott (2014), we estimate the following (first-stage) equation

$$(A.1) \qquad log\left(h_{jc}\right) = \alpha + \beta rtlm_{jc} + \mathbf{X}_{jc}\pi + \gamma_c + \epsilon_{jc},$$

where h_{jc} is the number of organized perpetrators in village j in commune c, and $rtlm_{jc}$ the share of the village with RTLM coverage. $\mathbf{X}_{jc}$ is a vector of propagation controls,[2] as well as pre-genocide village characteristics. Furthermore, γ_c is a commune fixed effect and ϵ_{jc} the error term.

We then run the following reduced-form regressions

$$(A.2) \qquad post\_y_{ijc} = \alpha' + \beta' rtlm_{jc} + \mathbf{X}_{jc}\pi' + \gamma_c + \epsilon_{ijc},$$

---

[1]The radio tapes are retrieved online from Jake Freyer's homepage, who downloaded them from the International Criminal Tribunal for Rwanda (ICTR). The ICTR received the tapes from various sources; thus, we believe this to be a random sample. The ICTR translated about 20 percent of these tapes from Kinyarwanda into English (another 20 percent were originally in French). As the ICTR was mainly interested in finding evidence for genocidal behavior we expect if at all, the untranslated Kinyarwanda tapes to contain broadcasts about economic or social advice to the listeners. We look for keywords such as school, income, domestic violence, education, and etc.

[2]These include distance to the transmitter and village altitude as well as the variance in altitude, all of which are likely confounders. For more details on the identification strategy as well as additional robustness and identification tests, see Yanagizawa-Drott (2014).

where $post\_y_{ijc}$ is the post-genocide outcome of household i (or women i) in village j in commune c and the other independent variables are the same as before. Standard errors are clustered at the district level. To gauge the magnitudes we also report 2SLS estimates.

B.3 RTLM Violence – First Stage and Mass Graves

To show that the null results from above are not simply the result of a missing first stage, we report the results in Table A.40 below. The first-stage relationship between radio coverage and genocide violence is strongly positive at the 95 percent confidence level (regression 1), and this relationship holds again when restricting the sample to those villages surveyed in DHS (regressions 2 and 3). Regarding magnitude, the point estimate of 1.028 log points (standard error 0.626) in our preferred specification, suggests that a village with full radio coverage has about 1.6 times more perpetrators than a village with no perception or, put differently, that a one-standard-deviation increase in radio coverage increases the violence by around 30 percent.

To differentiate local RTLM-induced violence from large-scale armed-group violence above, in regression 4 we show that RTLM coverage is unrelated to whether a village has a mass grave site (if anything villages are less likely to have a mass grave).

B.4 Targets of RTLM Violence

Contrary to external violence above Rogall (2021) argues that local violence, mostly using low-technology weapons such as machetes and clubs, targeted especially women, children, and the elderly. As shown by Verwimp (2006), women, young children, and the elderly were more likely to die from a machete or club – weapons used predominantly by local perpetrators.

Again, Rogall (2021) provides the first piece of evidence for this: when measured six years after the genocide, local genocide violence increased the working-age population share (age 13 to 49). His IV estimates imply that a 10 percent increase in genocide violence increases the working-age population share by 2.2 to 2.3 percentage points. This suggests that the most vulnerable, young children and the elderly were more likely to suffer violence. He finds that it is especially the fraction of working-age males that increased; thus, women were killed. Although insignificant, the point estimates further suggest that households with high levels of local violence are less likely to have a female household head, a female widow in the household and a larger fraction of males in general.

Besides looking at the age and gender distribution of the survivors, we can also directly analyze deaths again. The DHS data contains information on individuals' siblings, for example, their gender and if they died – their age at death and year of death. This information allows us to back out the number of women, older men, and children killed during the genocide. Table A.41 provides the results. All outcomes above are normalized by the total number of killed siblings. The point estimates confirm that RTLM-induced local violence seemed to have targeted especially the vulnerable. A 10 percent increase in genocide violence leads to a 2 percent increase in the fraction of killed woman, a 3 percent increase in the fraction of killed vulnerable (i.e. woman and older men as well as boys), a 7 percent increase in the fraction of killed children and a 9 percent increase in the fraction of killed girls. Note that random measurement error in the dependent variable (e.g. the DHS data does not specify whether a sibling was killed during the genocide or happened to die that year for other reasons) is likely going to increase standard errors. Nonetheless, most point estimates are significant (we report standard errors clustered both at the district and commune level).

B.5 RTLM Violence – Political Office

Recall from above that local violence targeted especially women, children, and the elderly, leading to a working-age male surplus. Accordingly, women do not take over key positions in the family and government. When it comes to local politicians, Table A.42 shows that if anything, fewer women are elected into a public office although the point estimates are insignificant (regression 1). Furthermore, there are no significant effects on being a National Women's Council member (regression 2), or elected politicians' education levels (regressions 4 and 5).

B.6 Alternative Mechanism

The main effects in local-violence villages could, alternatively, differ from those in external violence villages because in the former, the perpetrators may have stayed in the village. This might force women to regularly see or even meet their abusers with potentially negative effects on their (economic) well-being and empowerment. In the latter, the perpetrators generally left the village after the genocide. To rule out this possibility, we show that the negative/non-positive gender effects in local-violence villages remain even when we drop genocide victims. Since the DHS data does not allow us to identify

a respondent's ethnicity, we proxy for being a genocide victim by whether a woman reports having any siblings that died during the genocide. Additionally, we drop potential rape victims, i.e., women who gave birth around nine months after the genocide. Table A.43 below suggests that exposure to one's abuser is unlikely driving the results since the negative effects remain even for non-victims.

Furthermore, note that Table A.44 points to a reversal of fortune: villages with high levels of local violence initially did better economically (measured some six year after the genocide). They experienced higher consumption and higher income. Thus, if continued exposure to local genocide perpetrators was driving the negative results later on, we should also observe negative effects right after the genocide. Note further that these positive results are robust to using all households, excluding migrants or using only migrants. Again, selective migration is unlikely to matter.

B.7 References

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B.8 Tables

Table A.40: First Stage – RTLM

Dependent Variable	# Militiamen, log			Mass Graves
	(1)	(2)	(3)	(4)
RTLM Radio Coverage	0.545	1.121	1.028	−0.120
	(0.229)**	(0.592)*	(0.626)	(0.083)
Propagation Controls	yes	yes	yes	yes
Additional Radio Controls	yes	no	yes	yes
Commune Effects	no	yes	yes	yes
R^2	0.55	0.64	0.66	0.25
N	1065	465	465	464

Notes: The dependent variable Mass Graves is a dummy taking on the value of 1 if a mass grave site is present in the village. The sample in regressions 2 to 4 is restricted to the villages from DHS rounds 6 and 7. In regression 1 we use the full sample provided by Yanagizawa-Drott (2014). Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.41: Local Violence – Targeted Killings

Dependent Variable	Fraction Females	Fraction Vulnerable	Fraction Children	Fraction Female Children
	(1)	(2)	(3)	(4)
RTLM Radio Coverage	0.052	0.115	0.131	0.074
	(0.060)	(0.068)	(0.067)*	(0.039)*
	(0.057)	(0.055)**	(0.059)**	(0.035)**
Propagation Controls	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes
Dep. Mean	0.39	0.50	0.26	0.12
Dep. Std.Dev.	0.43	0.45	0.42	0.30
R^2	0.04	0.04	0.06	0.05
N	5060	5060	5060	5060
IV: Local Militia Violence	0.072	0.160	0.183	0.104
	(0.092)	(0.124)	(0.119)	(0.064)
	(0.099)	(0.122)	(0.103)*	(0.062)*

 Notes: The data is taken from all three rounds of DHS data. All dependent variables are fractions of an individual's sibling deaths. For example, Fraction Vulnerable is the number of vulnerable male (the elderly and children) and all female sibling deaths normalized by the total number of sibling deaths. Deaths are restricted to siblings that died during the genocide. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level and commune level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.42: Local Violence – Women's Political Engagement

Sample	Women & Men			Women	Men
Dependent Variable	Fraction of Elected Women	Fraction of National Council		Fraction With Primary Education	
		Women	Disabled		
	(1)	(2)	(3)	(4)	(5)
RTLM Radio Coverage	−0.021	0.014	−0.005	0.004	0.015
	(0.019)	(0.024)	(0.014)	(0.044)	(0.047)
Propagation Controls	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes
Dep. Mean	0.54	0.18	0.18	0.44	0.44
Dep. Std.Dev.	0.08	0.07	0.06	0.23	0.20
R^2	0.21	0.17	0.17	0.30	0.29
N	1347	1347	1347	1345	1345
IV: Local Militia Violence	−0.051	0.034	−0.012	0.011	0.035
	(0.052)	(0.056)	(0.033)	(0.101)	(0.110)

 Notes: Regressions are run at the cell level. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.43: Local Violence (RTLM) – Excluding Potential Victims

Dependent Variable	Domestic Violence Attitudes	Violence Against Kids Attitudes	Education, Wealth, Health	Financial Autonomy	Physical Autonomy	Decision Power	Sexual Knowledge, Fertility	Domestic Violence			
								All	Severe	Sexual	Less Severe
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A – Excl. Victims											
RTLM Radio Coverage	1.507	0.482	−0.284	0.014	−0.423	0.031	−0.338	−0.799	−0.111	−0.037	−0.688
	(0.804)*	(0.404)	(0.673)	(0.219)	(0.272)	(0.149)	(0.174)*	(1.104)	(0.417)	(0.352)	(0.768)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R²	0.09	0.07	0.14	0.09	0.05	0.02	0.04	0.05	0.04	0.05	0.06
N	14886	14896	14899	14899	13962	14897	14899	2822	2822	2822	2822
Panel B – Excl. Rape Victims											
RTLM Radio Coverage	1.478	0.429	−0.287	0.014	−0.424	0.018	−0.338	−0.752	−0.081	0.010	−0.671
	(0.785)*	(0.401)	(0.666)	(0.225)	(0.278)	(0.141)	(0.159)**	(1.128)	(0.430)	(0.362)	(0.778)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R²	0.09	0.07	0.14	0.09	0.05	0.02	0.04	0.05	0.04	0.04	0.06
N	14584	14594	14597	14597	13671	14595	14597	2746	2746	2746	2746

Notes: The sample is restricted to women from DHS rounds 6 and 7. In Panel A, we restrict the sample to women who do not report any sibling deaths during the time of the genocide. In Panel B, we further drop women who gave birth nine months after the genocide (potential rape victims). We calculate various indexes, the composition of each index is given in the paper. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

Table A.44: Local Violence – Consumption/Income

Dependent Variable	Consumption						Agricultural Income		
Sample	Full Sample		In Village During Genocide		Moved in After Genocide		Full Sample	In Village During Genocide	Moved in After Genocide
	Total	Food	Total	Food	Total	Food	Total	Total	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
RTLM Radio Coverage	0.736	0.248	0.704	0.276	0.954	0.630	0.483	0.492	0.745
	(0.237)***	(0.116)**	(0.244)***	(0.125)**	(1.150)	(0.889)	(0.204)**	(0.283)*	(1.299)
Propagation Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commune Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
R²	0.22	0.19	0.18	0.16	0.46	0.36	0.24	0.24	0.41
N	4039	4039	3257	3257	782	782	3783	3122	661

Notes: All dependent variables are in logged per capita monetary values. Per capita refers to the consumption/income of the household, divided by the number of persons living in the household. Income is defined as output minus running costs. The data is taken from the EICV2001/2001 survey. The data is taken from the EICV1 Survey conducted in 2000/2001. Propagation Controls and Additional Controls are defined in Table 8. Standard errors in parentheses are clustered at district level. *significant at 10 percent, **significant at 5 percent, ***significant at 1 percent.

A.57