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WOMEN'S EMPOWERMENT AS A PATH TO PEACE:

Understanding the Relationship between Gender Equality and Organized Violence

JENI KLUGMAN, ROBERT NAGEL, AND MARIANA VIOLLAZ

Authors

Dr. Jeni Klugman, Managing Director, Georgetown Institute for Women, Peace and Security

Dr. Robert U. Nagel, Postdoctoral Fellow, Georgetown Institute for Women, Peace and Security

Dr. Mariana Viollaz, Senior Researcher, Centro de Estudios Distributivos, Laborales y Sociales

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To contact the Institute or the authors of this study, email: giwps@georgetown.edu.

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EXECUTIVE SUMMARY

This study advances the understanding of the relationship between gender inequality and violent conflict. We update and deepen existing research on several fronts. We propose a model that connects three dimensions of gender inequality—the lack of inclusion, justice and security for women—with the intensity of conflict. We develop gender inequality measures for each dimension as proxies of socially constructed gender roles and associated power differentials, taking advantage of improvements in the availability of global data over the past decade. We examine the years 2000–2014, with a measure of organized violence as the outcome variable, against our set of gender inequality measures. Our investigation calculates and compares estimates obtained from fixed as well as random effects models. The results reveal that narrowing of gender gaps in education, employment, financial inclusion, and political participation, as well as reduced rates of adolescent fertility and intimate partner violence, are significantly associated with lower levels of organized violence. This suggests that advancing gender equality and empowering women and girls not only supports fundamental human rights but builds a solid foundation for a more peaceful world.

Introduction

Organized violence is a major challenge to global development and prosperity. Following several decades of declining violence, albeit unevenly around the world,[1] more countries experienced violent conflict in 2016 than at any time in nearly 30 years.[2] Understanding and addressing the root causes of conflict has moved to the top of the global policy agenda.[3] This is reflected in, for example, the resolutions on sustaining peace adopted by the U.N. General Assembly and the United Nations (U.N.) Security Council, which complement the 2030 Agenda for Sustainable Development and recognize the need to build inclusive, just, and peaceful societies.

Researchers investigating the causes of armed conflict have produced a voluminous literature.[4] Often-cited factors include greed,[5] grievance,[6] state weakness,[7] and horizontal or group inequalities.[8] Over the past two decades a considerable body of quantitative research has bolstered feminist arguments linking gendered inequalities and armed conflict.[9] Building on this, we seek to deepen and update our understanding of the relationship between gendered inequality and organized violence.

Our theoretical framework draws on earlier work highlighting the roles that gender norms and, particularly, masculinity play in facilitating organized violence. Recent research suggests that masculinized cultures, specifically men who idealize toxic masculine notions and adhere to patriarchal values of honor, increase the likelihood of political violence.[10] In line with these findings, we argue that countries with significant gendered inequality are more likely to prioritize violent masculinities and thus experience increased levels of organized violence.

We propose a conceptual model that connects three dimensions of gendered inequality—inclusion, justice and security—to the intensity of conflict at the national level. We identify and consider measures for each dimension as proxies of socially constructed gender roles and associated power differentials. This advances previous studies by systematically disaggregating and more fully exploring multi-dimensional concepts of gendered inequality. We investigate 186 countries during the years 2000–2014 and use a new dependent variable—a measure of organized violence—that improves on previous studies by capturing variations in the intensity of the conflict—whether state-based, non-state-based, or one-sided in nature—and not just the onset of conflict as a binary variable, against multiple aspects of gender inequality. We also test what difference alternative modeling strategies make by comparing estimates obtained from fixed versus random effects models.

We argue that countries with significant gendered inequality are more likely to prioritize violent masculinities and thus experience increased levels of organized violence.

This paper offers four primary contributions.

1. First, applying advances in the availability of cross-country comparable sex-disaggregated data, we revisit and update earlier findings.

2. Second, the improved data captures distinct dimensions of gendered inequality enabling us to differentiate between societal inclusion of women, their access to justice, and their physical security, to examine the associated effects on organized violence.

3. Third, we expand our understanding of the relationship between gendered inequality and violence by departing from conventional numerical thresholds related to state-based conflicts to examine organized violence that includes non-state conflicts and one-sided violence.

4. Fourth, we offer practical leverage points for policy makers and advocates.

The following section reviews the literature on the nexus of gendered inequality and armed conflict.

The relationship between gender inequality and violent conflict cannot be limited to one dimension: social, political, and economic aspects are all relevant to the risk of conflict.

We then present our conceptual framework and highlight the importance of disaggregating the multidimensional concept of gendered inequality. Next, we discuss our measures and models, and present empirical results which indicate that closing gender gaps in education, employment, financial inclusion, and political participation, alongside reductions in the adolescent fertility rate and intimate partner violence, are all associated with lower levels of organized violence. We conclude by discussing the importance of these findings in the context of the Sustainable Development Goals (SDGs) for gender equality and sustainable peace.

What we know

Several investigations have found that the treatment of women in highly gender-unequal societies may signal how disputes and conflicts are addressed more generally.[11] These studies identify several factors relating to women's social, economic and political inclusion that show statistically significant associations with interstate and intrastate conflicts. Caprioli,[12] for example, finds that the adolescent fertility rate, women's labor force participation, and the share of women in parliament have a statistically significant relationship with the likelihood of intrastate conflict. Gizelis finds that gender gaps in education attainment are correlated with peace.[13] Scholars have criticized the vagueness and lack of cross-national comparability, as well as the diversity of measures used to capture gendered inequality, and are working to address this through innovative methodological approaches.[14]

There is a large and growing literature on the measurement of gender equality and women's empowerment that is beyond the scope of this paper (for a useful review, see Glennerster et al., 2018).[15] The literature emphasizes that gender equality is multidimensional, and it is useful and indeed necessary to use measures that capture multiple aspects. The relationship between gender inequality and violent conflict cannot be limited to one dimension: social, political, and economic aspects are all relevant to the risk of conflict.

A key argument is that attitudes and gender norms are intertwined with the normalization of violence. Tessler and Warriner, and Tessler, Nachtwey and Grant find that societal concern for the status of women is statistically significant in explaining variations in attitudes toward war in the Middle East.[16] Eichenberg and Read further show that the relationships between gender difference in attitudes and conflict vary across countries.[17] This is not about women being inherently more peaceful, but rather about adverse norms, ideas, and beliefs regarding gender and gender roles that can foster a "toxic masculinity".[18] According to Forsberg and Olsson, highly patriarchal societies that embrace traditional gender roles and stereotypes linking masculinity to toughness and bellicosity implicitly categorize men as superior to women and increase the risk of violent resolution of conflicts.[19] In a foundational quantitative study, Caprioli argues that such attitudes legitimize the use of force as a tool of diplomacy.[20] This is further supported by research showing that societies that preference masculinity over femininity are less likely to negotiate civil conflicts.[21] In line with this, Hudson et al. contend that a highly patriarchal society internalizes and normalizes violence against women and implicitly sanctions the use of violence and domination of women, increasing the risk of conflict.[22] Bjarnegård, Brounéus and Melander find micro-level evidence that patriarchal values and ideals of masculine toughness in Thailand predict participation in political violence.[23]

Another dimension of gender inequality is violence against women. Hudson et al. created a measure capturing physical threats experienced by women in society—assessing rates of domestic violence, rape, and murder—and found a significant correlation

with states' peacefulness.[24] High levels of gender inequality have been linked to higher levels of recruitment and mobilization for conflict. Hudson and Den Boer examined strong-son preference in India and China to link uneven sex ratios to the likelihood of conflict.[25] Research analyzing the effect of a surplus of young men on society found an association with higher risk of armed conflict and political violence, including the Hindu-Muslim riots in India,[26] and the onset of non-ethnic wars.[27] Hudson et al. found that male-surplus youth bulges stem from steep levels of gender inequality, and that in turn male surpluses can result in large numbers of aggressive, dissatisfied men.[28] These dynamics are further aggravated when local practices of bride price benefit wealthy men.[29]

Towards a conceptual framework

As outlined above, gender inequality, as manifested in socially constructed gender roles and associated power differentials, can increase the likelihood and affect the intensity of conflict. Social norms tolerating violence against women, as well as systematic denial of educational and economic opportunity, often are associated with risk for organized violence; our fundamental argument is that higher levels of gendered inequality are associated with higher levels of societal conflict, as captured by the measure of organized violence. On the other end of the scale, societies characterized by more equal gender roles are expected to reflect and practice these values and norms to other spheres, resulting in fewer, shorter, and less intense episodes of organized violence.[30]

We adopt U.N. Women's definition of gender equality as the equal rights, responsibilities and opportunities of women and men, and girls and boys. It is important, as well argued by Karim and Hill, to be conceptually clear in the discussion and measurement of gender equality and inequality, as distinct from women's status and well-being.[31] Indicators showing the levels of women's education, for example, may partly reflect levels of development rather than the extent of gender inequality: in Rwanda, there is gender parity in secondary school enrollment, but female net enrollment was below 40 percent in 2019, according to UNESCO.[32] Similarly, as Bjarnegård and Melander point out, women's representation in parliament is not a straightforward measure of women's inclusion and political empowerment.[33]

Building on the approach laid out in the Women, Peace, and Security Index,[34] our concept of gendered equality has three broad dimensions —inclusion, justice, and security—and we measure gaps in attainment between women and men at the national level.[35] While these dimensions and measures (described below) tend to move in the same direction, they usefully capture distinct aspects of gendered equality and inequality that have both intrinsic and instrumental importance. This conceptual approach is amenable to assessment using quantitative data that is publicly available, consistent, and comparable across a large number of countries. It also guided our selection of variables, which have the advantage of policy relevance, featuring targets and indicators agreed to by 193 governments in the SDGs (and echo the earlier Convention on the Elimination of All Forms of Discrimination Against Women).

Our outcome variable is the measure of organized violence published by the Uppsala Conflict Data Program (UCDP), which captures total deaths resulting from three types of conflict: state-based, non-state based, and one-sided.[36] This measure has been described as the "gold standard" of conflict measures.[37] At the same time, we recognize the critique that:

> From a gender perspective, quantifying armed conflict on the basis of battle-related deaths is biased towards men's experiences of armed conflict to the detriment of those of women and girls.... Defining armed conflict by reference to 'battle-related deaths' reinforces a gendered hierarchy, whereby the various causes of death and suffering affecting men during conflict are elevated in importance compared to those affecting women and girls.[38]

However, organized violence is the only measure currently available on a comparable basis for a large number of countries. Since the intensity of conflict varies enormously across countries and, over time, within conflict-affected countries, examining intensity rather than onset is important. Moreover, the

Our conflict variable is the measure of organized violence published by the Uppsala Conflict Data Program (UCDP), which captures total deaths resulting from three types of conflict: state-based, non-state based, and one-sided.

intensity of conflict (i.e., the number of deaths) in two countries may be identical, the perceived costs may differ substantially.

Because this is the first article on gendered inequality and conflict to use this measure as the dependent variable, we briefly define the categories of conflict, drawing on Melander, Pettersson and Themnér.[39] *State-based* conflict occurs either between two states or between a state and a rebel group (for example, between Syria and the Islamic State). Countries with extensive state-based violence in our dataset include Syria, Afghanistan, and Iraq. *Non-state* conflict occurs between rebel groups and militias. The conflict between drug cartels in Mexico is a type of non-state violence; while Mexico listed no fatalities from state-based conflict in 2015, it reported 874 fatalities from non-state conflict. *One-sided* violence is defined as the use of armed force by a government or by a formally organized group against civilians. The Rwandan genocide presents a horrific instance of one-side violence, while terrorist acts serve as more common examples. Tunisia and Kuwait reported no fatalities stemming from state-based conflict in 2015, but listed the highest numbers of civilian fatalities stemming from one-sided violence that year; measuring only state-based conflict would incorrectly categorize these two countries as peaceful.

The dependent variable is the total number of deaths resulting from state-based, non-state based, and one-sided conflicts per 100,000 inhabitants. Relating the intensity of violence to overall population is an important refinement that reflects potentially diverging perceptions of conflict costs for countries with differing populations. For example, the same number of deaths might represent very different social costs in a small country like Kuwait (population approximately four million) compared to a populous country like the Philippines (population approaching 105 million).

We turn now to the independent variables that are used to test our conceptual framework, and the associated hypotheses.

Inclusion

Inclusion has social, economic, and political aspects.

Education. Substantial evidence demonstrates that education is critical to women's agency, opportunities, freedom from violence, and health,[40] and that closing gender gaps in education is crucial for tackling the unequal power relations and social norms that underpin gender inequality in societies.[41] We measure the education gap in terms of the female-to-male ratio of gross lower secondary education enrollment rates,[42] as published by the UNESCO Institute for Statistics.[43] In our sample and time frame, the female-to-male education ratio ranges from 0.19 (Afghanistan in 2004) to 2.04 (Guinea-Bissau in 2014). We expect that larger gender gaps in education, i.e., lower female-to-male education ratios, are associated with gender roles that tend to marginalize and exclude women and girls from the society and economy, and with higher levels of organized violence, and vice versa. Our first hypothesis is:

H1: Smaller gender gaps in secondary education are associated with lower rates of organized violence.

Paid work. Women's access to paid work is critical to boost their economic opportunities, empowerment, and autonomy.[44] We use data from the International Labor Organization to construct the ratio between the employment rates of adult women and men (25 years of age or more). The ratio ranges in our sample from 0.09 (Algeria in 2000 and 2001) to over 1.00 (Rwanda in 2003). We prefer this to labor force participation rates because the latter includes unemployed people.[45] We expect a higher women-to-men employment ratio, i.e., a lower gender gap in employment, to reflect more equal gender roles in societies and lower levels of organized violence. Our second hypothesis is:

H2: Smaller gender gaps in employment are associated with lower rates of organized violence.

Financial inclusion. There is growing evidence about the importance of financial inclusion to the ability of people to be more resilient in the face of financial and other shocks, to invest in education and health, and to start or expand a business.[46] Using data from the World Bank's Global Findex Database, we construct the ratio between the share of women aged 15 or more relative to men who report having an individual or joint account at a bank or other financial institution or using a mobile money service. The ratio ranges from 0.01 (Turkmenistan) to 2.03 (Philippines), averaging 0.85, meaning that, globally, 85 women use financial services for every 100 men. Our third hypothesis is:

H3: Smaller gender gaps in financial inclusion are associated with lower rates of organized violence.

Political participation. Political voice and representation are key aspects of political power. Gender gaps in political power persist in most countries around the world, with significant cross-country variation. It is possible that women, on average, prioritize other policy issues and, if they hold political power, may be less inclined to initiate conflict.[47] We measure gender gaps in political representation in terms of the ratio of women to men in national parliament, as reported by the Inter-Parliamentary Union. On average, the women-to-men parliamentary representation ratio is 0.21 for the entire sample between 2000 and 2014, indicating that women hold only about one fifth of parliamentary seats. Our fourth hypothesis is:

H4: Smaller gender gaps in political representation are associated with lower rates of organized violence.

Health. Another measure relating to the inclusion dimension of gender inequality that has been used in previous studies is the adolescent fertility rate. Having children early in life exposes teenagers to high risk of maternal death and disability, as well as reduced education and employment opportunities.[48] More generally, high fertility rates can reflect gender discrimination, as well as poor educational, employment, and decision-making outcomes for women.[49] In the U.N. Population database, the adolescent birth rate, defined as the number of births per 1,000 women ages 15-19, varies from 1.7 (Republic of Korea in 2014) and 219 (Niger in 2000). Our fifth hypothesis is:

H5: Lower adolescent fertility rates are associated with lower rates of organized violence.

Justice

Under this dimension, we look at the formal and informal aspects of "justice," both of which are closely connected to gendered inequality and discrimination.

Legal discrimination against women. This measure, based on a database built by the World Bank, Women, Business, and the Law, captures laws that differentiate between men and women and limit women's ability to participate in society and the economy. It can be taken as a measure of formalized gender inequality in a society. Our measure aggregates 42 laws and regulations that differentiate between men and women across several categories—accessing institutions, using property, going to court, providing incentives to work, and getting a job—with greater weight given to four laws: requirements that married women obey their husbands; mandates for paternity leave; nondiscrimination provisions based on gender in hiring; and prohibitions against the dismissal of pregnant workers. Beyond being a formal manifestation of gender inequality, discriminatory laws make it harder for women to own property, open bank accounts, start a business, take jobs, and enter professions restricted to men. Legal discrimination reflects and entrenches discriminatory social norms that shape relations between women and men. In our sample, the legal discrimination measure ranges from about 5 in United Kingdom to 61 in Jordan.[50] Our hypothesis is:

H6: Lower levels of legal discrimination against women are associated with lower rates of organized violence.

Son bias. As noted above, societal preference for boys reflects serious discrimination against girls and women. A surplus of men relative to women can result in large numbers of aggressive, dissatisfied men, which in turn fosters a hypermasculine culture that promotes violence as an acceptable form of

We expect a higher intimate partner violence prevalence to reflect higher levels of gender inequality and to be associated with higher levels of organized violence.

conflict resolution.[51] Such a situation contributes to marriage markets with higher bride prices that further limit the ability of young men able to marry, encouraging them to join groups involved in organized violence.[52] Son bias is measured in the ratio of boy-to-girl births, relative to the natural demographic rate of 1.05, using the U.N. Population database.[53] The son bias ranges as low as 1.01 (Rwanda between 2000 and 2010) and as high as 1.17 (Armenia between 2001 and 2005). Our seventh hypothesis is:

H7: Lower levels of son bias are associated with lower rates of organized violence.

Discriminatory norms. While it is difficult to find a measure embracing a large cross section of countries, a Gallup World Poll provides valuable insights into discriminatory attitudes. In 2016, the poll asked respondents to agree or disagree with the following statement: "It is perfectly acceptable for any woman in your family to have a paid job outside the home if she wants one." The percentage of adult men disagreeing with the statement suggests the prevalence of traditional gender norms, including the expectation among men that women should be confined to the home. This measure ranges from 0 in countries such as Canada, Iceland, and Norway, to almost 75 percent in Pakistan.[54] We expect a high value of the discriminatory norms measure to be associated with more rigid views about masculinity and with higher levels of organized violence.

H8: Lower levels of discriminatory norms are associated with lower rates of organized violence.

Security

Under this dimension, we look at intimate partner violence as the key indicator of women's security in a country.

Intimate partner violence. Intimate partner violence (IPV) has been found to be strongly related to traditional gender roles.[55] The study's specific measure of IPV tracked the percentage of women who, over a 12-month period, experienced physical or sexual violence by their intimate partners, according to data reported by the DHS Program STATcompiler and U.N. Women. This measure ranges from 59 percent in Democratic Republic of Congo to 1 percent in countries such as Canada and Singapore. Earlier work found that higher levels of gender-based violence were associated with greater risk of conflict.[56] We expect a higher IPV prevalence to reflect higher levels of gender inequality and to be associated with higher levels of organized violence.

H9: Lower levels of intimate partner violence are associated with lower rates of organized violence.

Our statistical models also control for the level of development using Gross Domestic Product (GDP) per capita. Following earlier work, we include a broader set of controls that have been found to be significant correlates of the risk and/or intensity of conflict. These include the rate of economic growth per capita over the last five years, as well as measures of exclusion and political regime. The measure of exclusion is defined in terms of the number of powerless, discriminated, or self-excluded ethnic groups, as extracted from the comprehensive Ethnic Power Relations (EPR) dataset (instead of the Minorities at Risk dataset used by previous studies).[57] As shown in Table II, 23 percent of the country/year combinations in our sample have no excluded groups, 19 percent have one excluded group, 23 percent have two excluded groups, while the remaining 34 percent have three or more.

The type of political regime is measured using the V-Dem dataset: the categories are closed autocracy (12 percent of the country sample); electoral autocracy (33 percent); electoral democracy (32 percent); and liberal democracy (23 percent). The set of conflict and peace history variables includes the number of years of peace (which counts consecutive years with no deaths resulting from organized violence, and uses cubic splines to better capture the dynamics of the peace process) and an indicator denoting the presence of conflict in preceding year. The average number of years of peace in our sample is 6.2, while one-fifth of the countries experienced conflict in the preceding year.

Data and methods: How is gender inequality associated with conflict?

Here we apply our framework and data to show how gender inequality is associated with conflict. Our analysis covers 186 countries, for the period 2000–2014. Table I defines the variables used in the estimates and provides sources of data, and Table II presents descriptive statistics.[58]

Table II shows that the measure of organized violence averaged 2.15 for the 186 countries over the entire period in our sample, with a minimum of 0 experienced by 174 countries in at least one of the years during the period and a maximum of 1,473 (Eritrea in 2000). Among the countries that had experienced organized violence, the average value is 9.25.

Table 1. Variable definitions and sources of data

Variables	Definition and data sources
Organized violence	Total number of deaths from state-based, non-state, and one-sided conflicts per 100,000 inhabitants. Source: UCDP (Uppsala Conflict Data Program).
Women to men gross lower secondary education enrollment rate	Ratio between the gross lower secondary education enrollment rate of women and men. Gross enrollment rate measured as the number of students enrolled, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education. Source: UNESCO Institute for Statistics.
Women to men employment rate	Ratio between the employment rate of women and men. Employment rate defined as the percentage of women or men aged 25+ who are employed. Source: International Labour Organization.
Women to men financial inclusion measure	Ratio between the financial inclusion measure of women and men. Financial inclusion defined as the percentage of women or men aged 15+ who report having an individual or joint account at a bank or other financial institution or who report using a mobile money service. Source: World Bank Global Findex Database.
Adolescent fertility rate	Number of births per 1,000 women ages 15-19. Source: UN Population.
Women to men parliamentary representation	Ratio between the percentage of seats held by women and men in lower and upper houses of national parliament. Source: Inter Parliamentary Union
Legal discrimination	Percentage of laws and regulations that limit women's ability to participate in society or the economy or that differentiate between men and women of a total of 42. Source: World Bank, Women, Business, and the Law database.
Son bias	Extent to which the sex ratio at birth (ratio of number of boys born to number of girls born) exceeds the natural demographic rate of 1.05, calculated using the following formula: (X/F)M, where X is the difference between the number of boys and girls born in excess of 1.05, F is total number of girls born, and M is total number of boys born. Source: UN Population.
Discriminatory norms	Percentage of men aged 15+ who disagreed with the proposition: "It is perfectly acceptable for any woman in your family to have a paid job outside the home if she wants one." Source: Gallup World Poll.
Intimate partner violence	Percentage of women who experienced over the last 12 months physical or sexual violence committed by their intimate partner. Source: DHS Program STATcompiler funded by USAID and UN Women (http://evaw-global-database.unwomen.org/en/).
GDP per capita	GDP per capita in constant 2011 purchasing power parity dollars. Source: World Development Indicators, World Bank.
GDP per capita growth rate	Average of GDP per capita growth rate in the last 5 years. Source: World Development Indicators, World Bank.
Excluded groups	Set of indicator variables capturing the number of powerless, discriminated or self-excluded ethnic groups. Source: Ethnic Power Relations (EPR) dataset.
Political regime	Set of indicator variables for closed autocracy, electoral autocracy, electoral democracy, and liberal democracy. Source: V-Dem database.
Years of peace	Number of consecutive years with no deaths resulting from state-based, non-state based, and one-sided conflicts. Source: UCDP (Uppsala Conflict Data Program).
Past conflict	Indicator variable denoting a positive number of deaths resulting from state-based, non-state based, and one-sided conflicts in previous year. Source: UCDP (Uppsala Conflict Data Program).

Table 2. Descriptive statistics

	Observations	Average	Minimum	Maximum
Outcome variable				
Number of battle deaths per 100,000 inhabitants	2,752	2.15	0.00	1,473.71
Gender (in)equality measures				
Women to men ratio of gross lower secondary education enrollment rate	2,752	0.96	0.19	2.04
Women to men employment rate	2,752	0.67	0.09	1.00
Women to men financial inclusion	2,752	0.85	0.01	2.03
Women to men parliament representation	2,752	0.21	0.00	1.36
Adolescent fertility rate (number of births)	2,752	55.61	1.66	218.89
Legal discrimination (%)	2,752	23.17	4.89	60.95
Son bias	2,752	1.05	1.01	1.17
Discriminatory norms (%)	2,752	15.87	0.00	73.00
Intimate partner violence (%)	2,752	15.37	1.0	59.30
Control variables				
GDP per capita (constant 2011 PPP USD)	2,752	15,667	504	129,350
GDP per capita growth (avg past 5 years)	2,752	2.67	-13.52	50.84
Share of countries with 0 exluded groups	2,752	0.23	0.00	1.00
Share of countries with 1 exluded group	2,752	0.19	0.0	1.0
Share of countries with 2 exluded groups	2,752	0.23	0.0	1.0
Share of countries with 3 exluded groups or more	2,752	0.34	0.0	1.0
Share of countries with a closed autocracy regime	2,752	0.12	0.0	1.0
Share of countries with an electoral autocracy regime	2,752	0.33	0.0	1.0
Share of countries with an electoral democracy regime	2,752	0.32	0.0	1.0
Share of countries with a liberal democracy regime	2,752	0.23	0.0	1.0
Years of peace	2,752	6.19	0.0	15.0
Share of countries with a conflict in previous year	2,752	0.20	0.0	1.0

Variables defined as in Table I.

Methods

To explore the effect of each measure of gender inequality on the level of organized violence, we pool the data from 2000 to 2014 for the 186 countries, and estimate the following model using econometric techniques:

$$V_{it}=\alpha G_{it}+X_{it}\,\beta+\delta T_{t}+\mu_{i}+\varepsilon_{it}$$

V_{it} is the logarithm of the organized violence measure, where *i* indexes countries and *t* the years covered in our analysis; is a gender inequality measure; and is a vector of control variables that includes the logarithm of GDP per capita and GDP per capita growth rate, as well as variables for the number of excluded groups, political regimes, years of peace and cubic splines, and whether the country suffered a conflict in the preceding year.[59] The model includes year dummies (T_t) to capture the possibility of

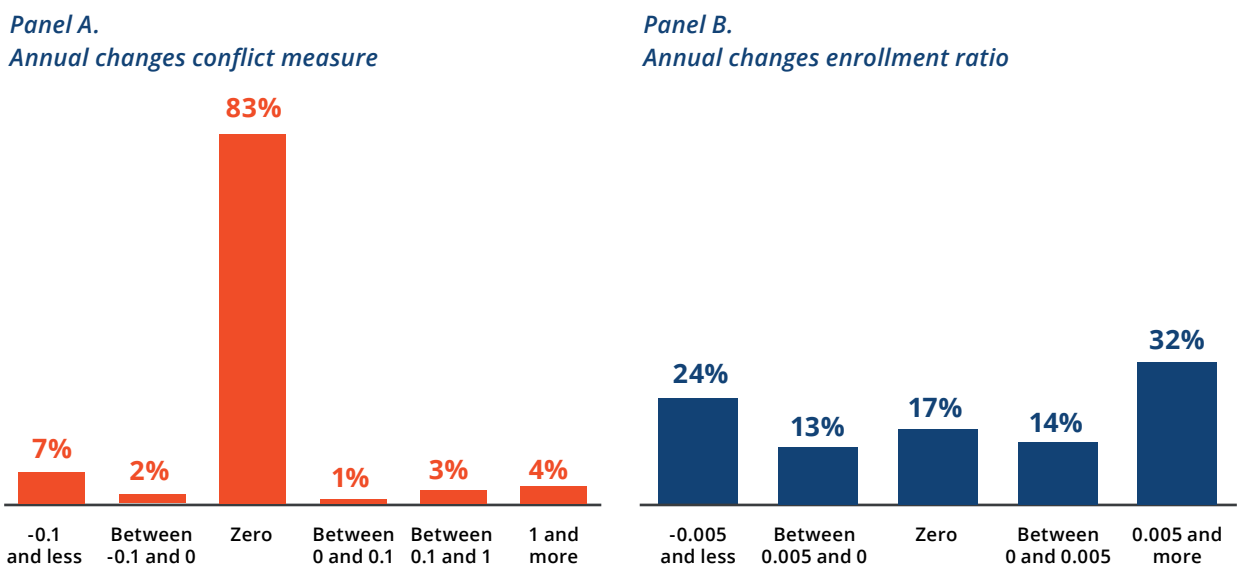
certain years being more "conflictual," and to incorporate regional controls to reflect the observation that violent conflict has become a more regional phenomenon.[60]

Our aim is to estimate the parameter α, which is linked to the gender inequality measure G_{it}. We estimate both fixed- and random-effect models. A fixed-effects model is arguably most appropriate because there are country-specific factors which are fixed over time and which may affect the level of organized violence and also correlate with gender inequality measures, e.g., cultural norms around masculinity. In terms of equation (1), a fixed-effects model assumes that μ_i are parameters to be estimated. However, the source of variability used by the fixed-effects method is *within* country variability over time, which tends to be very low for our organized violence measure. Figure 1–Panel A illustrates this point by showing that more than four-fifths of the countries in our sample did not exhibit any annual variation in the conflict measure. Some gender inequality measures are also quite stable over time. For example, almost one-fifth of our country sample did not experience annual changes in the gender gap in education (Panel B).

In this situation, fixed-effects models may not work well, and a random-effects approach may be preferred. Most papers in this body of literature, including Caprioli and Melander,[61] use random-effects models. In random-effects models, the variation in gender inequality and other variables *between countries* is believed to influence the level of conflict. In terms of the above model, the random-effects method considers μ_i as part of a composite error term ($\mu_i+\varepsilon_{it}$). A key assumption of this method is that country-specific factors are fixed over time (μ_i) and are determinants of the organized violence measure are not correlated with other explanatory variables included in the model, in particular with the gender inequality measures.[62] Thus this method assumes that cultural norms around masculinity in a given country are not correlated with adolescent fertility rates or gender gaps in education. If this assumption fails, random effects will provide biased estimates of the parameter of interest (α).

We recognize the methodological challenges of estimating the relationship of interest, and that neither fixed-effects nor random-effects methods provide totally unbiased and precise estimates.[63] We add value to the literature and understanding of the relations by being transparent about the limitations of each method and presenting both sets of estimates and discussing the results found in each case. We find that the direction of effects is generally similar for both methods but, as flagged below, some different results do emerge.

Figure 1. Distribution of sample observations by annual changes in specific variables



Source: Authors' estimates.

Results

Our results—presented in Table III for fixed effects and Table IV for random effects—both broadly confirm earlier findings and extend the results in important ways. This section highlights differences between fixed- and random-effects models and examines results from application of selected gender inequality measures and the broader set of controls.

An initial observation is that the direction of the effects is the same under both methods—with the exceptions of son bias and IPV. This overall result is reassuring and indicates that, in general, any potential bias under the random-effects method is not large enough to reverse the coefficient signs in the fixed-effects estimates. A second observation is that, when the direction of the effect is not consistent with our hypotheses (legal discrimination under both methods, son bias under random effects, and IPV under fixed effects), the results are not statistically significant. Finally, the Hausman test results (Table III) point toward the fixed-effects method. This means that, although less precise, fixed-effects estimates are preferred due to biases in random-effects results.

We nonetheless present and analyze both fixed- and random-effects results. Useful insights can be obtained from both sets of results, especially since potential biases under random effects do not reverse the direction of the effects obtained under fixed effects. We proceed by presenting the results from both fixed- and random-effects methods while being cautious in interpreting the results. We restrict the discussion to results that are significant at the 10 percent level.

Our analysis of gender inequality and organized violence reveals several interesting associations. For the random-effects model, Table IV shows:

- Women's lack of education relative to men is associated with organized violence. A one percentage point narrowing in the education gender gap is associated with a reduction in the conflict measure of 0.58 percent (column 1).
- Women's financial inclusion relative to men is significant statistically. A one percentage point improvement in the financial inclusion gap is associated with 0.37 percent fewer deaths resulting from organized violence (column 2).
- The gender employment gap is significantly associated with the level of organized violence. A one percentage point improvement in the employment gap is associated with less conflict—reduction of 0.69 percent (column 3). However, none of these gender inequality measures are significant under the fixed-effects method, although the direction has the same sign (Table III, columns 1 to 3).

In the fixed-effects model, which has the advantage of being less susceptible to biased estimates, the following results are significant, as shown in Table III:

- Confirming our hypothesis, a smaller gender gap in political representation is associated with lower rates of organized violence. An additional percentage point in women's share of parliamentary representation reduces the conflict measure by 0.77 percent (column 4).
- The adolescent fertility rate is positively associated with the organized violence measure. An extra birth per 1,000 women aged 15 to 19 is associated with a conflict measure that is 1.5 percent higher (column 5).

Moving to the set of gender inequality measures related to the justice dimension, we do not find any significant impacts of our measures of legal discrimination, son bias, and discriminatory norms on the organized violence measure, in either model. This lack of significance is surprising, in that our justice measures do seek to capture observable gendered discrimination. However, it may be that formal laws are less important in this context and that informal practices play a more important role.[64] It is also true that son bias, while serious in a few countries, is not widespread in our large country sample and not especially prevalent in the most conflict-affected countries.

Finally, the IPV measure is significant under the random-effects model. The result indicates that a one percentage point increase in the share of women experiencing physical or sexual violence committed by their husbands or boyfriends over the last 12 months is associated with a higher rate of organized violence—about 1.4 percent higher.

Table 3. Relationship between gender inequality measures and organized violent measure

Dependent variable: Log of battle deaths per 100,000	Inclusion					Justice			Security
	Education (1)	Financial (2)	Employment (3)	Parliament represent (4)	Fertility rate (5)	Legal discrim. (6)	Son bias (7)	Discrim. norms (8)	IPV (9)
Gender (in)equality measure	-0.201	-0.194	-0.415	-0.766	0.0149	-0.0104	6.599	n.a.	-0.00661
	[0.521]	[0.172]	[0.865]	[0.328]**	[0.00712]**	[0.0105]	[5.216]		[0.0191]
Log of GDP per capita	-0.485	-0.512	-0.507	-0.496	-0.461	-0.484	-0.517		-0.496
	[0.215]**	[0.216]**	[0.219]**	[0.215]**	[0.234]†	[0.219]**	[0.214]**		[0.218]**
GDP per capita growth rate	0.00304	0.00340	0.00292	0.00355	0.00448	0.00352	0.00342		0.00284
	[0.00854]	[0.00835]	[0.00846]	[0.00838]	[0.00822]	[0.00838]	[0.00848]		[0.00836]
=1 if 1 to 5 excluded groups	0.116	0.130	0.129	0.135	0.0898	0.116	0.130		0.122
	[0.192]	[0.189]	[0.192]	[0.187]	[0.191]	[0.188]	[0.189]		[0.189]
=1 if 2 excluded groups	0.0440	0.0711	0.0648	0.0707	0.0465	0.0584	0.0750		0.0606
	[0.287]	[0.274]	[0.271]	[0.272]	[0.260]	[0.272]	[0.268]		[0.273]
=1 if 3 or more excluded groups	-0.231	-0.209	-0.221	-0.228	-0.264	-0.226	-0.211		-0.223
	[0.375]	[0.374]	[0.369]	[0.362]	[0.363]	[0.371]	[0.367]		[0.371]
=1 if closed autocracy regime	-0.107	-0.110	-0.111	-0.115	-0.105	-0.0894	-0.0788		-0.104
	[0.234]	[0.235]	[0.236]	[0.228]	[0.234]	[0.235]	[0.240]		[0.235]
=1 if electoral autocracy regime	-0.0654	-0.0679	-0.0659	-0.0628	-0.0689	-0.0474	-0.0690		-0.0659
	[0.165]	[0.164]	[0.164]	[0.164]	[0.167]	[0.165]	[0.165]		[0.165]
=1 if electoral democracy regime	-0.0664	-0.0700	-0.0704	-0.0710	-0.0740	-0.0518	-0.0715		-0.0691
	[0.0396]†	[0.0363]†	[0.0348]**	[0.0415]†	[0.0524]	[0.0453]	[0.0376]†		[0.0377]†
=1 if has a conflict last year	-1.529	-1.531	-1.529	-1.538	-1.539	-1.531	-1.530		-1.531
	[0.165]***	[0.164]***	[0.165]***	[0.163]***	[0.167]***	[0.165]***	[0.165]***		[0.165]***
Years of peace	-3.299	-3.302	-3.303	-3.295	-3.282	-3.298	-3.298		-3.301
	[0.123]***	[0.125]***	[0.124]***	[0.123]***	[0.123]***	[0.124]***	[0.124]***		[0.125]***
Spline(1)	25.51	25.55	25.54	25.51	25.37	25.51	25.50		25.53
	[0.995]***	[1.007]***	[0.995]***	[0.990]***	[0.995]***	[0.992]***	[0.996]***		[0.996]***
Spline(2)	-42.17	-42.26	-42.23	-42.20	-41.96	-42.17	-42.16		-42.20
	[1.695]***	[1.712]***	[1.690]***	[1.684]***	[1.696]***	[1.683]***	[1.691]***		[1.687]***
Spline(3)	21.81	21.88	21.84	21.87	21.70	21.80	21.81		21.83
	[1.078]***	[1.078]***	[1.066]***	[1.070]***	[1.080]***	[1.061]***	[1.067]***		[1.056]***
Constant	27.06	28.06	27.99	27.27	21.71	27.29	21.41		27.95
	[5.156]***	[5.063]***	[4.950]***	[5.070]***	[6.195]***	[5.105]***	[7.350]***		[4.979]***
Observations	2,752	2,750	2,752	2,752	2,752	2,752	2,752		2,752
R-squared	0.926	0.926	0.926	0.926	0.927	0.926	0.926		0.926
Number of countries	186	186	186	186	186	186	186		186
Hausman test									
Chi-squared stat	105.21	124.92	106.79	108.70	109.98	115.32	157.38		107.04
p-value	0.000	0.000	0.000	0.00	0.000	0.000	0.000		0.000

*Notes: All regressions include year- and region-fixed effects. Omitted categories: zero excluded groups and liberal democracy regimes. Robust standard errors clustered at the country level in brackets. ** significant at 1%, * significant at 5%, † significant at 10%. Variables defined as in Table I. Discriminatory norms is constant over time and their estimates cannot be obtained using fixed effects method.*

Table 4. Relationship between gender inequality measures and organized violent measure

Dependent variable: Log of battle deaths per 100,000	Inclusion					Justice			Security
	Education (1)	Financial (2)	Employment (3)	Parliament represent. (4)	Fertility rate (5)	Legal discrim. (6)	Son bias (7)	Discrim. norms (8)	IPV (9)
Gender (in)equality measure	-0.580	-0.375	-0.688	-0.220	0.000606	-0.000917	-0.424	0.00658	0.0129
	[0.276]**	[0.177]**	[0.345]**	[0.176]	[0.00167]	[0.00647]	[2.324]	[0.00849]	[0.00696]†
Log of GDP per capita	-0.0437	-0.0633	-0.0768	-0.0648	-0.0588	-0.0635	-0.0634	-0.0491	-0.0481
	[0.0400]	[0.0404]	[0.0430]†	[0.0419]	[0.0409]	[0.0403]	[0.0417]	[0.0434]	[0.0385]
GDP per capita growth rate	-0.00249	-0.00189	-0.00199	-0.00167	-0.00222	-0.00221	-0.00203	-0.00260	-0.00208
	[0.00456]	[0.00461]	[0.00463]	[0.00456]	[0.00452]	[0.00455]	[0.00456]	[0.00473]	[0.00449]
=1 if 1 excluded group	0.101	0.116	0.130	0.121	0.117	0.118	0.116	0.117	0.110
	[0.0915]	[0.0920]	[0.0944]	[0.0941]	[0.0949]	[0.0940]	[0.0932]	[0.0941]	[0.0914]
=1 if 2 excluded groups	0.0759	0.0781	0.0856	0.0793	0.0850	0.0859	0.0850	0.0857	0.0827
	[0.0899]	[0.0878]	[0.0894]	[0.0865]	[0.0891]	[0.0876]	[0.0871]	[0.0874]	[0.0882]
=1 if 3 or more excluded groups	0.105	0.0848	0.0999	0.0888	0.0953	0.0962	0.0954	0.0897	0.0813
	[0.0997]	[0.101]	[0.0996]	[0.102]	[0.102]	[0.100]	[0.101]	[0.104]	[0.102]
=1 if closed autocracy regime	-0.210	-0.242	-0.167	-0.198	-0.207	-0.201	-0.203	-0.221	-0.219
	[0.144]	[0.140]†	[0.141]	[0.144]	[0.151]	[0.143]	[0.142]	[0.151]	[0.145]
=1 if electoral autocracy regime	-0.0471	-0.0702	-0.0294	-0.0351	-0.0407	-0.0307	-0.0315	-0.0488	-0.0565
	[0.0909]	[0.0903]	[0.0927]	[0.0904]	[0.0926]	[0.0863]	[0.0904]	[0.0955]	[0.0926]
=1 if electoral democracy regime	-0.0623	-0.0804	-0.0665	-0.0683	-0.0732	-0.0627	-0.0636	-0.0746	-0.0912
	[0.0599]	[0.0607]	[0.0630]	[0.0605]	[0.0691]	[0.0615]	[0.0605]	[0.0658]	[0.0659]
=1 if has a conflict last year	-1.215	-1.218	-1.218	-1.211	-1.210	-1.206	-1.201	-1.209	-1.213
	[0.159]***	[0.158]***	[0.158]***	[0.160]***	[0.160]***	[0.160]***	[0.159]***	[0.160]***	[0.159]***
Years of peace	-3.503	-3.517	-3.512	-3.514	-3.515	-3.517	-3.521	-3.513	-3.512
	[0.111]***	[0.112]***	[0.111]***	[0.111]***	[0.112]***	[0.112]***	[0.111]***	[0.112]***	[0.111]***
Spline(1)	27.18	27.29	27.26	27.27	27.27	27.29	27.32	27.27	27.26
	[0.887]***	[0.886]***	[0.882]***	[0.883]***	[0.885]***	[0.883]***	[0.885]***	[0.887]***	[0.883]***
Spline(2)	-44.99	-45.17	-45.13	-45.16	-45.14	-45.17	-45.22	-45.14	-45.13
	[1.513]***	[1.508]***	[1.505]***	[1.507]***	[1.508]***	[1.506]***	[1.509]***	[1.513]***	[1.507]***
Spline(3)	23.41	23.54	23.48	23.52	23.50	23.51	23.55	23.50	23.49
	[0.997]***	[0.988]***	[0.991]***	[0.995]***	[0.990]***	[0.993]***	[0.992]***	[0.997]***	[0.997]***
Constant	16.77	16.74	16.94	16.38	16.28	16.39	16.80	16.17	15.91
	[0.601]***	[0.590]***	[0.601]***	[0.538]***	[0.531]***	[0.584]***	[2.354]***	[0.579]***	[0.534]***
Observations	2,752	2,750	2,752	2,752	2,752	2,752	2,752	2,752	2,752
R-squared	0.889	0.890	0.889	0.888	0.888	0.889	0.889	0.889	0.889
Number of countries	186	186	186	186	186	186	186	186	186

*Notes: All regressions include year- and region-fixed effects. Omitted categories: zero excluded groups and liberal democracy regimes. Robust standard errors clustered at the country level in brackets. ** significant at 1%, * significant at 5%, † significant at 10%. Variables defined as in Table I. Discriminatory norms does not have overtime variation.*

We now turn to the control variables frequently used in the mainstream conflict literature. Higher levels of GDP per capita are associated with lower rates of organized violence, especially in the fixed-effects models, while economic growth per capita does not have a significant effect; the size of the coefficients remains stable across models. The presence of excluded groups does not impact the rate of organized violence in either model, while in most fixed-effects models, electoral democracy is associated with lower levels of organized violence than in liberal democracies.

Overall, our results reveal several significant effects under the random-effects approach, while some other variables are significant under the fixed-effects method. These different results can be traced to the different source of variation used by each method. The random-effects models are telling us that countries with smaller gender gaps in education, finance and employment, and with lower IPV measures, have less organized violence in comparison to countries where these gender gaps are larger (cross-country variation). On the other hand, the fixed-effects models are telling us that when women's political participation improves and the adolescent fertility rate falls within a country, we observe a decline in the measure of organized violence (within country variation). Both models thus shed light on the potential relation between gender inequality and organized violence.

Discussion and implications

As Gibler argues,[65] the best approach to explaining conflict is likely not dualist (for example, greed versus grievance) but rather a synthesis, drawing insights from a range of literatures. Our results suggest that gender inequality may be an important part of the puzzle, along with other challenges that need to be addressed to reduce the risk and intensity of conflict.

While the set of correlations investigated here clearly do not signify causation, the statistically significant patterns uncovered are suggestive of important relationships. Overall, the updated results confirm six out of our nine hypotheses about the relation between gender inequality and societal conflict. For the remaining three, the evidence is inconclusive.

Higher levels of gender inequality in education, employment, financial inclusion, and political representation, and manifested higher rates of adolescent fertility and intimate partner violence, are all significantly correlated with higher levels of organized violence.

On the methodological front, we argue that the relationship between gender inequality and organized violence is difficult to disentangle. We were able to identify two statistically significant effects under the fixed-effects model. Random-effects estimates reveal four statistically significant associations between gender inequality measure and organized violence across countries. We recognize that making comparisons of fixed versus random effects should be made with caution since, in statistical terms, one is imprecise (fixed effects), the other is biased (random effects).

The results have important implications. Specifically, higher levels of gender inequality in education, employment, financial inclusion, and political representation, and manifested higher rates of adolescent fertility and intimate partner violence, are all significantly correlated with higher levels of organized violence. This suggests that improvements in these key aspects of gender equality not only are important in and of themselves, but also may reduce future societal violence. The good news is that gender gaps in education and financial inclusion have been rapidly and significantly closing in much of the world. Between 1995 and 2018, the percentage of countries with gender parity in primary education rose from 56 percent to 65 percent.[66] In financial inclusion, 85 countries recorded a boost of at least five percent

in women's account ownership between 2014 and 2017.[67] This also underlines concerns about reversals associated with the COVID pandemic, which have especially impacted women's employment and girls' education.

Our finding that economic growth was not statistically significant in the models underlines the importance of going beyond conventional measures of development performance, to understand the structural barriers to peace and stability.

The fact that gender inequality exacerbates the level of conflict highlights its crosscutting importance to the attainment of the SDGs, and buttresses the importance of accelerated efforts to address the full inclusion of women. And unlike some other factors associated with conflict, such as the conflict history or mountainous terrain, we know that effectively addressing gender inequality is feasible with deliberate and sustained policy action.

Finally, as a thought exercise, Table V reports the coefficient-size effects to give a sense of the potential "returns" to changes in the factors that are amenable to policy reform and effort. For example, while reducing the adolescent fertility rate can improve girls' health and future opportunities, our results point to further instrumental value: each one unit reduction in adolescent fertility is associated with a 1.5 percent reduction in organized violence. This underlines the importance of extending access to sexual and reproductive health services, especially contraception, as well as initiatives to curb rates of early marriage that are strongly associated with teen fertility.[68]

Table 5. Effects of gender inequality measures and other explanatory variables on conflict measure

Effects from models including gender inequality measures one at a time

		Fixed effects	Random effects
Panel A			
Gender inequality measures	**Direction of the effect**	**Effect of an increase in 1 pp in the gender inequality measure**	
Women to men gross lower secondary education enrollment rate	-	not significant	0.58%
Women to men financial inclusion	-	not significant	0.37%
Women to men employment rate	-	not significant	0.69%
Women to men parliament representation	-	0.77%	not significant
Adolescent fertility rate	+	1.50%	not significant
Legal discrimination	-	not significant	not significant
Son bias	+/-	not significant	not significant
Discriminatory norms	+	n.a.	not significant
Intimate partner violence	+	1.30%	not significant
Panel B			
Contol variables	**Direction of the effect**	**Effect of an increase in 1 unit in the control variable**	
GDP per capita (increase of 1%)	-	Between 0.46% and 0.51%	not significant
GDP per capita growth rate (increase of 1 percentage point)	+/-	not significant	not significant
1 excluded group (relative to having 0)	+	not significant	not significant
2 excluded groups (relative to having 0)	+	not significant	not significant
3 or more excluded groups (relative to having 0)	+/-	not significant	not significant
Closed autocracy regime (relative to liberal democracy)	-	not significant	between 0% and 21.5%
Electoral autocracy regime (relative to liberal democracy)	-	not significant	not significant
Electoral democracy regime (relative to liberal democracy)	-	between 0% and 7.1%	not significant

Source: Authors' elaboration. Variables defined as in Table I.

It is worth noting that while gender gaps persist over time, change can come rapidly. In Mexico, the gender gap in employment narrowed from 0.4 to 0.7 between 1991 and 2016, while in India the gap worsened from 0.4 to 0.3 over the same period. Education gaps have been closing in many countries with sustained efforts and investments by families, governments, and development partners. In Ethiopia, the gender gap in lower secondary enrollment virtually closed over the period, improving from 0.6 to almost 1 between 1999 and 2015. We also know that gender quotas can quickly affect the gaps in parliamentary representation.[69] However, there also may be budgetary constraints, as well gaps in knowledge, about what works. While addressing intimate partner violence is critical, it is also a challenge that requires more investigation into workable preventions.[70]

The other key message for policy makers is that gender equality is multidimensional, each dimension important for both intrinsic and instrumental reasons. For instance, we know that policies to boost women's education can also expand their economic opportunities and reduce adolescent fertility rates,[71] so that their ultimate impact on organized violence can be larger than our estimations suggest. An important insight from our analysis is that the instrumental value of promoting gender equality may go beyond conventional spheres of the economy and health, for example, to reduce risk and levels of future societal conflicts.

The instrumental value of promoting gender equality may go beyond conventional spheres of the economy and health, for example, to reduce risk and levels of future societal conflicts.

Conclusions

The importance of addressing gender inequality and advancing the opportunities for women and girls has moved to the forefront of the global agenda, as reflected in the SDGs. With this study, we seek to advance the understanding of the nexus between gender inequality and violent conflict in several ways. First, we cover a recent period (2000–2014), capturing the rapid increase in the number of conflicts and related deaths. Second, we focus on a variable—organized violence—that had not been utilized in earlier studies about gender inequality and conflict, and that better addresses the nature and intensity of contemporary conflict. Third, we use an expanded set of gender inequality measures, covering the dimensions of women's inclusion, justice and security. Fourth, we apply different econometric strategies to estimate the relationship of interest––fixed effects versus random effects––highlighting methodological factors related to both sets of results and discussing the policy implications.

Our results reveal that several aspects of gender inequality are significantly associated with organized violence across the inclusion and security dimensions. Specifically, improvements in women's education and employment, and in financial inclusion relative to men, political participation, adolescent fertility rate, and intimate partner violence, are all significantly associated with lower levels of organized violence.

These results provide robust evidence for the agenda to advance gender equality and empower all women and girls, not only to support fundamental human rights, but as a key foundation for a peaceful, prosperous, and sustainable world.

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