INTERNATIONAL MONETARY FUND

Frayed Societies: Decoding the Interplay between Conflicts and Gender Inequality

Paola Ganum and Can Sever

WP/25/12

IMF Working Papers **describe research in progress by the author(s) and are published to elicit comments and to encourage debate.**
The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

2025
JAN

WORKING PAPER

© 2025 International Monetary Fund

WP/25/12

IMF Working Paper

African and Strategy, Policy, and Review Departments

Frayed Societies: Decoding the Interplay between Conflicts and Gender Inequality

Prepared by Paola Ganum and Can Sever*

Authorized for distribution by Pablo Lopez Murphy and Eugenio Cerutti

January 2025

***IMF Working Papers* describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

ABSTRACT: This paper explores the relationship between violent conflicts and gender inequality in a global sample since the 1990s. Based on a composite index, it shows that conflicts, including both interstate and intrastate events, predict a higher gender inequality in outcomes. Focusing on specific gender outcomes, school enrollment rate by females in primary education and share of seats in parliament held by women tend to decrease in the aftermath of those episodes, whereas maternal mortality rate increases. Moreover, conflicts tend to widen cross-country gaps in gender inequality in outcomes. Focusing on gender inequality in opportunities, conflicts are associated with lower economic rights for women in legislation. Considering the role of women's empowerment in economic growth and development, these associations between conflicts and gender inequality provide a channel for the observed, long-lasting drag on economic performance following those episodes. The ongoing political and security-related challenges across the globe make the implications of the findings even more crucial for sustainable and inclusive economic growth in the post-Covid-19 era.

RECOMMENDED CITATION: Ganum, Paola and Can Sever. 2025. "Frayed Societes: Decoding the Interplay between Conflicts and Gender Inequality", IMF Working Paper No. 25/12

JEL Classification Numbers:	D74, J16, K38, O1, O40
Keywords:	Gender inequality; women's empowerment; women's legal rights; conflict; wars; economic growth and development
Author's E-Mail Address:	Ganum: gganum@imf.org; Sever: csever@imf.org

* The views expressed in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management. We thank Diego Gomes, Lucia Gruet, Shushanik Hakobyan, Kouame Desire Kanga, Sergii Meleshchuk, Rasmane Ouedraogo, Faten Saliba and Jaroslaw Wieczorek for useful comments and suggestions. We also thank the seminar participants at the IMF for helpful feedback. All errors belong to us.

WORKING PAPERS

Frayed Societies: Decoding the Interplay between Conflicts and Gender Inequality

Prepared by Paola Ganum and Can Sever[1]

[1] The views expressed in in this paper are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management. We thank Diego Gomes, Lucia Gruet, Shushanik Hakobyan, Kouame Desire Kanga, Sergii Meleshchuk, Rasmane Ouedraogo, Faten Saliba and Jaroslaw Wieczorek for useful comments and suggestions. We also thank the seminar participants at the IMF for helpful feedback. All errors belong to us.

Contents

1. Introduction **3**

2. Data **7**

3. Stylized Facts **9**

4. Methodology **12**

5. Results **13**

6. Conclusion **23**

References **25**

Appendix **28**

1. Introduction

In recent years, the number of conflicts and conflict-related deaths have been on the rise globally (USIP 2023). Besides their human rights consequences, conflicts are a major challenge for economic development. They are generally associated with durably poor economic performance and have repercussions on development outcomes including in health and education. On the other hand, gender equality is key for long-term sustained economic growth. Against this backdrop, the existing literature mostly focused on the role of gender disparities in the occurrence of conflicts, while there has been lack of effort to explore the role of conflicts in gender inequality. In this paper, we discuss that conflicts likely affect women more than men. We test this based on global data, and show that conflicts predict higher gender inequalities in both outcomes and opportunities. These findings on the heightened gender inequalities in the aftermath of conflicts provide a potential channel through which those episodes can hinder economic growth and development.

Conflicts, both in the form of interstate and intrastate events, impose large macroeconomic costs, while their burden disproportionately falls on women. Besides their immediate effect on workforce and human capital in the form of death toll and displaced people, conflicts lead to destruction in physical infrastructure, erosion of institutions, and disruptions in essential social services such as healthcare and education. Conflicts likely inflict immense suffering for women and girls, since they can be victims of human rights abuse, trafficking, and other forms of gender-based violence. In particular, those events hinder access to education and healthcare due to increased threats of attacks or displacement, as well as due to a deterioration of healthcare facilities or healthcare services becoming overwhelmed by the burden of conflict-related injuries.[1] Women may be disproportionately affected because of their vulnerability, being targeted as a tactic of war, facing challenges in accessing reproductive health services, maternal care, and educational and employment opportunities, which overall can widen pre-existing gender gaps. Furthermore, as conflicts rise, women's empowerment may be impacted, as highlighted in the latest UN Secretary General report, thereby limiting women's access to employment and financial resources.[2] Finally, during conflicts, traditional gender roles may become more pronounced or shift due to changing circumstances, due to for example women's role as caretaker in the household, impeding women's employment opportunities and financial security (e.g., Sommer et al. 2018, Dincecco et al. 2024).

The reversal of progress towards gender equality due to wars and instability can hinder economic growth and development. There is a long literature showing that gender equalities in outcomes and opportunities are associated with long-term sustained economic growth, at least going back to the seminal work by Boserup (1970). Among others, Bertay et al. (2020, 2024) review the literature and show causal evidence that higher gender equality in outcomes boosts growth. Sever (2023) finds that more gender equal laws (that do not discriminate against women), as a proxy for gender equality in opportunities, translate into a larger share of women in the labor force without negatively impacting that of men, resulting in an overall boost to labor force participation. Greater gender equality in the law also facilitates cross-country income convergence through which less developed economies can catch up with

[1] See, Women's human rights and gender-related concerns in situations of conflict and instability | OHCHR.

[2] Press release: Women are increasingly at-risk in conflict and underrepresented in peace processes, according to a UN report | UN Women – Headquarters

the living standards in the richer economies (Sever 2022). Similarly, other papers look at the negative impact on growth and development from gender inequality (see Galor and Weil 1996, Lagerlöf 2003).

In this paper, we examine the association between conflicts and gender inequality, particularly focusing on the role of conflicts in gender inequality regarding outcomes and opportunities. The main sample consists of 158 advanced, emerging market and developing economies over the period of 1990 and 2019, restricted by data availability. We adopt the composite indicator, i.e., gender inequality index (GII), from the United Nations Development Programme (UNDP) as a proxy for gender-based disparities in outcomes to account for the multifaceted nature of gender inequality in the baseline. The index encompasses information on gender gaps in outcomes in the areas of health, education, political representation and labor market. The data on the years of conflicts (including interstate and intrastate events) comes from the Major Episodes of Political Violence (MEPV) database from the Center of Systemic Peace.

We start by documenting various stylized facts. First, there has been a steady progress toward gender equality across the globe since the 1990s, but gender inequalities are still prevalent globally. Moreover, cross-country gaps in gender inequality do not seem to narrow over time. We also show suggestive evidence that greater gender inequality in outcomes is associated with lower economic growth on average. We next focus on the conflict and their macroeconomic relevance. In our sample, conflicts are widespread in different regions and over the years. We document a long-lasting decline in GDP per capita on average, upwards of 10 years following those events.

In the baseline estimation, we find that conflicts predict higher gender inequality in outcomes. Although it is hard to claim causality, our approach aims to alleviate the issue of omitted variables. First, we account for the roles of time invariant country-specific factors and common yearly shocks in gender inequality with the inclusion of country and year fixed effects. We also note that this finding stays similar when we isolate the underlying variation in gender inequality arising from a large set of time variant institutional and macroeconomic variables. Next, we show that higher levels of gender inequality do not seem to precede the onset of conflicts, thereby mitigating the concerns about reverse causality. The negative association between conflicts and gender equality further survives a large set of robustness checks. Finally, we employ placebo tests to rule out a possibility that other country-level shocks that coincide with conflicts may drive the results and conclude that there is a systematic relationship between conflicts and gender inequality.

We next focus on a slightly different issue and investigate whether conflicts have implications for cross-country dispersion in gender inequality. This is an important phenomenon given that there has been steady progress globally towards gender equality since the 1990s, as noted above. We find that conflicts tend to exacerbate the existing cross-country gaps in gender equality. In particular, conflicts predict a higher distance between a country and the global frontier regarding gender equality, thereby making countries lag their peers in the process of achieving a more gender-equal environment. Consistently, we find that conflicts weaken sigma-convergence across countries, i.e., the cross-country dispersion in gender equality across the sample appears to be greater following the years with more frequent conflicts across the globe. These findings are particularly important for the regions that have relatively greater gender inequalities and more frequent conflicts, such as Sub-Saharan Africa.

We also disentangle the types of violent conflicts, as well as the forms of gender-based inequality in outcomes. We find evidence that both interstate and intrastate conflicts are associated with a higher gender inequality. Next, focusing on granular outcomes instead of the composite index as a proxy for gender inequality, we show that school enrollment rate by females in primary education and share of seats in parliament held by women tend to decrease in the aftermath of those events, whereas maternal mortality rate increases. The declines in education and health outcomes suggest that the episodes of conflicts indeed likely impede the accumulation of human capital.

Finally, we examine the association between conflicts and gender inequality in opportunities by focusing on inequality under the law. For this purpose, we use data from the World Bank's Women, Business and the Law (WBL) database. The database covers the laws and regulations that discriminate against, or sideline, women since 1970. In particular, it gauges the overall degree of gender equality in legislation by focusing on eight areas of women's economic rights on issues such as freedom of movement, rights to employment and equal remuneration, protection from harassment, paid maternity leave benefits, and access to credit, pensions, and assets. We find that conflicts are associated with less economic rights for women, thereby aggravating the unequal treatment of women and men under the law. This pattern is particularly pronounced when it comes to the laws in the areas of freedom of mobility, rights in marriage and parenthood, and entrepreneurship. These suggest that conflicts act as an impediment to leveling the playing field for women and men, besides exacerbating gender inequality in outcomes.

Our findings suggest a channel for the negative association between economic outcomes and conflicts, and also have important implications going forward. To start with, considering the role of women's empowerment in economic growth and development, our results on the role of conflicts and gender inequality provide a potential channel for the observed, long-lasting strain on economic performance in the aftermath of those episodes. Considering that the Covid-19 pandemic likely exacerbated the existing gender gaps within countries by affecting women disproportionately (e.g., Alon et al. 2020), the ongoing political and security-related challenges across the globe make the implications of these findings even more crucial for sustainable and inclusive economic growth in the post-pandemic era.

1.1. A Brief Review of the Literature

Our paper contributes to three strands in the literature. The first strand focuses on the interplay between conflicts and gender inequality. The literature on conflict, more broadly, focuses on the role of factors that drive polarization on societies such as religion, demographic factors, ethnicity, and inequality as well as geographical, environmental, resource-related, and economic factors (see Dixon 2009 for a literature review). Within this literature, some studies examine the role of gender inequality on intrastate conflicts (the opposite direction of association as that proposed in the present paper). For instance, Caprioli (2005) and Melander (2005) find that gender equality predicts lower levels of conflicts, focusing on the risk of conflict onset (the former study), and on the escalation of conflict from minor to full-scale civil war (the latter study). Bussmann (2010) offers a potential explanation for these observations, suggesting that societies with less gender discrimination tend to be more peaceful. This is attributed to

different attitudes of women and men, with women generally being more reluctant and opposed to employ military force in leadership roles.

Several country-specific studies focus on studying societies afflicted by conflict and violence, and the gender issues surrounding them. Myrttinen (2005) finds that war gave rise to violent behavior in men reflected in sexual violence towards women in Timor Leste due to cultural, economic, social, and historical factors that persisted even after conflict ended, and translated into domestic violence. Turning to educational impact, Shemyakina (2011) shows that conflict in Tajikistan negatively impacts girls' completion of education and enrollment rates attributing it to the loss of a parent, safety concerns, and lower returns on education. Chamarbagwala and Moran (2011) find similar effects in Guatemala, while in Burundi, Verwimp and Van Bavel (2013) shows that it is the schooling of boys that is more negatively affected. In this paper, as opposed to the previous studies, we explore gender inequality dynamics in the aftermath of conflicts looking at a cross-country sample based on a composite index to account for the multifaceted nature of this phenomenon, and find that conflicts are followed by higher gender inequality. Moreover, we explicitly test whether gender inequality has a role in the likelihood of entering a conflict, but do not find much evidence on the predictive role of gender inequality in the occurrence of conflicts, therefore mitigating concerns of reverse causality.

This paper also contributes to the literature on the economic costs of conflicts. The existent literature documents that conflicts have large and durable repercussions on macroeconomic performance as cited above. Among others, Collier (1999), Hoeffler and Reynal-Querol (2003), Cerra and Saxena (2008), Gates et al. (2012), Fang et al. (2020), Novta and Pugacheva (2021), and Chupilkin and Koczan (2022) show that conflicts predict lower economic growth. Rodrik (1999) finds that social conflicts are an important driver of growth collapses.[3] Sever (2024) uses granular data and shows evidence on the causal effect of conflicts on economic growth, which works through their impact on innovative activities. The majority of the papers in this strand of the literature finds that the foregone growth during conflicts hinders post-conflict per capita GDP as well, since the accumulated income losses are not typically recovered in the short-term. Other papers focus on the scarring effects of conflicts on long-term growth by hindering development and social outcomes, including poverty, income inequality, child mortality, life expectancy, education, access to clean water, and nutrition (see Hasan 2022, Buvinic et al. 2013, and Rohner 2022 for a review of the literature). Among those, Ghobarah et al. (2003) and Plümper and Neumayer (2006) find that the health consequences of conflicts are long-term, while affecting more women than men. Our findings on the negative role of conflicts on gender inequality in outcomes and opportunities in a cross-country setting add to these studies by providing a specific channel for the observed patterns of poor economic performance following conflicts, considering the role of gender inequality in economic growth and development.

Finally, this paper contributes to the literature on the drivers of gender inequality. Several papers focus on the roles of slow-moving variables that can influence gender disparities, such as culture and institutions (e.g., Cooper 2002, Fernandez 2007, Branisa et al. 2013, Alesina et al. 2013, Cooray and Potrafke 2011, Ferrant and Nowacka 2015). Some discuss the role of institutions, economic development and uncertainty as determinants of gender inequality (e.g., Jayachandran 2015, Klasen 2017, Nguyen

[3] This association between conflicts and low economic performance goes even beyond borders (Sever 2018).

2022). In general, gender inequalities tend to be more pronounced in countries with lower levels of economic and institutional development, while other factors such as inflation seem to influence gender inequalities (e.g., Goldin 2023). We add to this literature by showing that even after controlling for slow-moving variables and various factors as proposed by the literature, conflicts are a significant predictor of gender inequality.

The rest of this paper is organized as follows. Section 2 introduces the data. Section 3 presents the empirical methodology. Section 4 documents the stylized facts. Section 5 illustrates the results. Section 5 concludes.

2. Data

This section provides a detailed explanation of the data. A brief description (Table A.1) and summary statistics (Table A.2) are illustrated in the Appendix.

2.1. Episodes of Conflicts

We use data on the years of conflicts from the Major Episodes of Political Violence (MEPV) database from Center for Systemic Peace. Conflicts in the database are identified by the systematic and sustained use of violence by organized groups, where human toll exceeds 500 deaths. It is available until 2018 and it includes various types of events, including interstate and intrastate violence and war (with the latter consisting of the subgroups of civil and ethnic). In the main analysis, we assign a dummy variable 1 for all the years of conflicts (encompassing interstate and intrastate). In a different test, we construct distinct dummy variables for the years of interstate and intrastate conflicts. We also test the results by splitting the intrastate episodes into civil and ethnic violence, while noting that this distinction is not always clear due to the frequent intertwining of political and social identity characteristics, as also acknowledged by the database. Finally, we run a test by assigning a dummy variable 1 only for the onset of conflicts as well.

The database also includes scores for conflicts ranging from 1 to 10, based on the magnitude of impact of those episodes considering various aspects including state capacity, intensity, related destruction and displacement. In this regard, we also account for the “size” of conflicts in a separate test. For this purpose, instead of a dummy variable, we assign a variable 1 (2) for the year whenever this variable is below (above) the sample median, and 0 otherwise (in case of no conflicts). We prefer this classification rather than using the exact values of the scores, given that the scores are not straightforward, thereby raising concerns on comparability of the events across countries and years.

2.2. Gender Inequality

2.2.2. Gender Inequality in Outcomes

We adopt the composite index in gender inequality (GII) from United Nations Development Programme (UNDP), as a proxy for gender inequality in outcomes as our baseline measure. It has the advantage of capturing the multidimensional nature of gender inequality by encompassing information on gender inequalities in outcomes in the realms of health, education, political sphere, and labor market.[4] Data is available starting from 1990. The index ranges from 0 to 100, higher values representing greater gender inequality.

In the next step, we dig deeper into gender outcomes in education, political representation, labor market and health. For this purpose, we adopt several variables on gender outcomes in education, i.e., female school enrollment rates in primary, secondary and tertiary levels (gross rates), from the World Bank's World Development Indicators database. We also use percent of seats in parliament held by women, female labor force participation rate (ages 15 and older), adolescent fertility rate (births per 1000 women aged 15-19) and maternal mortality rate (deaths per million live births) from UNDP.

2.2.2. Gender Inequality in Opportunities

We also explore gender inequality in opportunities focusing on legislation. Data on gender disparities in law are from the World Bank's Women, Business and the Law (WBL) database. It is constructed by a team of the World Bank's legal experts together with local experts, lawyers, judges, and public officials. It aims to proxy for an economic environment that is conducive to women's economic inclusion by examining existing laws and regulations as women go through different stages of their work life as well as the opinion of experts since 1970. A case in point is access to job opportunities, as in some countries women face legal restrictions, requiring their husband's permission to work or limiting the number of hours of work. The database has eight indicators focusing on women's work life, starting from the entry into the workforce through retirement. The indicators provide a measure of gender-based discrimination in domestic laws including in (i) mobility, (ii) workplace, (iii) pay, (iv) marriage, (v) parenthood, (vi) entrepreneurship, (vii) ownership of assets, and (viii) pension.

The indicator on mobility is on the constraints on women's agency and freedom of movement which can affect their decision to participate in the labor market. The category workplace evaluates the legal capacity of women to work, together with the regulations to prevent discrimination in the workplace. The indicator on pay assesses the laws that can lead to gender wage gap. The category marriage focuses on the legal limitations on women to marry and divorce, as well as their ability to be the head of household. The parenthood indicator is on the bias in regulations affecting women's work life both during and after pregnancy. Entrepreneurship is related to whether women can legally start and run businesses. The indicator on assets evaluates gender discrimination in property and inheritance laws. Finally, the pension category covers gender-based discrimination in the laws on the pension system.

[4] The technical details of the calculation of GII can be found online here.

For each of these eight aspects, a score is assigned based on the answers to 4 or 5 binary (Yes/No) questions. Whenever there is a legal limitation on women, the score for the corresponding question is assigned 0. For the indicators with 4 (5) questions in total, each answer suggesting gender equality adds 25 (20) points to the score. Indicator-level scores are obtained by computing the unweighted sum of the question scores within that indicator. Overall law score, so-called WBL index is then calculated for each country-year pair as the unweighted average of eight indicator scores. By construction, the WBL index, is scaled between 0 and 100, with higher values meaning greater gender equality in legislation. If the WBL index is 25, for instance, it means that women, on average, have a quarter of the economic rights that men have. An index of 100 indicates total equality between women and men in legislation.

Table A.3 in the Appendix shows that gender-based granular outcomes are positively associated with the composite index (GII) as expected. Moreover, gender inequality in laws is correlated with gender inequality in outcomes.

2.3. Other Variables

We adopt the index on civil liberties as a proxy for institutional quality from the Freedom House dataset. A score is assigned based on an assessment of freedom of expression and belief, associational and organizational rights, rule of law, and personal autonomy and individual rights. The index ranges from 1 to 7, higher values representing lower degree of civil liberties or political freedom. In the regressions, we transform it to be 8 minus the index to indicate the countries with a better institutional environment with higher values.

We also use various macroeconomic control variables, as adopted from the World Bank World Development Indicators database. Those include real GDP per capita (used in logarithm, constant in 2015 US dollars),[5] trade (as percent of GDP), FDI (net inflows, as percent of GDP), credit to the private sector (as percent of GDP), inflation (based on GDP deflator, percent), employment in agriculture (based on modeled estimates, as percent of total employment). In weighted regressions, we also adopt GDP (constant in 2015 US dollars) and population (used in logarithm) from the same source.

Table A.3 in the Appendix shows that gender inequalities in outcomes are more prevalent in countries that are less developed in general.

3. Stylized Facts

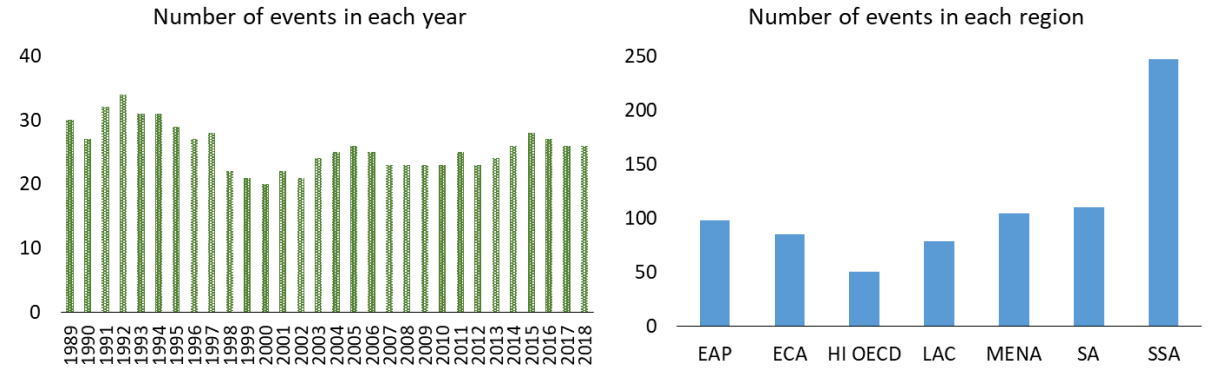
3.1. Conflicts

We start by documenting the number of country-year observations with conflicts in the main sample. Figure 1 shows the results. The main sample consists of 158 countries including advanced, emerging market and developing economies over the period of 1990-2018, restricted by the availability of data from MEPV and UNDP. There are 772 country-year observations with conflicts, out of 4220

[5] We use nominal GDP per capita for a few observations where data on real GDP per capita is missing to increase the number of observations in the corresponding tests. However, this step does not affect the results throughout the paper.

observations, making the average annual probability of such events about 18 percent. The events are common across all the years in the sample. All regions experienced conflicts, but sub-Saharan Africa leads with 247 events. It is however important to note that it is the region with the highest number of observations in the sample, as analyzed in more detail below. We also note that intrastate events are more common than interstate events, where the number of country-year observations with the former (latter) is 727 (70), with 25 country-year observations having both types of conflicts.

Figure 1: Conflicts in the sample



Notes: The charts report the number of country-year observations with conflicts across the years and the regions in the sample. The regions are adopted from the World Bank: EAP: East Asia and Pacific, ECA: Europe and Central Asia, HI OECD: High income OECD, LAC: Latin America and Caribbean, MENA: Middle East and North Africa, SA: South Asia, SSA: sub-Saharan Africa. While the sample cover the period of 1990-2018, these charts document one-year lagged values of the events in line with the regression analysis.

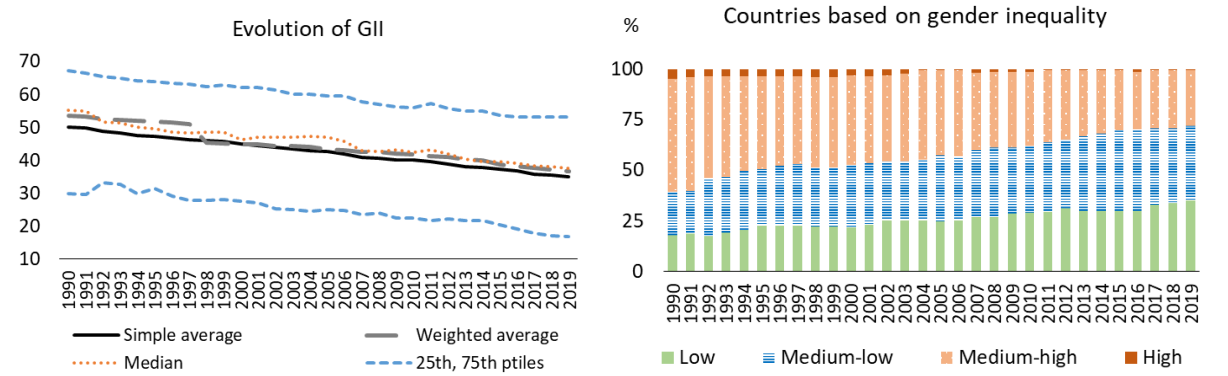
3.2. Evolution of Gender Inequality

We next explore the evolution of gender inequality over the period of the analysis. The results are documented in Figure 2. The left-hand side chart shows that gender inequality shows a declining trend since the last three decades. The simple average of GII in the sample decreased from 50 to 35 from 1990 to 2019. This trend is consistent with similar improvements documented in the literature (for instance Milazzo and Goldstein, 2019). While this points to significant progress toward gender equality globally, simple linear calculations imply that it may take globally almost 70 more years to reach the full gender equality in outcomes (i.e., achieving a GII of zero), if the world keeps the same pace of progress as in the period of 1990-2019. Moreover, we observe a significant and persistent dispersion across countries. For instance, the country at the 25th percentile of the distribution (with a relatively low gender inequality) reached a level of 17 in 2019, while the country at the 75th percentile stayed at a GII level of 53.

The right-hand side chart instead reports the percentage of countries in the sample over time under four categories of GII. Those categories are based on the specific values of GII, i.e., 0, 25, 50 and 75, where countries with low GII are the ones with an index below 25, countries with medium-low GII are the ones with an index between 25 and 50, and so on. It shows a steady shift from higher levels of GII towards lower levels, that is towards gender equality since the last three decades. Countries with low gender inequality (green bars) account for 18 percent of the countries in the sample in 1990, whereas

they reached one-third (35 percent) in 2019. The percentage of the countries that are categorized as medium-low gender inequality increased from 22 to 37 percent (blue bars), whereas the countries with medium-high GII declined from 56 to 27 percent during the sample period (orange bars).

Figure 2: Gender inequality over time



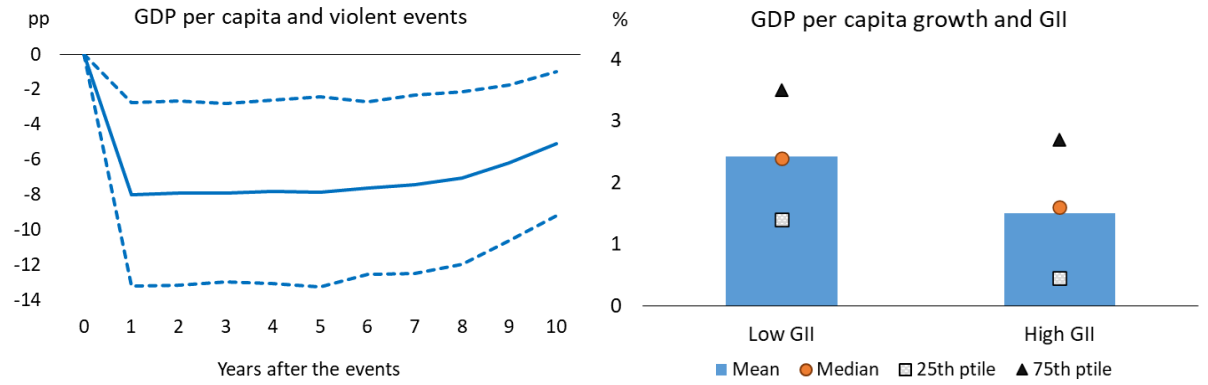
Notes: The left-hand side chart reports gender inequality based on the composite index (GII) from UNDP (ranging from 0 to 100, higher values representing higher gender inequality) in the sample. Weighted average is based on population weights. The right-hand side chart documents the percentage of countries in the sample with a GII below 25 (low), between 25 and 50 (medium-low), between 50 and 75 (medium-high), and above 75 (high).

3.3. Macroeconomic Relevance of Conflicts and Gender Inequality

We next provide suggestive evidence of the link between conflicts, gender inequality and GDP per capita. Figure 3 illustrates the findings. Based on local projections (Jorda 2005), the left-hand side chart shows that GDP per capita decreases about 8 percent on average following conflicts. The negative association between such events and GDP per capita stays statistically significant for upwards of 10 years, where GDP per capita remains about 5.7 percentage points lower compared to the initial value 10 years after the conflict, suggesting that conflicts predict persistently low income (consistent with findings in the literature).

The right-hand side chart shows that growth rate of GDP per capita and gender inequality tend to be negatively associated. It reports growth rates of real GDP per capita across countries based on the values of gender inequality. They are both averaged during the sample period for each country. For countries below the sample median regarding gender inequality index, i.e., countries with low gender inequality, growth rate was around 2.4 percent per annum on average, whereas it was about 1.5 percent of the countries with higher gender inequality. We also observe similar patterns for the median and different percentiles of growth rates across countries. This suggests countries with higher gender inequality tend to growth less on average. The patterns of low growth following conflicts and in cases of greater gender inequality suggest that higher gender inequality in the aftermath of conflicts (as we find in the empirical analysis) can be a potential channel for the persistent decline on GDP per capita after conflicts.

Figure 3: GDP per capita, conflicts and gender inequality



Notes: The left-hand side chart reports the percentage points (pp) change in the level of real GDP per capita during the 10 years following conflicts based on local projections (as shown in the Appendix) in the sample. Dashed lines are the 90 percent confidence interval. The right-hand side chart documents summary statistics of average growth rate of real GDP per capita in the countries with low versus high GII (based on the sample median of GII averaged over the sample period for each country) in the sample.

4. Methodology

To examine whether conflicts predict higher gender inequality, we adopt panel regression with fixed effects, as follows:

$$Gender\ inequality_{c,t} = \beta_1 Conflict_{c,t-1} + \theta_c + \theta_t + \epsilon_{c,t} \quad (1)$$

where c and t stand for country and year, respectively. $Gender\ inequality_{c,t}$ is a proxy for gender inequality. We adopt the composite index (GII) from UNDP in the main estimation, where the higher values represent greater gender inequality in outcomes. The dummy variable $Conflict_{c,t-1}$ takes 1 during the years of conflicts (encompassing interstate and intrastate episodes), and 0 otherwise. To the extent that conflicts predict a higher gender inequality, we expect β_1 to be positive.

Country fixed effects (θ_c) absorb the role of all country-level time invariant factors in gender inequality. Year fixed effects (θ_t) control for the effects of annual developments that are common across all countries on gender inequality. The inclusion of both sets of fixed effects alleviates omitted variables problem to some extent. Nonetheless, it is hard to claim causality, due to, for instance, that other country-specific factors that change at annual frequency can still affect gender inequality, thereby potentially leading to endogeneity issues. Against this backdrop, we extend the specification above, and include several variables to account for the role of institutional and macroeconomic environment in gender inequality to further mitigate concerns about omitted variables:

$$Gender\ inequality_{c,t} = \beta_1 Conflict_{c,t-1} + \beta_2 X_{c,t-1} + \theta_c + \theta_t + \epsilon_{c,t} \quad (2)$$

where $X_{c,t-1}$ represents the set of control variables. Standard errors are clustered at the country-level in the estimations, unless otherwise noted.

5. Results

5.1. Main Results

Table 1 illustrates the results on the role of conflicts in gender equality. The results are based on equation 1 and equation 2. The dependent variable is the composite index on gender inequality (GII) as adopted from UNDP. The dummy variable for conflicts represents the years in which such events take place.

The finding in column 1 is in line with our prior and shows that conflicts are followed by a higher gender inequality. The coefficient estimate suggests that gender inequality index becomes 1.3 points higher following the years of conflicts. This is economically important. It is more than two times the average annual change of GII in the sample (which is -0.6 points, a negative value given the overall trend towards gender equality as shown in Figure 2). Moreover, it corresponds to 80 percent of one standard deviation of the annual changes across the sample (which is 1.6 points). Alternatively, focusing on the annual fluctuations in GII in each country over the sample period, the coefficient estimate as shown in the first column is larger than one standard deviation of the annual changes in GII for about three quarters of the countries (i.e., for 114 countries out of 158 in the sample).

Although the inclusion of country fixed effects control for all country-specific time invariant factors on the dynamics of gender inequality, it is important to test whether the main result remains similar when we control for several institutional and macroeconomic features that potentially change at an annual frequency and can be relevant for gender inequality, serving as typical controls in the drivers of gender (in)equality literature. First, we aim to control for the broader institutional environment as proxied by the index on civil liberties (column 2). In the next 6 columns, we start adding variables to account for economic development (real GDP per capita), institutional quality, trade openness (trade as percent of GDP), financial openness (FDI as percent of GDP), financial development (credit to the private sector as percent of GDP), changes in prices (inflation based on deflator), and the structure of economic activity (agricultural employment as percent of total employment).

In the last column, we control for all these variables. The coefficient estimates of the control variables are statistically insignificant across these tests. We note that this does not mean that none of these variables plays a role on gender inequality in the longer-term, since we focus on annual changes in gender inequality (while accounting for the role of country-specific time-invariant factors). Thus, the statistically insignificant coefficient estimates particularly suggests that those variables are not associated with pronounced changes in gender inequality within one-year period, possibly since gender inequality tend to move slowly (particularly in the absence of drastic events, e.g., the episodes of conflicts as we explore in this paper). Against this background, our main result on the association between conflicts and gender inequality is not much affected by the inclusion of the control variables. We also note that the sample shrinks by one-third in the last column relative to column 1. With these considerations, we drop the control variables for the rest of the analysis.

Table 1: Main results

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Conflict$	1.34**	1.42**	1.30**	1.32**	1.24**	1.40**	1.37**	1.41**
	(0.62)	(0.62)	(0.64)	(0.61)	(0.61)	(0.61)	(0.62)	(0.69)
$Institutional\ quality$		0.20	0.30	0.10	0.07	0.12	0.11	0.00
		(0.28)	(0.25)	(0.22)	(0.22)	(0.24)	(0.24)	(0.27)
$GDP\ per\ capita$			-0.11	-1.06	-1.00	-1.82	-1.55	-1.42
			(2.08)	(1.31)	(1.36)	(1.29)	(1.47)	(1.42)
$Trade$				0.00	0.00	0.01	0.01	0.01
				(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
FDI					-0.01	0.00	0.00	0.00
					(0.01)	(0.01)	(0.01)	(0.01)
$Financial\ development$						0.00	0.00	0.00
						(0.01)	(0.01)	(0.01)
$Inflation$							0.00	0.00
							(0.00)	(0.00)
$Agriculture\ share$								-0.02
								(0.06)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4220	4188	4144	3921	3850	2988	2980	2880
R-squared	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98

Notes: Results are based on equation 1 and equation 2. Dependent variable is the gender inequality index (GII). Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence. Control variables include a proxy for institutional quality (index on civil liberties), logarithm of real GDP per capita, trade as percent of GDP, FDI as percent of GP, credit to the private sector as percent of GDP, inflation (deflator-based), and agricultural employment as share of total employment. Standard errors in parentheses are clustered at the country-level. *** p<0.01, ** p<0.05, * p<0.1.

5.2. Robustness

In this section, we present a large set of robustness checks. Table 2 illustrates the results. In Panel A, we start by focusing on the coding of the variable for the episodes of conflicts. First, we use an alternative dummy variable which takes 1 only for the onset of the events, rather than covering the full duration of those episodes as reported by MEPV. It is sensible to check the robustness of results to this measure, since it may not always be straightforward to identify the year when a conflict fades or ends. Column 1 shows the results with this coding. Next, while it is not easy to classify the intensity of those events, we still test our results by adopting a categorization to account for the magnitude of conflicts. Column 2 accounts for the intensity of those events by adopting a variable which is assigned 1 for events which are milder, and 2 otherwise (based on the median value in the sample, as coded in the database).

Column 3 controls for the number of years with events in each country (over the period) until year *t-1* to test the results while accounting for the history of violent conflicts.[6] The results stay similar in these tests.

Columns 4-8 in Panel A employ tests focusing on the sample. In particular, column 4 uses data only from the countries that have data for all years of the analysis, i.e., the continuing sample (consisting of 102 countries). Column 5 tests the relationship in the subsample that consists of the countries that had at least one event during the period of the analysis. Column 6 excludes a few countries that had 20 or more events during the sample period to make sure that the results are not driven by those. Column 7 instead uses data only from the countries with relatively more frequent conflicts (i.e., countries with 3 or more events during the period of the analysis). Column 8 drops the poorest countries (based on the 5th percentile of the average real GDP per capita in the sample) to confirm that they are not the ones driving the relationship between conflicts and gender inequality. Column 9 employs weighted regressions where the weights are average population for each country to confirm that small countries are not the ones driving the findings.[7] The results remain similar in these tests.

In Panel B, column 1 winsorizes GII at the 1st and 99th percentiles to suppress the impact of outliers. In unreported results, we also confirm that the results are robust to more conservative approaches, e.g., winsorizing GII at the 5th and 95th percentiles. Next, we focus on year trends, since we observe a long-term decreasing trend in GII (Figure 2). Column 2 replaces year fixed effects with a common year trend. Column 3 replaces country fixed effects with region fixed effects. Column 4 replaces year fixed effects with decade fixed effects.[8] Finally, column 5 uses standard errors robust to heteroskedasticity instead of clustering at the country-level.[9] The findings are consistent across these checks. We also note that country fixed effects appear to be important for the dynamics of gender inequality. Moreover, whenever we include year trends in the estimation, the coefficient estimates of those are negative, consistent with the steady progress in GII over time, as shown in Figure 2.

[6] We note that the coefficient estimate of the number of events in the past is around zero (-0.05) and statistically insignificant (with a p-value of 0.54).

[7] The results are robust to weighting with average GDP to account for the size of the economy, instead of population.

[8] We note that the results remain similar, if we drop country and/or year fixed effects from the estimation. It is also worth noting that the R-squared drops markedly (to about 0.1) if we drop country fixed effects, pointing to an important role that country-level time invariant factors play in this statistic.

[9] The results also remain similar when standard errors are two-way clustered (at the country- and year-level).

Table 2: Robustness

Panel A

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Conflict$	1.07**	0.93**	1.35**	1.31**	1.26**	1.67***	1.34**	1.39**	1.31**
	(0.52)	(0.39)	(0.62)	(0.63)	(0.62)	(0.63)	(0.64)	(0.66)	(0.60)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4220	4220	4220	3060	1982	3922	1634	4018	4220
R-squared	0.97	0.97	0.97	0.97	0.97	0.94	0.98	0.97	0.97

Panel B

Variable	(1)	(2)	(3)	(4)	(5)
$Conflict$	1.35**	1.35**	6.11***	1.49**	1.34***
	(0.62)	(0.61)	(1.23)	(0.60)	(0.23)
Country F.E.	Yes	Yes	No	Yes	Yes
Year F.E.	Yes	No	Yes	No	Yes
Observations	4220	4220	4220	4220	4220
R-squared	0.97	0.97	0.80	0.96	0.97

Notes: Results are based on equation 1. Dependent variable is the gender inequality index (GII). Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence, unless otherwise indicated. **Panel A.** Column 1 adopts a dummy variable for conflicts indicating the first year of those events. Column 2 accounts for the size of those event by adopting a variable which is assigned 1 for events which are milder, and 2 otherwise. Column 3 controls for the number of years with events in the past. Columns 4-8 columns employ tests in various subsamples, i.e., the continuing sample (column 4), the sample of countries which had at least one event during the period of the analysis (column 5), the sample that excludes a few countries that experienced violent events for 20 or more years (column 6), the sample consisting of countries with 3 or more events in the period of the analysis (column 7), the sample excluding the poorest economies (column 8). Column 9 employs weighted regressions where the weights are average population for each country. **Panel B.** Column 1 winsorizes GII at the 1st and 99th percentiles. Column 2 replaces year fixed effects with a common year trend. Column 3 replaces country fixed effects with region fixed effects. Column 4 replaces year fixed effects with decade fixed effects. Column 5 uses standard errors robust to heteroskedasticity instead of clustering. Standard errors in parentheses are clustered at the country-level unless otherwise indicated. *** p<0.01, ** p<0.05, * p<0.1.

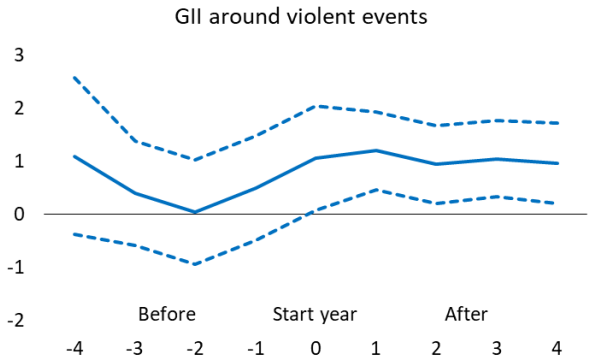
Finally, a potential concern about capturing the role of conflicts in gender inequality may be that other random shocks can coincide with conflicts, thus driving greater gender-based disparities. We test this issue empirically by checking whether such random events are likely to drive the results based on a randomization test, similar to the literature (e.g., Müller 2023). For this purpose, we perform placebo tests by assigning a dummy variable for conflicts. In particular, we calculate the overall probability of those events over the sample period for each country. We then assign the placebo dummy variable 1 randomly by maintaining this probability same as the data for each country. We create 1000 sets of these placebo events of conflicts and run the tests accordingly. Figure A.1 in the Appendix shows the distribution of t-statistics of the coefficient estimates of the placebo dummy variable across those 1000 tests. Only about 1.4 percent of the tests with the placebo dummy variable has a larger t-statistic than the one that we report in the first column of Table 1. We conclude that unobserved country-specific shocks are not likely to drive our findings.

5.3. Gender Inequality around the Onset of Conflicts

In this section, we examine (i) whether gender inequality tends to increase in the years running up to conflicts (i.e., whether higher gender inequality is associated with a higher probability of falling into the periods of conflicts in the first place) as some papers argue as mentioned above, and (ii) how gender inequality evolves in the aftermath of the onset of those episodes. The former helps us strengthen our results, in the case of no distinctive pattern in gender inequality during the years preceding the events. The latter provides insights about the durability of the post-event pattern that we examine within 1-year window until now.

For this purpose, we extend the estimation in equation 1 by including the four years of forward values of the dummy for the onset of conflicts, the dummy variable at year t, and 4 lags of it all together (as shown in the Appendix). Figure 4 reports the findings. The years running up to conflicts do not predict significantly higher gender inequality (since the confidence interval encompasses zero), whereas gender inequality becomes higher in the years following such events. This supports our findings by mitigating possible concerns that countries with higher gender inequality tend to be more likely to fall into conflicts. Moreover, it shows that gender inequality remains high upwards of 4 years in the aftermath of the onset of conflicts.

Figure 4: Gender inequality around the onset of conflicts



Notes: The chart reports the coefficient estimate of the dummy representing the onset of conflicts for the 4-year windows before and after the onset of those events (as shown in the Appendix). Dashed lines are the 90 percent confidence interval.

5.4. Types of Events

We next focus on the types of events with a more granular approach. Table 3 depicts the findings. First, instead of grouping inter- and intra-state events, we use two dummy variables representing those events separately. Columns 1 and 2 show the results when the dummy variables for interstate and intrastate events are included individually. In the last column, when we further decompose intrastate events into civil and ethnic wars and violence, it appears to be the case that interstate and civil violence have pronounced roles of gender inequality, while we do not find much evidence of ethnic-based events. However, we note that this result on the role of different sorts of intrastate events (civil or ethnic related) in gender inequality should be treated with caution, since the categorization of civil and ethnic events can

be problematic in many cases, as noted above. Overall, these tests show that both types of episodes are associated with higher gender inequality.

Table 3: Types of events

Variable	(1)	(2)	(3)
$Interstate$	1.63**	1.62**	1.66**
	(0.71)	(0.72)	(0.72)
$Intrastate$		1.14*	
		(0.65)	
$Civil$			2.07**
			(0.85)
$Ethnic$			-0.30
			(0.83)
Country F.E.	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes
Observations	4220	4220	4220
R-squared	0.97	0.97	0.97

Notes: Results are based on equation 1. Dependent variable is the gender inequality index (GII). Interstate is a dummy variable indicating the country-year observations with interstate wars or violence. Intrastate is a dummy variable indicating the country-year observations with interstate wars or violence (encompassing civil and ethnic). Civil (ethnic) is a dummy variable indicating the country-year observations with civil (ethnic) wars or violence. Standard errors in parentheses are clustered at the country-level. *** p<0.01, ** p<0.05, * p<0.1.

5.5. Distance to the Frontier and Dispersion in Gender Equality

In this section, we explore a slightly different question by focusing on gender inequality in each country relative to the frontier in the sample. In particular, we examine whether countries fall behind the frontier in gender inequality in the aftermath of conflicts. Therefore, in this analysis, we explicitly account for a global, and declining, trend in gender inequality (as suggested in Figure 2) and investigate the influence of conflicts on how a country is positioned relative to the peers with more favorable gender outcomes. For this purpose, we replace GII with the distance between GII and the frontier GII in each year in the sample, i.e., a country's GII minus the frontier GII. In different regressions, we define the frontier based on the 10th, 5th and 1st percentiles of GII in the sample each year, as well as the minimum value of it. We also replace year fixed effects with decade fixed effects in these regressions, since the estimation is based on the distance to an annual variable which is common across countries (i.e., the frontier each year).

Table 4 shows the results. The coefficient estimate in column 1 suggests that a country falls behind its peers located at the 10th percentile of the sample in that year by 1.4 points in the aftermath of conflicts. The results are consistent when the frontier in gender equality is defined based on different percentiles of the sample (the 5th and 1st percentiles in columns 2-3), or by using the country with the highest gender equality (column 4) in that year. Finally, we run a test by adopting the 10th percentile of GII in each year as the frontier, but use data only from the continuing sample of 102 countries to isolate any bias arising from the changing sample (column 5). The result does not change much. We conclude that countries fall behind their peers in gender equality in the aftermath of conflicts, thereby suggesting that those events likely widen the existing cross-country gaps in gender equality.

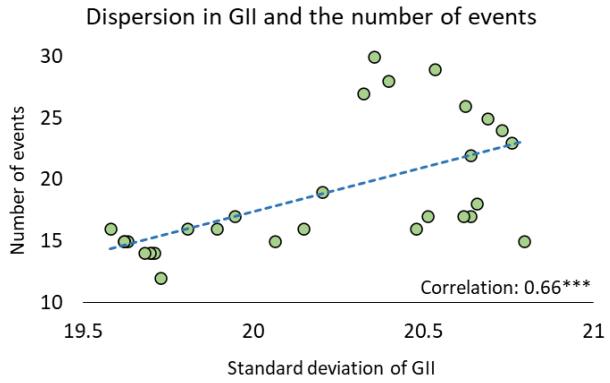
Table 4: Distance to the frontier

Variable	(1)	(2)	(3)	(4)	(5)
$Conflict$	1.41**	1.55**	1.42**	1.35**	1.33**
	(0.61)	(0.60)	(0.61)	(0.61)	(0.63)
Country F.E.	Yes	Yes	Yes	Yes	Yes
Decade F.E.	Yes	Yes	Yes	Yes	Yes
Observations	4220	4220	4220	4220	3060
R-squared	0.97	0.97	0.97	0.97	0.97

Notes: Results are based on equation 1 by replacing year fixed effects with decade fixed effects. Dependent variable is the difference between GII and the frontier each year. The frontier is defined based on the 10th (column 1), 5th (column 2) and 1st (column 3) percentiles of the sample, as well as the minimum value of GII (column 4) in each year. Column 5 uses the 10th percentile of GII each year as the frontier, and runs the test in the continuing sample. Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence. Standard errors in parentheses are clustered at the country-level. *** p<0.01, ** p<0.05, * p<0.1.

We further explore the interplay between conflicts and cross-country dispersion in gender inequality in the context of sigma-convergence. For this purpose, we use the continuing sample to eliminate any influence from the change in the sample composition. Figure 5 reports the standard deviation of GII each year (proxying cross-country dispersion each year) and the number of events in the sample in the previous year. Each dot represents a year in the sample. The dispersion in GII appears to be larger following the years with a relatively higher number of events. The correlation between the standard deviation of GII and the number of episodes is positive (i.e., 0.66). This further provides suggestive evidence that conflicts tend to widen the existing gaps in gender equality across countries. This has implications particularly for regions with a relatively lower level of gender equality and more frequent events, such as Sub-Saharan Africa, making the region lag behind other regions in achieving its development goals.

Figure 5: Conflicts and dispersion in gender equality



Notes: The chart reports the standard deviation of GII in each year and the number of conflicts in the previous year. Each dot represents a year in the period of analysis. It uses data from the continuing sample. *** p<0.01, ** p<0.05, * p<0.1.

5.6. Results in Different Regions

We also examine this relationship in different regions, separately. Table 5 shows the results. We first test the relationship between conflicts and gender inequality in seven regions as categorized by the World Bank (Panel A). A drawback of running the tests by relying on this categorization though is that some regions only have few countries. For instance, the sample consisting of South Asia has only 7 countries, thereby decreasing cross-country variation. Therefore, the association in that test should be treated with caution. Overall, the rest of the results show that the positive association between conflicts and gender inequality are pronounced when tested in East Asia and Pacific (column 1), Middle East and North Africa (column 5), and Sub-Saharan Africa (column 7). It is worth noting that conflicts were more frequent in these three regions compared to the rest of the sample (with these regions accounting for 45 percent of the overall sample and 60 percent of the total number of events in the sample).

Alternatively, we use the classification from the MEPV database, which is based on geographical regions, and provides a broader definition with a more even distribution of the number of countries under each category (Panel B in Table 5). The adverse role of conflicts in gender inequality appears to be pronounced in Africa (column 1) and Asia (column 3). We note that these two regions account for about 55 percent of the overall sample with 80 percent of the number of events in the sample.

Table 5: Results in different regions

Panel A							
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
$Conflict$	1.14**	-0.21	0.43	-0.33	4.44***	-2.50***	1.24***
	(0.55)	(0.69)	(0.40)	(0.50)	(0.97)	(0.85)	(0.27)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	548	973	639	414	175	1100
R-squared	0.97	0.92	0.93	0.93	0.83	0.95	0.94

Panel B				
Variable	**(1)**	**(2)**	**(3)**	**(4)**
$Conflict$	1.11***	-0.47	2.16***	1.08
	(0.28)	(0.51)	(0.56)	(0.67)
Country F.E.	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Observations	1180	669	1103	1106
R-squared	0.93	0.92	0.92	0.94

Notes: Results are based on equation 1. Dependent variable is the gender inequality index (GII). Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence. Each column runs the analysis in a different region. **Panel A.** The regions are adopted from the World Bank: EAP (column 1): East Asia and Pacific, ECA (column 2): Europe and Central Asia, HI OECD (column 3): High income OECD, LAC (column 4): Latin America and Caribbean, MENA (column 5): Middle East and North Africa, SA (column 6): South Asia, SSA (column 7): sub-Saharan Africa. **Panel B.** The regions are adopted from MEPV: Africa (column 1), America (column 2), Asia (column 3), Europe (column 4). Standard errors in parentheses are robust to heteroskedasticity. *** p<0.01, ** p<0.05, * p<0.1.

5.7. Granular Outcomes

Having established the relationship between the composite index on gender inequality (GII) and conflicts, we now dig deeper to examine the association between conflicts and specific gender outcomes based on the main sample. In particular, we focus on education, labor market, political representation and health. Table 6 shows the results. In columns 1-3, the dependent variable is primary, secondary and tertiary school enrollment rate by females, respectively. Column 4 adopts female labor force participation rate. Column 5 uses the share of women in parliament. Column 6 adopts adolescent fertility rate. Column 7 uses maternal mortality ratio.

The result in the first column suggests that conflicts predict a lower enrollment rate by females in primary education, thus dragging human capital accumulation. The coefficient estimate suggests that this rate becomes 5.6 percentage points lower in the years following conflicts. This is larger than one standard deviation of the annual changes in female primary school enrollment rate across the sample (which is 3.8 percentage points).This result can be driven by a combination of factors, such as school closures due to conflicts affecting girls' enrollment to primary schools, migration and displacement, the quality and

availability of school facilities or poorer parents being forced not to send girls to schools at the first place due to negative income shocks from conflicts (Justino 2011), while further analysis is needed to identify exact channels. However, we do not find much evidence on the association between those events and female enrollment in higher levels of education in the next two columns.

While conflicts do not seem to play a role in the labor force participation (column 4), we find some evidence on the decreased role of women in the political sphere. Conflicts are associated with a lower share of seats in parliament held by women. The coefficient estimate suggests that this share decreases by 1.5 percentage points, which amounts to about two-thirds of one standard deviation of the annual changes (which is 2.3 percentage points). This suggest that conflicts limit women's role in decision making in general, where gender roles that likely been become more pronounced during conflicts, as discussed above, can be a driving factor of this pattern.

Regarding health outcomes, while the result on adolescent fertility rate does not seem to be statistically significant (column 7), there is a pronounced pattern for maternal mortality. Maternal mortality rate increases by 6.6 (per million live births) following the episodes of conflicts. This is particularly large, given that one standard deviation of the annual changes in this rate is 1.6 in the sample. Destruction of physical infrastructure and human resources during conflicts can be a factor limiting the accessibility and availability of health services for women as hypothesized in Ghobarah et al. (2003).

Overall, an important issue to mention in this set of analysis is the time duration that we focus on. In particular, although enrollment rates in higher education do not appear to change in the year following conflicts, a lower rate in primary enrollment (as shown in column 1) likely translates into lower enrollment rates in secondary and tertiary education by females in the medium-term. Similarly, as fewer girls enroll to primary education, this can lead to a higher adolescent fertility rate in the coming years. As girls get less education, i.e., lower enrollment in primary school, this can widen gaps in the labor market, including participation and wage, exacerbating skill gaps and locking women into less secure jobs which provide limited opportunities and pay less. Finally, fewer women in political decision making can also hinder gender outcomes going forward. The statistically insignificant results in this set of tests should be interpreted by taking these points into consideration.

Table 6: Gender outcomes

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Conflict$	-5.63***	-0.79	2.45	0.33	-1.46*	2.68	6.55**
	(1.99)	(1.74)	(1.87)	(0.70)	(0.87)	(1.65)	(2.68)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3545	2903	2600	4220	4220	4220	4220
R-squared	0.69	0.94	0.89	0.96	0.84	0.97	0.93

Notes: Results are based on equation 1. In columns 1-3, the dependent variable is primary, secondary and tertiary school enrollment rate by females, respectively. Column 4 adopts female labor force participation rate. Column 5 uses the share of women in parliament. Column 6 adopts adolescent fertility rate. Column 7 uses maternal mortality ratio. Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence. Standard errors in parentheses are clustered at the country-level. *** p<0.01, ** p<0.05, * p<0.1.

5.8. Gender Inequality in Opportunities

Finally, we switch to gender inequality under the law to examine the role of conflicts in gender-based disparities in legislation. The sample includes 163 countries over the period of 1970-2018, restricted by the availability of data. Table 7 shows the results. The first column adopts the WBL index (overall index on gender equality under the law). Columns 2-9 uses subcategories, i.e., mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension, respectively, as dependent variables. In this case, our prior is for a negative coefficient given that higher values of the dependent variable indicate higher gender equality.

The result in the first column suggests that conflicts disrupt the progress toward gender equality under law. They predict a 2.5 points decline in the WBL index. This is economically large (given that one standard deviation of the annual changes in this this across the sample is 2.4 points). Focusing on the sub-indicators, the drag on legal gender equality posed by such events seems to be widespread across the laws covering mobility (column 2), marriage (column 5), parenthood (column 6) and entrepreneurship (column 7). We conclude that the role of conflicts is not limited to outcomes, but is also pronounced in gender equality in opportunities, which can further hinder gender-based outcomes in the longer-term.

Table 7: Gender equality in legislation

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$Conflict$	-2.45***	-1.59**	-2.84	-1.88	-2.62*	-3.46**	-4.13***	-1.00	-2.05
	(0.78)	(0.73)	(1.96)	(1.33)	(1.46)	(1.43)	(1.53)	(1.26)	(1.66)
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7404	7404	7404	7404	7404	7404	7404	7404	7404
R-squared	0.89	0.94	0.75	0.80	0.89	0.86	0.67	0.86	0.77

Notes: Results are based on equation 1. Column 1 adopts the overall index on gender equality under the law (WBL index) as the dependent variable. Columns 2-9 uses subcategories of gender equality in legislation focusing on mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension, respectively. Conflict is a dummy variable indicating the country-year observations with inter- or intra-state wars or violence. Standard errors in parentheses are clustered at the country-level. *** p<0.01, ** p<0.05, * p<0.1.

6. Conclusion

Conflicts have been on the rise globally. Besides their immediate effects on human lives and livelihoods in the form of human toll, destruction of infrastructure, and disruption of essential social services, conflicts stand out as a major development challenge for many countries. They are associated with a durable drag on economic performance, derailing the development progress and reversing hard-won economic gains in many developing countries. On the other hand, gender equality is key for economic growth and development. Against this background, in this paper, we discuss that one of the explanations for poor economic performance in the aftermath of conflicts is their adverse effects on gender inequality. We discuss that conflicts can exacerbate existing gender inequalities, since women

and girls are particularly vulnerable during conflicts, facing human rights abuses, gender-based violence, and limited access to education and healthcare.

We test the relationship between violent conflicts and gender inequality in a global sample since the 1990s. The results show that conflicts, including both interstate and intrastate events, predict higher gender inequality in outcomes. School enrollment rate by females in primary education and share of seats in parliament held by women tend to decrease in the aftermath of those episodes, whereas maternal mortality rate increases. We also find that conflicts widen cross-country gaps in gender inequality, leaving some countries behind in the progress toward gender equality in outcomes globally. Focusing on gender inequality in opportunities, conflicts are also associated with lower economic rights for women in legislation.

The implications of these findings are crucial for promoting sustainable and inclusive growth in the post-pandemic era and in light of ongoing political and security-related challenges across the globe. They call for immediate action to address gender inequalities in outcomes and opportunities in conflict-affected states.

References

Alesina, Alberto, Paola Giuliano, and Nathan Nunn. “On the origins of Gender Roles: Women and the Plough.” *The Quarterly Journal of Economics*, Vol. 128, Issue 2, (2013): 469-530.

Alon, Titan, Matthias Doepke, Jane Olmstead-Rumsey, and Michèle Tertilt. “The impact of COVID-19 on gender equality.” No. w26947. *National Bureau of Economic Research,* 2020.

Bertay, Ata Can, Ljubica Dordevic, and Can Sever. "Gender Inequality and Economic Growth: Evidence from Industry-Level Data." *IMF Working Papers* 2020, no. 119 (2020).

Bertay, Ata Can, Ljubica Dordevic, and Can Sever. "A Causal Story: Gender Equality and Economic Growth." *Gender Equality and Economic Development in Sub-Saharan Africa* (2024): 209.

Boserup, Ester. “Woman’s Role in Economic Development.” New York: St. Martin’s Press (1970).

Branisa, Boris, Klasen, Stephan, and Maria Ziegler. “Gender Inequality in Social Institutions and Gendered Development Outcomes.” *World Development*, Vol. 45, (2013): 252-268.

Bussmann, Margit. “Political and Socio-Economic Aspects of Gender Equality and the Onset of Civil War”. *Security and Peace*, Vol. 28, No.1 (2010): 6-12.

Buvinic, Mayra, Monica Das Gupta, Ursula Casabonne, and Philip Verwimp. “Violent Conflict and Gender Inequality: An Overview”. Policy Research Working Paper 6371, World Bank, 2013.

Caprioli, Mary. “Primed for Violence: The Role of Gender Inequality in Predicting Internal Conflict”. *International Studies Quarterly*, Vol. 49, No. 2 (2005): 161-178.

Center for Systemic Peace. “Major Episodes of Political Violence (MEPV)” Database.

Cerra, Valerie, and Sweta Chaman Saxena. "Growth dynamics: the myth of economic recovery." *American Economic Review* 98, no. 1 (2008): 439-457.

Chamarbagwala, Rubiana and Hilcias Moran. “The human capital consequences of civil war: Evidence from Guatemala”. *Journal of Development Economics*, Vol. 94, Issue 1 (2011): 41-61.

Chupilkin, Maxim and Zsoka Kóczán. “The Economic Consequences of War: Estimates Using Synthetic Controls”, EBRD Working Paper, 2022.

Collier, Paul. "On the economic consequences of civil war." *Oxford Economic Papers* 51, no. 1 (1999): 168-183.

Cooper, Helen. “Investigating Socio-economic Explanations for Gender and Ethnic Inequalities in Health”. *Social Science and Medicine*, Vol 45, Issue 5, (2002): 693-706.

Cooray, Arusha and Niklas Potrafke. “Gender Inequality in Education: Political Institutions or culture and Religion?”. *European Journal of Political Economy*, Vol. 27, Issue 2 (2011): 268-280.

Dincecco, Mark, James Fenske, Bishnupriya Gupta, and Anil Menon. "Conflict and Gender Norms." *Available at SSRN 4751560* (2024).

Dixon, Jeffrey. “What Causes Civil Wars? Integrating Quantitative Research Findings”. International Studies Review, Vol. 11, Issue 4 (2009): 707–735.

Fang, Xiangming, Siddharth Kothari, Cameron McLoughlin, and Mustafa Yenice. "The Economic Consequences of Conflict in Sub-Saharan Africa." *IMF Working Papers* 2020, no. 221 (2020).

Fernandez, Raquel. “Alfred Marshall Lecture Women, Work, And Culture.” *Journal of the European Economic Association*, Vol. 5, No. 2/3, (2007): 305-332.

Ferrant Gaëlle and Keiko Nowacka. “Measuring the drivers of gender inequality and their impact on development: the role of discriminatory social institutions”. *Gender & Development*. 23:2 (2015): 319-332.

Galor, Oded and David N. Weil. “The Gender Gap, Fertility, and Growth”. *The American Economic Review*, Vol. 86, No. 3 (1996): 374-287.

Gates, Scott, Håvard Hegre, Håvard Mokleiv Nygård, and Håvard Strand. "Development consequences of armed conflict." *World Development* 40, no. 9 (2012): 1713-1722.

Ghobarah, Hazem, Huth, Paul, and Bruce Russett. “Civil Wars Kill and Maim People -Long after the Shooting Stops.” *The American Political Science Review*, Vol. 97, No.2, pp. 189-202. (2003).

Goldin, Nicole. “Inflation comes with a big gender gap. Here are five ways to narrow it.” *Atlantic Council*. 2023.

Hasan, Md. Didarul. “Effects of Civil Conflicts on Development: A Literature Review”. (January 17, 2022).

Hoeffler, Anke, and Marta Reynal-Querol. "Measuring the costs of conflict." *Washington, DC: World Bank* (2003).

Jayachandran, Seema. “The Roots of Gender Inequality in Developing Countries”. *Annual Review of Economics*, Vol. 7, (2015): 63-88.

Jordà, Òscar. "Estimation and Inference of Impulse Responses by Local Projections." *American Economic Review*, Vol. 95, No. 1 (2005): 161-182.

Justino, Patricia. “Violent Conflict and Human Capital Accumulation”. *IDS Working Papers*, Vol. 2011, Issue 379 (2011): 1-17.

Klasen, Stephan. "Gender, institutions, and economic development." *The Handbook of Economic Development and Institutions* (2017).

Lagerlöf, Nils-Petter. “Gender Equality and Long-Run Growth”. *Journal of Economic Growth*, Vol. 8, No. 4 (2003): 403-426.

Mayra Buvinic, Monica Das Gupta, Ursula Casabonne, Philip Verwimp, Violent Conflict and Gender Inequality: An Overview, *The World Bank Research Observer*, Vol. 28, Issue 1 (2013): 110–138. https://doi.org/10.1093/wbro/lks011.

Melander, Erik. “Gender Equality and Intrastate Armed Conflict”. *International Studies Quarterly*, Vol. 49, No. 4 (2005): 695-714.

Milazzo, Annamaria and Markus Goldstein. “Governance and Women’s Eocnomic and Political Participation: Power Inequalities, Formal Constraints and Norms”. *The World Bank Research Observer*, Vol. 34, Issue 1 (2019): 34-64.

Myrttinen, Henri. “Masculinities, Violence and Power in Timor Leste”. *Revue Lusotopie*, XII(1-2) (2005):233-244.

Müller, Karsten. "Electoral cycles in macroprudential regulation." *American Economic Journal: Economic Policy* 15, no. 4 (2023): 295-322.

Nguyen, Canh Phuc. “Uncertainty and Gender Inequality: A Global Investigation”. *Quarterly Review of Economics and Finance*, Vol. 86 (2022): 31-47.

Novta, Natalija, and Evgenia Pugacheva. "The macroeconomic costs of conflict." *Journal of Macroeconomics* 68 (2021): 103286.

Plümper, Thomas and Eric Neumayer. “The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expenctancy”. *International Organization*, Vol. 60, No. 3 (2006): 723-754.

Rodrik, Dani. “Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses”. *Journal of Economic Growth*, Vol. 4, No. 4 (1999): 385-412.

Rohner, Dominic. “Conflict, Civil Wars and Human Development”. Cahiers de Recherches Economiques du Département d’économie 22.08, Université de Lausanne, Faculté des HEC, Département d’économie. (2022).

Sever, Can. "The myth of economic recovery: The case of crises in neighboring countries." *Economics Letters* 164 (2018): 65-69.

Sever, Can. "Legal Gender Equality as a Catalyst for Convergence." *IMF Working Papers* 2022, no. 155. International Monetary Fund (2022).

Sever, Can. "Gendered laws and labour force participation." *Applied Economics Letters* 30, no. 19 (2023): 2681-2687.

Sever, Can. “Conflicts and Growth: The R&D Channel.” *IMF Working Papers 2024, no. 098*. International Monetary Fund (2024).

Shemyakina, Olga. “The effect of armed conflict on accumulation of schooling: Results from Tajikistan”. *Journal of Development Economics*, 95 (2011): 186-200.

Sommer, Marni, Miguel Muñoz-Laboy, Anaise Williams, Yana Mayevskaya, Kathryn Falb, Gizman Abdella, and Lindsay Stark. "How gender norms are reinforced through violence against adolescent girls in two conflict-affected populations." *Child Abuse & Neglect* 79 (2018): 154-163.

United Nations Development Programme. Gender Inequality Index. New York: United Nations.

USIP (United States Institute of Peace) 2023: Amid Alarming Rise in Conflict, Multilateralism is the Only Answer | United States Institute of Peace (usip.org)

Verwimp, Philip and Jan Van Bavel. “Schooling, Violent Conflict, and Gender in Burundi”. *Policy Research Working Paper* 6418, World Bank (2013).

World Bank. 2023. Women, Business and the Law 2023. Washington, DC: World Bank.

World Bank. 2023. World Development Indicators. Washington, DC: World Bank.

Appendix

Data

Table A.1: Data description

Variable	Explanation	Source
Episodes of conflicts	Events of interstate and intrastate violence	MEPV
Gender inequality index (GII)	Composite index on gender inequality in outcomes	UNDP
Enrollment (female, primary)	Primary school enrollment rate, percent, gross	WDI
Enrollment (female, secondary)	Secondary school enrollment rate, percent, gross	WDI
Enrollment (female, tertiary)	Tertiary school enrollment rate, percent, gross	WDI
Women in parliament	Share of seats in parliament held by women	UNDP
Labor force participation (female)	Participation rate, percent, ages 15 and above	UNDP
Adolescent fertility	Births per 1000 women ages 15-19	UNDP
Maternal mortality	Deaths per million live births	UNDP
WBL index	Gender equality in legislation, overall index	WBL
Mobility	Gender equality in legislation, women's mobility	WBL
Workplace	Gender equality in legislation, protection in workplace	WBL
Pay	Gender equality in legislation, equal pay	WBL
Marriage	Gender equality in legislation, equal rights as spouse	WBL
Parenthood	Gender equality in legislation, equal rights as parents	WBL
Entrepreneurship	Gender equality in legislation, rights to start/run business	WBL
Assets	Gender equality in legislation, rights for asset ownership	WBL
Pension	Gender equality in legislation, equal treatment in pension	WBL
Civil liberties	Proxy for institutional quality	Freedom House
GDP	Constant in 2015 US dollars (log)	WDI
GDP per capita	Constant in 2015 US dollars (log)	WDI
Trade	As percent of GDP	WDI
FDI	Net inflows, as percent of GDP	WDI
Credit	Credit to the private sector, as percent of GDP	WDI
Inflation	Deflator-based (percent)	WDI
Agricultural employment	As percent of total employment	WDI
Population	Total population (log)	WDI

Table A.2: Summary statistics

Variable	Mean	Median	Standard dev.	Observations
Conflicts (dummy variable)	0.18	0	0.39	4220
Gender inequality index (GII)	41.99	45.10	20.17	4220
Enrollment (female, primary)	99.13	101.04	17.17	3545
Enrollment (female, secondary)	77.29	87.31	33.92	2903
Enrollment (female, tertiary)	39.13	33.93	31.00	2600
Women in parliament	16.68	14.45	10.74	4220
Labor force participation (female)	50.91	50.55	16.07	4220
Adolescent fertility	60.29	49.50	47.54	4220
Maternal mortality	21.76	6.50	30.69	4220
WBL index	58.75	58.80	19.28	7404
Mobility	80.34	100	27.51	7404
Workplace	42.49	25	34.40	7404
Pay	46.72	50	30.45	7404
Marriage	57.45	60	30.64	7404
Parenthood	35.83	40	30.62	7404
Entrepreneurship	71.65	75	22.33	7404
Assets	73.08	80	28.57	7404
Pension	62.27	75	27.50	7404
Civil liberties	4.49	5	1.75	4188
GDP	26.65	24.48	1.98	4157
GDP per capita	8.35	8.28	1.45	4144
Trade	78.50	68.33	46.50	3921
FDI	3.91	2.22	10.37	3850
Credit	48.07	31.40	44.68	2988
Inflation	16.66	4.60	163.69	2980
Agricultural employment	29.97	23.10	24.73	2880
Population	16.26	16.15	1.46	4220

Table A.3: Correlations with gender inequality index (GII)

Variable	Correlation
Enrollment (female, primary)	0.31***
Enrollment (female, secondary)	0.85***
Enrollment (female, tertiary)	0.79***
Women in parliament	-0.49***
Labor force participation (female)	-0.00
Adolescent fertility	0.82***
Maternal mortality	0.70***
WBL index	-0.66***
Civil liberties	-0.57***
GDP per capita	-0.80***
Trade	-0.33***
FDI	-0.15***
Credit	-0.71***
Inflation	0.05***
Agricultural employment	0.74***

Notes: *** p<0.01, ** p<0.05, * p<0.1.

GDP per capita and conflicts

We use local projections to provide suggestive evidence on the association between GDP per capita and conflicts in Section 3.3, as follows:

$$log\left(GDP\ per\ capita_{c,t+p}\right) = \beta_p\ Political\ violence_{c,t-1} + \theta_c + \theta_t + \epsilon_{c,t+p}$$

Figure 3 reports the coefficient estimates of β_p for $p = 0,\ 1, \ldots, 9$, as multiplied by 100 (to provide percentage points changes).

Gender inequality around the onset of conflicts

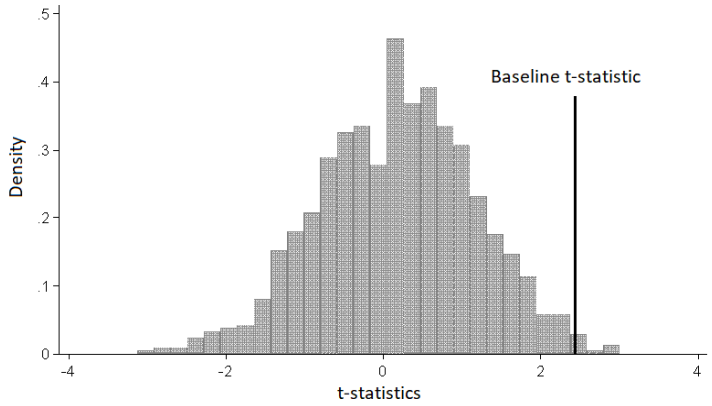
We adopt the following estimation which includes both the forward and lagged values of the dummy variable representing the onset of conflicts to explore the dynamics of gender inequality (GII) around those events in Section 5.3:

$$Gender\ inequality_{c,t} = \sum_{r=-4}^{4} \beta_r\ Political\ violence_{c,t-r}\ + \theta_c + \theta_t + \epsilon_{c,t}$$

We document the coefficient estimates of β_r for $r = -4, -3, \ldots, 0, \ldots, 3, 4$ in Figure 4.

Placebo tests

Figure A.1: Placebo tests (t-statistics)



Notes: The results are based on equation 1. The chart reports the distribution of t-statistics from the 1000 placebo tests, where the placebo dummy variable is randomly assigned by keeping the overall probability of conflicts unchanged for each country. It also shows the t-statistic of the result in the first column of Table 1.

PUBLICATIONS