Beyond the Frontlines:

Female Combatants as Champions for Gender Equality

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Abstract

Post-war improvements in gender equality have been attributed to the disruptive effects of war on society, the ideology of armed groups, as well as gender-inclusive peace agreements. The present study adds to this literature by examining the effects of intergroup contact: the proportion of female combatants in rebel groups is assessed as a driver for post-war improvements in women's rights. The relationship is analyzed using a dyadic dataset from 1946 to 2015 and a multivariate regression that is complemented by a series of robustness checks. The statistical analysis shows that there is no support for the argument put forward. Moreover, the calculation of the cases and the general data availability constitute a major limitation to the validity of the dataset. Although the findings do not support the initial hypothesis, this study opens up a new puzzle by questioning previous findings regarding post-war improvements in women's rights.

Key words: *female combatants, conflict dynamics, women's rights, armed groups, intergroup contact theory*

Introduction

War and revolution have frequently been assumed to be purely male affairs. Today, thanks to more recent data and research that looks beyond a male perspective, it is clear that this picture does not correspond to reality. We now know that the role of women in armed conflicts is much more multifaceted than was assumed 20 years ago. Far from being limited to auxiliary positions, women have been active as fighters in over 42% of rebel groups from 1946 to 2015 (Loken & Matfess, 2023). However, to this day, there are still many unanswered questions concerning the role of women in conflict and specifically how they shape social norms. Hence, this paper focuses on female combatants in rebel groups and how they influence women's rights after conflicts. My approach adds an innovative link between political psychology and conflict research to the academic discussion and examines the role of women in security in more depth.

So far, scholars have investigated the role of women in rebel groups with regard to peace agreements (Reid, 2021; Thomas, 2023) or the influence of a group's ideology on its recruitment of women (Gurses, 2018; R. M. Wood & Thomas, 2017). However, the direct influence that women have on their own rights by participating in rebel groups has remained unconsidered. This study builds on existing research and seeks to answer the following question: *How does the proportion of female combatants within a rebel group influence women's rights in the post-conflict period?*

I build on intergroup contact theory (Allport, 1954) by suggesting that with an increasing number of female combatants and therefore an increased contact with their male counterparts, male prejudice and stereotypes towards women decrease. This effect should be amplified under certain conditions, such as cooperation, a common goal, and institutional support, which I argue are present between male and female combatants in a rebel group. On this basis, I theorize that this effect will extend to society at large, driven both by the rebel group's activities in society during the conflict and by the reintegration of members after the conflict. As a result, we should be able to observe that an increased number of female combatants leads to more positive attitudes towards gender equality within a rebel group, which is transferred into broader society.

To test this theoretical argument, I conduct a quantitative analysis that examines whether the expected effect materializes in post-conflict societies. A key challenge in this approach is to determine at which point in time the effect is transferred to society. Therefore, I propose three different models that estimate the effect after one, three, and five years. Using a multivariate linear regression analysis with conflict data from 1946 to 2015 in over 86 countries, this paper finds no support for the effect under any of these time specifications. The results hold under different robustness checks.

Although the initial hypothesis is rejected, this work contributes to our understanding of how rebel groups work and how they can influence the societies in which they operate. Despite the results, this study demonstrates how political psychology and the studies of armed conflicts and their consequences can be linked and allows scholars to add a new dimension to the relationship between gender equality and security. The importance of gender equality for sustainable security is now widely recognized, to such an extent that gender equality and security play a pivotal role in United Nations Peacekeeping missions (Kennedy-Pipe & Dingli, 2022). By delving deeper into open questions within this field, my research takes an important step in understanding how conflict and security dynamics shape gender equality, even if the results decline the hypothesis.

Women in Conflict: What We Know

Female Participation in Rebel Groups

The literature on the role of women in armed rebellions has grown significantly in the last two decades. For example, Thomas and Bond (2015) show how rebel groups use gender inclusive environments to recruit women into their group. They highlight how rebel groups deploy women in various strategic roles, particularly exploiting

their social status for tasks such as smuggling, terrorist attacks, and espionage. Several other studies show how the ideology of rebel groups determines the recruitment of women. On the one hand, groups with a leftist ideology and the ambition to overthrow prevailing hierarchical structures tend to have a higher proportion of female combatants in their ranks (R. M. Wood & Thomas, 2017). On the other hand, groups with more traditional views on societal structures, such as many Islamist groups, tend to have a lower employment of women in their ranks, especially in positions that do not conform to the traditional image of women (Thomas & Wood, 2018; R. M. Wood & Thomas, 2017).

Scholars are still debating the incentives for women to take up arms and join rebel groups. Many scholars acknowledge that forced recruitment is an important tactic of rebel groups to recruit female personnel in their group (Henshaw, 2016a, 2016b, 2017; Thomas & Bond, 2015). However, those scholars also note that in most armed groups with female personnel, this participation is overall voluntary and that forced recruitment is not the main driver of female participation (Henshaw, 2016a, 2020). The main reasons for women to take up arms against a central government are the general ethnic or social cleavages in a country that lead to conflicts in the first place (Alison, 2009; Darden et al., 2019; Henshaw, 2016b). Therefore, the incentives for female participation are often not strikingly different to those of male members of the rebel group. Although there are also voices that point to gender related cleavages as a reason for female mobilization (Viterna, 2013), this effect only seems to be relevant in specific cases (Henshaw, 2016b).

Conflict and Women's Rights

Armed conflicts have negative impacts on society, human rights, and the situation of women. Besides the fatalities caused by the fighting in a conflict, atrocities against civilians occur on a large scale during armed conflicts (Cederman & Vogt, 2017). It also destroys a country's overall human and economic development (Kellenberger, 2003). Although the entire population is affected by conflicts, women and children suffer disproportionately from the consequences of conflicts. Women are particularly affected by sexualized and domestic violence, which is exacerbated by war (Alison, 2007; Cohen & Nordås, 2014; La Mattina, 2017; E. J. Wood, 2014). In some cases, sexualized violence is specifically used as a strategy in conflicts (Daudu & Shulika, 2019). Moreover, conflicts increase the marriage rate among young girls (DiGiuseppe & Haer, 2023).

While all these consequences rightly paint a very bleak picture of the effects of armed conflicts, an additional perspective has emerged in recent years. Several scholars argue that under certain conditions, women can, to some degree, benefit from war (Bakken & Buhaug, 2021; Lake et al., 2016; Yadav, 2021). Berry and Lake (2021) argue that due to the disruptive nature of war, more gender-equal structures can emerge, which brings positive change for women. During war, women can escape their traditional roles and enter political positions where they are able to introduce progressive reforms or form groups that advocate for gender-equality (Berry, 2018; Hughes & Tripp, 2015). Arostegui (2013) shows in an analysis of Rwanda, Uganda, and South Sudan, how the disruptive effects of conflicts can create opportunities for women to work in professions formerly assigned to men and participate in new ways in society. Similar patterns were observed in post-war Nepal. Due to the hardships caused by the conflict, women took up unorthodox trades and rejected their traditionally subordinate roles (Yadav, 2021). However, various studies suggest that women's labor force participation declines after civil war, reducing long-term opportunities for women in this dimension (Greiner, 2022). In addition, some of the progress made during or immediately after the war was short-lived and the revival of patriarchal values undermined the achievements over time (Berry, 2017; Yadav, 2021).

Gurses et al. (2020) point in a different direction, identifying the ideology of a rebel group as an important factor for the situation of women in the post-conflict society. According to their findings, groups that have a leftist ideology can lead to improvements in women's social and eco-

nomic rights. However, to some degree, their results fail to account for the complexity of intrastate conflicts. Gurses et al. (2020) only analyze the strongest group within a conflict and disregard the possible impact of other groups that may also affect women's rights. Another line of research examines the interdependence of women and peace agreements. Thomas (2023), for example, shows how the proportion of female fighters in a rebel group can affect peace agreements. Her findings indicate that female combatants positively influence gender inclusiveness within rebel groups and lead to gender provisions in peace agreements. This is particularly significant since, according to Bakken and Buhaug (2021) and Reid (2021), the composition of peace agreements can foster positive developments in women's rights. Reid (2021) argues that such gendered provisions in peace agreements can pave the way for post-conflict structural change and create a legal basis for gender equality to which signatories can be held accountable.

Although the current state of research provides several plausible explanations for an improvement in women's rights after a conflict period, no direct link has been established between the proportion of female combatants during the conflict and the development of women's rights after a conflict. My work cuts into the direct association of the proportion of women in rebel organizations and the improvement of post-conflict women's rights by utilizing a novel link between political psychology and gender-related conflict studies.

Theoretical Framework

After discussing how conflicts shape women's rights and how female combatants influence processes such as peace agreements, I utilize intergroup contact theory to answer the research question. My theoretical argument is to some extent discontinuous to previous research, as I combine political psychology and conflict research. The intergroup contact theory was developed by Gordon Allport in 1954 in the context of segregation in the USA (Allport, 1954). Since Allport laid this groundwork, various researchers have tested, expanded, and established this theory through numerous studies (Pettigrew & Tropp, 2006). In essence, intergroup contact theory states that interaction between different social groups - under certain conditions - leads to more positive feelings and less prejudice between the groups (Allport, 1954; Dovidio et al., 2005; Pettigrew & Tropp, 2011). This theory has not yet been applied to the gendered aspects and effects of conflict and opens an interesting new perspective on intergroup relations in this field of conflict studies.

I argue that contact between male and female fighters breaks down existing prejudices and stereotypes about women, leading to a shift in societal values among the male combatants. Those values later diffuse into society and improve women's rights in the post-conflict environment. A necessary enabler of this development lies in the inherent character of rebel groups. Unlike their governmental counterparts, it can be assumed that rebel groups want to bring about change. While the idea of this change can vary in scope and direction, a rebellion generally implies to take action against the status quo and the prevailing system (Sobek & Payne, 2010). In this article, I focus on rebel groups to examine how the internal constellation of those groups, namely the proportion of women in combat positions, can have a distinct influence on societal norms. Therefore, I combine the disruptive effects that rebel groups have on societies with the internal dynamics of the groups, which, according to intergroup contact theory, can reshape the societal views of their members. In the following section, I will further discuss the intergroup contact theory and connect it to the specific case of female combatants within rebel groups.

Intergroup Contact Theory

What is a Group?

The definition of a (social) group is key to understanding how the intergroup contact theory works and how it relates to female combatants within a rebel group. In 1954, Allport wrote:

> "It is difficult to define an in-group. Perhaps the best that can be done is to say that members of an in-group all use the term 'we' with the same essential significance." (Allport, 1954, p. 31)

Since then, the definition of a 'group', which defines itself as a construct with a sense of belonging, has been further developed and is now a more elaborate and anchored concept. Recent literature describes that social and political groups do not necessarily require the members to have a sense of affiliation to that group (Brown & Zagefka, 2005; Huddy, 2013). There are objective characteristics that determine whether or not one belongs to a group. Those characteristics can be nationalities, gender, ethnicity, et cetera. Through a process called categorization, people automatically assign themselves into an in-group with those people that they share characteristics with (Fiske, 2005; Huddy, 2013; Tajfel, 1981). The counterpart to this in-group is the out-group, which is the group of people who do not belong to the in-group. In the case of gender, the out-group for men would be women.[1] Usually, members of the in-group know much more about their in-group than about the out-group. This often leads to a generalization of the out-group. Members of the in-group assign certain features to the out-group while ignoring individuality, leading to stereotypical beliefs (Fiske, 2005). To some extent, everyone inherits those stereotypical beliefs about people from other groups, such as another gender or a different social class. However, these prejudices and stereotypes are not irrevocable.

Intergroup Contact Theory

Through contact between the groups, the in-group can become more tolerant towards the out-group and put aside stereotypical beliefs, which can improve intergroup relations. This effect is due to three factors that are associated with intergroup contact. When groups engage in contact, they get to know each other better. The knowledge gained from this, usually contradicts prevailing stereotypes associated with that group (Pettigrew & Tropp, 2011; Stephan & Stephan, 1984). Moreover, intergroup contact leads to lower levels of anxiety and an improved ability to empathize with the other group, especially if they are discriminated against and disadvantaged (Islam & Hewstone, 1993; Mallett et al., 2008; Turner et al., 2007; Voci & Hewstone, 2003). In addition to the mechanism of how contact between the groups works, research has identified four conditions that lead to an improvement in relations between the groups:

First, there has to be equal status in the contact situation between the different groups. Although the groups might have different social positions in the real world, they must be at least close to an equal position in the contact situation for the intergroup contact to work as effectively as possible (Kenworthy et al., 2005; Pettigrew & Tropp, 2011). This condition is particularly relevant in the case of this study, as women are disadvantaged and have subordinate roles compared to men in many societies (World Economic Forum, 2022). However, I argue that by occupying non-stereotypical roles, women can overcome this unequal status to a certain extent.

A second condition, according to Allport, is a shared goal or at least mutually compatible goals between the groups. These goals lead to an improvement in the perception of the other group through collaborative activities (Kenworthy et al., 2005). Johnson and Johnson (1985) show that group interaction with a common goal leads to a more positive attitude between two groups.

The third condition is a cooperative interaction between the groups and is therefore closely related to the second condition. The groups should not be in a competitive situation in order to achieve their shared goal, but should instead be dependent on each other (Pettigrew & Tropp, 2011).

Fourth, the positive effect of the previous conditions enhances when they take place within an environment that promotes intergroup contact.

[1] I am aware that the current understanding of gender does not only consist of men and women (Ainsworth, 2015; Lindqvist et al., 2021). However, with regard to my research question and in order to avoid overloading and overstretching my theory, I will only focus on women and men for this paper. However, future research should address the diversity of gender as well.

An institutionally promoted exchange can establish norms for interaction and thus act as a guide for members of the groups (Tropp & Molina, 2018). Therefore, people do not just come into contact by chance, but are institutionally motivated to seek interaction with the other group.

If one of those conditions is not met, this does not mean that there is no improvement when groups get into contact. Rather, the conditions should be understood as something that enhances the already existing effect of contact between groups (Pettigrew, 1998; Pettigrew & Tropp, 2006, 2011; Tropp & Molina, 2018).

Intergroup Contact between Female and Male Combatants

Intergroup contact theory has a considerable impact on male and female fighters in rebel groups. Male and female combatants constitute two distinct groups and get into contact in the environment of a rebel organization. Therefore, it can be assumed that the group dynamics described above also apply in this setting and improve intergroup relations.

Female Rebel Combatants

Women are an often underestimated force in rebel groups. Not only do they contribute to rebellions in support positions, such as the sanitary sector, supply, and logistics, but they directly engage in the fighting and therefore contribute to combative success (Darden et al., 2019; Henshaw, 2017). Henshaw (2017) shows that women were active as combatants in 31.9% of armed rebel groups from 1990 to 2008. In my sample, women constitute at least 20% of the frontline personnel in 12.6% of the groups. As a consequence, with an increasing number of female combatants in a group, contact and interaction between male and female combatants should become more regular. According to the intergroup contact theory, this contact leads to less stereotypical thinking among the male members of a rebel group. This is especially pressing since patriarchal values are often very prevalent in countries where intrastate conflicts occur and therefore rebel groups exist (World Economic Forum, 2022). Female combatants often carry considerable prestige and defy common gender stereotypes about the 'weaker sex' among male group members, because they work in dangerous and intense positions (Kampwirth, 2004; Yami, 2006). Contrary to female combatants, women who worked in supporting positions experienced much less acknowledgment from the group (Viterna, 2013). This shows that interaction between female and male combatants in rebel groups contributes to the creation of better intergroup relations. Looking at the conditions that enhance the positive effect of contact, we can see that there is considerable support for most of them in the case of female and male combatants.

Equal Status

In theory, female fighters should have the same status as male fighters. In practice, this is likely to be different as rebel groups generally do not have established structures that guarantee equal treatment and tend to follow existing social structures in this regard (Yami, 2006). However, Kampwirth argues that the prestige factor nevertheless has a considerable influence, and even though equal rights cannot be guaranteed, it can be assumed that female fighters receive considerable respect and almost equal status (Kampwirth, 2004). By looking at women in combat positions, I exclude the lower-prestige roles of female support staff, which are likely to receive much less acknowledgement and are unlikely to fulfill the condition of equal status.

Common Goal and Cooperative Interaction

Members of a rebel group generally share a similar goal. Whether it is the fight for a common ideology, the intent to become independent, or a common aspiration to overthrow the government, in all those cases the group is fighting for the same outcome (Darden et al., 2019; Henshaw, 2016b). Although there are gender-related conflicts, the interaction between male and female combatants is generally cooperative and positive, as they rely to some degree on their comrades in the fighting to survive (Darden et

al., 2019; Gurses, 2018; Yami, 2006).

Institutional Support

The support of the rebel group's structure is a more ambivalent factor. The leadership of certain rebel organizations has an incentive to maintain a clear gender division, for example, if this is religiously expected, as in the case of Islamist groups (Thomas & Bond, 2015). However, according to R. M. Wood and Thomas (2017), these groups do not tend to employ lots of female combatants. Groups that try to gain size and strength through the recruitment of women however, foster a gender-inclusive environment (Thomas & Bond, 2015). In particular, leftist groups have a distinct interest in encouraging female participation and enhancing female and male interaction, since overcoming old hierarchical norms is part of their agenda (R. M. Wood & Thomas, 2017). Additionally, it is not uncommon that female combat participation is accompanied to some degree by women in leadership positions, which likely correlates with institutional support (Henshaw, 2016a; Thomas, 2023).

Many scholars describe how female combatants improve the perception of women among their male peers through the described mechanisms. In different interviews, Gurses (2018) shows how the contradiction of traditional gender stereotypes, the perception of women as equals, and the realization that women were crucial to the group's cause changed the norms of male combatants. Female combatants were perceived as esteemed and important members of the rebel group, especially because they did not work in subordinate or supporting positions, and were able to improve the general perception of women within their groups (Kampwirth, 2004; Viterna, 2013). Durning (1978), shows how the positive effects of contact between male and female soldiers are enhanced by an increasing proportion of women. These examples show that the mechanisms of intergroup contact theory apply in the environment of an armed group and that contact increases with a higher proportion of female fighters. But how can those changed norms of group members spill over into society? I argue that contact between male and female combatants not only affects male fighters' perceptions of their female counterparts, but also has an impact on wider society in the post-conflict period.

From the Rebel Group to the Society

In the following section, I connect the theoretical framework of intergroup contact between male and female combatants with the mechanism of how its effect can be transferred to society after a conflict. I argue that: first, a rebel group can use its influence on society and the disruptive effect of conflict on social norms to introduce its own altered values into society. Second, when former rebels return to their communities after a conflict, they can take up influential positions in which they contribute to the improvement of women's rights in society (Arjona et al., 2015; Hensell & Gerdes, 2017; Martin et al., 2021).

During and especially in the aftermath of an armed conflict, there is a window of opportunity that is largely associated with the possibility for marginalized groups to better integrate into society (DeMeritt et al., 2014; Gurses et al., 2020; Martin et al., 2021). This window also opens up for new societal norms and values. DeMerit et al. (2014) show that new traditions, realities and norms can emerge, and that old (patriarchal) social structures erode while new ones can take their place. Those opportunities can be used by the former combatants of rebel groups that have to reintegrate into society. Former combatants returning from war can often take on higher positions within their community. They can become political leaders, spokespersons of the community, or gain economic power (Hensell & Gerdes, 2017; Martin et al., 2021). Additionally, rebels often have a good network that they build up during the conflict and that connects them with different stakeholders and elites in the country (Martin et al., 2021). In regions where the respective rebel group had a stronghold and governed during the war, they are particularly likely to hold political power after the conflict (Arjona, 2015; Mampilly, 2011, 2015).

Due to the destructive nature of conflict that

creates opportunities to shape society and the fact that former rebel group members may hold important social, political, or economic positions after a conflict, rebel groups have the ability to influence societies with their own values (Hensell & Gerdes, 2017; Martin et al., 2021). Former members can use their direct political influence to promote women's rights, but they can also act as role models and contribute to improving the position of women through their actions and more gender-inclusive beliefs. In fact, a reinforcing effect can be seen in terms of women's rights and more gender-equal values. Vázquez et al. (2021) found evidence that intergroup contact between men and women has a major effect on male mobilization towards advocating for women's rights. This effect is further supported by Wagner and Hewstone (2012), who found that the effect of contact during a conflict does not simply vanish, but continues to have an enduring impact beyond the end of the conflict. Thus, we can assume that male fighters who had a lot of contact with female combatants are more likely to have gender-equitable attitudes and, in the best case, use their influence after a conflict to advocate for more gender-equality and try to implement their new societal norms. Contact during the conflict period can therefore trigger a causal chain that leads to an improvement in women's rights after conflict.

On the basis of this theory, I derive the following hypothesis for the effect of female fighters on the development of women's rights after the war:

H1: *A higher proportion of female combatants in a rebel group leads to an improvement in women's rights in the post-conflict period.*

Research Design and Methodology

The expected relationship is tested through a quantitative analysis, for which I used data from various sources. The final dataset captures every conflict action between a rebel group and the government of a state with at least 25 battle-related deaths per year over the timespan of the conflict. As soon as this threshold is no longer reached, the conflict is considered inactive and ends in the dataset. A rebel group can be active in a country more than once. This is the case when a conflict has had several periods in which a rebel group was active, or when there were different conflicts in a country involving the same group. Accordingly, the unit of analysis is the conflict activity of a rebel group with the government of a country during one specific conflict episode. The dataset includes 502 rebel group dyads in 84 countries. These cases are distributed over a timeframe from 1946 to 2015.

Female Combatants: Independent Variable

The explanatory variable in this research is the proportion of female combatants within a rebel group. Women in rebel groups can have a wide variety of forms and functions (Enloe, 2013; Henshaw, 2017). For this paper, it is important that the female combatants are engaged in the fighting to contradict common stereotypes and to come into contact with male combatants on an approximately equal basis. Therefore, I will utilize the *Women's Activities in Armed Rebellion*[2] dataset (Loken & Matfess, 2023). Loken and Matfess (2023) rely on a suitable definition for female combatants that was put forward by Henshaw (2017). Henshaw defines female participation in combat as:

> "[. . .] work in support of one side in a conflict and work which involves being exposed with regularity to a 'frontline' environment, one where the individual engages in or is directly supporting those who engage in close combat." (Henshaw, 2017, p. 19)

The dataset covers the diverse positions held by women in rebel groups. For my analysis, I will use the most likely value of participation in combat, which is provided by the dataset in the form of a best estimate. The high- and low estimate variables will be utilized for robustness purposes later. The best estimate variable indicates the proportion of female combatants as a percentage of the whole group's combatants in five cate-

[2] WAAR

gories. It ranges from no verified participation in the lowest category (0) to a proportion of at least 20% in the highest category (4). The different activity periods of rebel groups are determined by the dyadic version of the *Conflict Termination Dataset* that is provided by the Uppsala Conflict Data Program[3] (Kreutz, 2010). This data indicates the start and end date of the different conflict activity periods of rebel groups, based on a threshold of 25 battle-related deaths.

Measuring Women's Rights: Dependent Variable

The dependent variable (DV) in my research is the development of women's rights from before a conflict activity of a group to after its end. There are different dimensions of women's rights e.g. political rights, economic rights, or the social rights of women. As Gurses et al. (2020) already pointed out, different aspects of conflicts, such as the conflict severity and different characteristics of active groups, such as the ideology, affect different dimensions of women's rights. My theory implies that the norm change occurs on a societal level. Therefore, a change in women's rights is most likely best measurable in this dimension. If a society becomes more positive towards gender equality, the effect of this norm-change will most likely be visible in aspects such as the freedoms a society grants women to determine their own lives. To capture this specific dimension of women's rights, I will utilize the '*Women civil liberties index*' of the *Varieties of Democracy*[4] dataset (Coppedge et al., 2022). This index measures the opportunities for women to make their own decisions within a society about their life on an index from 0 to 1. It focuses on aspects such as the "[...] freedom of domestic movement, the right to private property, freedom from forced labor, and access to justice" (Coppedge et al., 2022, p. 302). To capture the extent to which women's rights are affected by a rebel group's activity, this index is transformed to indicate the development from before to after a rebel group's conflict activity.

The data for the independent variable is only available from 1946 to 2015. Therefore, I limit the dataset to this timespan and exclude cases before 1946 and after 2015. I also remove conflict activities in Israel and Palestine, as they are treated as one entity in the WAAR dataset, while they are split into four different entities in the Varieties of Democracy dataset, making a consistent measurement for the dependent variable unattainable.

Additional Factors

In addition to the independent variable and the dependent variable, which are meant to capture the theorized effect, I include a range of control variables to account for confounding effects on the expected relationship.

In addition to the effect of female combatants that are active in a rebel group, the ideology of the group is an important factor that I have to account for. Rebel groups with a leftist ideology encourage female participation since it is part of their ideological outlook (Henshaw, 2016b; R. M. Wood & Thomas, 2017).[5] Additionally, Gurses et al. (2020) show that leftist groups generally challenge existing structures and hierarchies, while more traditional ideologies, such as Islamic groups, have a negative impact on women's rights. Therefore, I account for the effect of leftist and Islamist groups by including a dummy variable for each ideology. The data for this variable is taken from the *Women in Armed Rebellion Dataset*[6] (R. M. Wood & Thomas, 2017).

Furthermore, I include the economic development, measured as gross domestic product per capita before the conflict, as a control variable. In doing so, I aim to account for the development level of a country, which has a positive impact on the extent of women's rights (Cherif, 2010; Doepke et al., 2012; Fernández, 2014; Kostenko et al., 2016). The data for this control variable is available in the V-Dem dataset, which is also used for the dependent variable. I include differ-

[3] UCDP
[4] V-Dem
[5] For an in-depth discussion about the ideologies of rebel groups and the according definition, see Wood & Thomas, 2017.
[6] WARD

ent measures for the country's development in the robustness checks.

Conflict dynamics also have an impact on the degree of women's rights. In particular, the intensity of a conflict is related to women's economic rights, while the conflict duration has a positive impact on political rights (Bakken & Buhaug, 2021; Gurses et al., 2020). To account for those effects, I add a measurement for intensity, which differentiates between low and high-intensity conflicts. I also include the duration of a conflict period measured in years. Both variables are taken from the UCDP dataset. An additional factor that is considered is the general level of female combatants in a country at a given time. Since more than one group can be active, it is possible for several groups to affect women's rights with the proportion of female combatants. I therefore include the average proportion out of all groups that are active at the same time in the same country.

When a rebel group achieves a military victory or is included in the negotiation of a peace agreement, it has the opportunity to implement its own ideas and changes (Arjona, 2015; Bakken & Buhaug, 2021; Martin et al., 2021; Reid, 2021). I create two dummy variables that indicate the respective outcomes. The data for the conflict outcome is available in the UCDP dataset.

One important aspect is the extent to which women were able to participate in society before the conflict. The ability to participate in a society is, as I would argue, a closely related concept to the extent of general social liberties. Simultaneously, this ability to participate in societal groups can determine the number of women that participate in a rebel group (Thomas & Wood, 2018). This affects both the outcome variable and the explanatory variable and can therefore lead to reversed causality. It is methodologically difficult to account for reverse causality. I include the level of women's ability to participate in society prior to a conflict period as a control variable to at least control for the confounding effect on the explanatory and the outcome variables. The data for this is taken from the V-Dem dataset.

Empirical Strategy

To examine the effect of the proportion of female combatants in a rebel group on the women's rights level after the conflict period, I use a multiple linear regression analysis. I estimate three different regression models that test temporally different developments in women's rights from before to after the rebel groups' conflict activity. The first model estimates the effect from one year before the conflict activity to one year after its ending. The second model estimates the effect from one year before the conflict activity to the third year after its ending, and the third model estimates the effect from one year before the conflict activity to five years after its ending. I use the constant measure of one year before the start of conflict participation to establish a baseline compared to which the development of women's rights is determined. By including three different development specifications, I can account for the possibility that the expected effect increases over time or becomes apparent only after a certain timespan. For those specifications, I subtract the level of women's rights one year before the conflict activity from the value of women's rights at the respective point in time after the conflict activity:

$$DV = \textit{Women civil liberties index}^{(t_{\text{end}+1,3,5} - t_{\text{start}-1})}$$

This time-varying approach is closely related to the design used by Bakken and Buhaug (2021), but unlike their study, I add a three-year model and a five-year model and use only one measurement of women's rights. In addition to the selected control variables, I include country-fixed effects in each model to account for country-specific developments that might bias the analysis. This main analysis is then complemented by different model specifications and robustness checks to evaluate the validity of my results.

Findings

In *Figure 1*, we see the distribution of female combatants among rebel groups and the

associated development in women's rights. I include a trendline that shows the linear effect of the proportion of female combatants on the development of women's rights. We can see that although the effect is positive in every model, this effect is substantively small. Furthermore, we can observe that there is a large dispersion within most of the categories. In particular, observations with 0% and 5% to 9% of female combatants are scattered along the entire range of women's rights development. Only cases with a female proportion below 5% seem to have a rather small variance in the distribution throughout every model. In all categories, we can see that there is an especially large cluster around zero for the dependent variable, which does not correspond to any change in the development of women's rights. This further indicates that there are only a few cases that are connected to a change in the level of women's rights. Additionally, the number of observations is very different for those categories. While there are many observations with a proportion of 0% and 5% to 9% of female combatants, there are only few cases with a proportion of 10% to 19% of female combatants. Although the trendline indicates an effect of the independent variable on the dependent variable, both the size of the effect and the degree of dispersal for the observations do not allow us to arrive at this finding. Therefore, the next step is to turn our attention to the results of the multiple regression analysis of the three models, which also include the control variables and the fixed-effects.

Statistical Findings

The statistical results are presented in *Table 1*. With a negative coefficient of -0.001 in the first model, a coefficient smaller than 0.001 in the second model, and a negative coefficient of -0.004 in the third model, it appears at first glance that there is a negative effect of independent variable on the dependent variable in two of the three models. However, the effects in all three models are only marginally different from zero. In addition to the small effect size, none of the coefficients are statistically significant. Based on our data and the research design employed, we cannot confirm the hypothesis that was derived from the theoretical argument. It is possible to analyze a relatively large part of the sample. In the first and second model, the number of observations is 490 and in the third model it is 489, which is a high proportion, considering that the total sample size is 502 cases. The lost cases are due to missing data in the three versions of the dependent variable. The adjusted R-squared shows that we can explain 33.1% of the variation in the dependent variable in the first model, 34.7% in the second model and 38.6% in the third model.

Figure 1

Distribution of Women's Rights among the different Female Combatant Categories

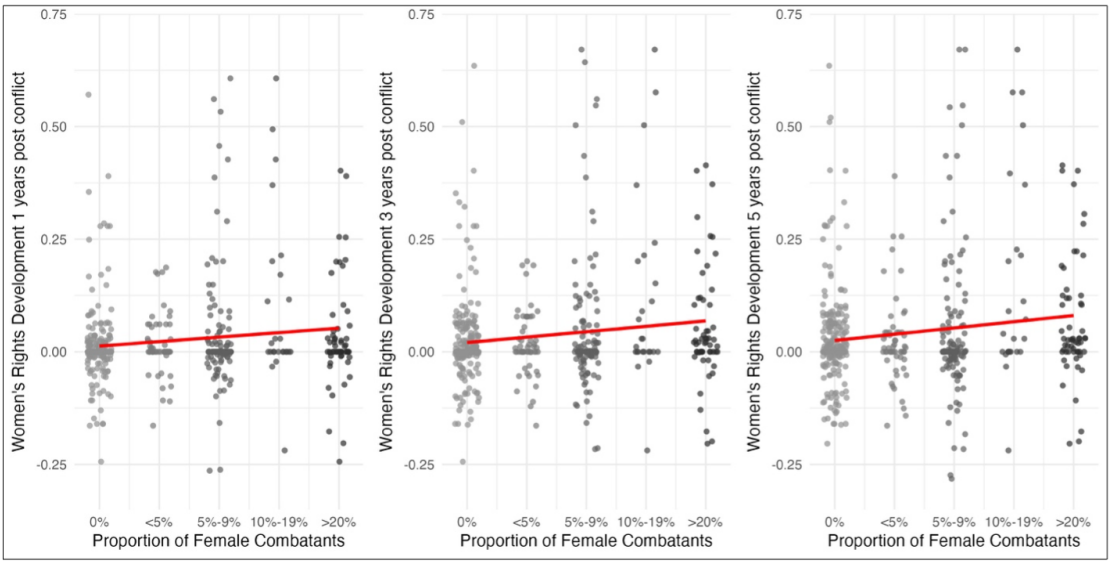

Table 2
Multivariate Linear Regression Analysis Results

	Model 1	**Model 2**	**Model 3**
Female Combatants	-0.001	0.000	-0.004
	(0.008)	(0.009)	(0.010)
Leftist Ideology	0.019	0.015	0.030
	(0.020)	(0.022)	(0.024)
Islamist Ideology	0.017	0.019	0.015
	(0.018)	(0.020)	(0.022)
Peace Agreement	0.053***	0.062***	0.055**
	(0.016)	(0.017)	(0.019)
Victory for Rebel Group	0.000	0.000	-0.002
	(0.023)	(0.026)	(0.028)
Average Female Combatants	0.004	0.005	0.009
	(0.012)	(0.013)	(0.014)
Intensity of the Conflict	-0.016	-0.003	0.009
	(0.016)	(0.018)	(0.020)
Conflict Duration	0.002**	0.003*	0.002*
	(0.001)	(0.001)	(0.001)
Pre-Conflict Women's Societal Participation	-0.079^{+}	-0.096^{+}	-0.156**
	(0.045)	(0.050)	(0.054)
GDP per Capita (pre conflict)	0.001	0.002	0.006
	(0.003)	(0.003)	(0.004)
Num. Obs.	490	490	489
R^2 Adj.	0.331	0.347	0.386
Country Fixed Effects	yes	yes	yes

$^{+}$p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001
Note. Standard errors in parentheses. Data from V-Dem, WAAR, UCDP, WARD.

Although it is not possible to find a significant effect that supports the hypothesis of this study, there are still some interesting findings. Peace agreements, as might have been expected, were significant and positively related to an improvement in women's rights, following a conflict period in all three models. Therefore, the results further highlight the work of previous scholars (Bakken & Buhaug, 2021; Reid, 2021). Additionally, the opportunity to participate in society for women previous to the conflict is significantly related to a decrease in women's liberties in the third model and significantly negative below a p-value of 0.1 in models one and two. This interesting effect might indicate that countries which have already had a high level of gender equality are more affected by the negative impacts of wars for women's rights. Conflict duration has a small positive effect, which is significant and also consistent with the findings of Reid (2021).

Robustness Checks

As already stated in the outline of my empirical approach, I include certain tests to check for the robustness of my results and to rule out that a weak specification, the measurement of the variables, or other factors distorted the results.

First, I include additional control variables, such as women's life expectancy, secondary education, the proportion of women in the total population, and forced recruitment in rebel groups. *Table 2* (in the Appendix) indicates that the additional control variables do not change the insignificance of the theorized effect, but they decrease the number of observations by a large margin.

Second, I examine different measurements of the independent variable by replacing the best estimate of female combatants with the high and low estimates from the WAAR dataset. These alternative measurements do not change the effect of the explanatory variable (see *Table 3* in the Appendix). Similarly, a binary measurement of the independent variable does not offer any contradicting results (see *Table 4* in the Appendix). In addition, I conduct a logistic regression analysis with a binary measurement of the dependent variable, once with the original measure of the independent variable and in a different analysis with the binary measurement. However, the results correspond to the original findings and those from the previous robustness checks (see *Table 5* in the Appendix).

Third, I account for the potential issue of a non-linear relationship by using a third-degree polynomial regression. This regression shows a positive effect of female combatants in the second and the third model. The effect, however, is only significant at $p < 0.1$ and even then, the effect is vanishingly small with a coefficient of 0.0014 in both models (see *Table 6* in the Appendix). This small effect is most likely driven by a small number of observations in the 10% to 19% category of female combatants, with only 26 cases (see *Figure 2* in the Appendix). These 26 cases are mostly clustered around zero and above zero, with only three relevant negative cases. The other categories, which account for the remaining 478 cases, are clustered around zero with a significantly more balanced distribution.

Finally, I test for regional differences. The results indicate a significant negative effect in Europe for model two and three and a significant positive effect in the Middle East in the first two models at $p < 0.1$ and $p < 0.05$ in model three (see *Table 7*, *Table 8*, *Table 9* in the Appendix). However, Europe and the Middle East are the regions with the fewest cases (26 and 62), which is why the explanatory power of the results is limited. For a comprehensive test of regional impacts, I also tested for different outcomes using regional fixed effects - both with and without standard errors, clustered along the country identifier (see Table 10). None of the models fundamentally alter the results of the main analysis. However, in the models with fixed effects for the regions, there is a positive and significant effect of the average number of female combatants in a country during a conflict period. While this finding is very interesting, one has to be cautious not to overestimate these results. The corresponding variable has major conceptual and methodological limitations, as it is computed by aggregating the average countrywide proportion of female combatants over the whole timespan of one conflict period, to have one value for each case in the dataset. Furthermore, while aggregating the countrywide value of female combat participation, the size of each group in that time period is not accounted for, therefore the averages are unweighted. A dedicated study would be necessary before these results could be interpreted credibly. Taken together, these two additional analyses do not contradict the results of the main analysis or the previous robustness checks.

Taken together, neither the original regression analysis nor the robustness checks provide sufficient support for the hypothesis of this paper, warranting its rejection and indicating the need for alternative explanations.

Discussion

One of the most severe problems in analyzing the effect of female combatants on women's

rights is the availability of appropriate data. I try to use the available data of WAAR, UCDP, and V-Dem as best as possible without losing too much reliability or cases. However, one shortcoming of my approach is the generalization of female participation over different conflict periods. In the WAAR dataset, which indicates the proportion of female combatants, there is only one participation level for each rebel group. After combining this dataset with the UCDP data to get the relevant conflict periods, this single value is taken for all conflict periods of a group. Due to the qualitative measurement of that value, it is questionable whether this value would be the same for every period of conflict activity. Data that captures group characteristics over the different activity periods would be more appropriate for the method used in this article. In addition to this, the WAAR dataset relies on the 25 battle-related death threshold in order to count the conflicts. Those 25 battle-related deaths lead to the inclusion of rather small conflicts that, contrary to the theory, might not be able to exhibit any influence on a country and its society.

Considering the dependent variable, taking the national level of the social liberties for women also brings certain problems. Arjona et al. (2015) show that rebel groups have a large influence within regions where they were active during the conflict. However, one might expect no influence at all in regions that are far away from an intrastate conflict, especially if the conflict is of low intensity and has little impact on other regions in a country. Additionally, it might be possible that the stereotypical beliefs indeed decrease, as the theoretical argument expects, but these beliefs do not transfer into legislature and are therefore not captured in the data. A more nuanced database that also measures the public perception towards women and reflects geographical differences would significantly improve the presented research design.

In my theoretical argument, I explain why I expect the proportion of female combatants to lead to the described effect based on intergroup contact theory. Yami (2006) points out that some male combatants perceive women in frontline positions as an artificial phenomenon that has been imposed on the group by its leadership, instead of equal comrades that they could work with. In such a context, contact between male and female combatants might not lead to an improvement in intergroup relations, but further consolidate envy, frustration, and stereotypical beliefs. The socio-psychological processes in rebel groups are without question multilayered and may not be generalizable in a simplistic manner. Additionally, rebel groups themselves vary idiosyncratically. Although I try to account for differences in rebel group characteristics by including their ideology and their way of recruiting members as control variables, other unobservable characteristics cannot be included in the analysis. Therefore, while the general assumption of the effects of intergroup contact within rebel groups most likely holds, future studies should examine qualitatively, to what extent this effect exists. Here, once again, I encounter the limitations of the database discussed above. To truly understand the psychological mechanisms, more individual-level data would be needed that actually captures opinions and the developments of beliefs within rebel groups.

In the third part of my theory, I describe how the gender-inclusive beliefs that follow the intergroup contact theory can translate into broader society. Although the mechanisms described can theoretically help to change public norms towards more gender inclusiveness, there are some limiting factors. It is questionable whether or not all groups are similarly integrated into society and therefore can influence the society in the same way (Martin et al., 2021). Especially if there are several groups, perhaps even active in different regions, the influence on the whole society may be lower for the individual group. I account for different effects by including the average proportion of female combatants in a conflict, but this only partly controls for this limitation.

Additionally, not only does the rebel group influence society, but this effect also works vice versa (Mampilly, 2011, 2015; Martin et al., 2021). Consequently, we need to know which influence is stronger: that of societal values on a rebel group or the influence of the rebel group's values on society. This is particularly important

when patriarchal values are widespread in a society. Considering the rather strong patriarchal social structure in many countries of the Middle East (Cherif, 2010; Gurses, 2018), the regional analysis in my robustness check lends support to the hypothesis that the effect of the rebel group might be stronger. However, as stated earlier, this analysis is only partially reliable and, therefore, some uncertainty about the effect of the society on the rebel group remains. In terms of post-conflict effects, I argue that the reintegrated members of a rebel group can use their status to influence social norms. However, the reintegration of former rebels into society is often far from equal between different conflicts and also within the same conflict. Female combatants in particular are often not considered at all in this context, and even for men, reintegration into society is far from uniform (Humphreys & Weinstein, 2007; Stenger, 2024).

As we can see, there are many aspects that affect the intergroup relations within a rebel group, and there are even more factors that have an impact on the rebel group's relation with normal citizens and the ability to impose its values on the society. More nuanced data on the attitudes within a group, on the relationship between societies and rebel groups, and on processes within a conflict-torn society is needed to fully understand the relation between a group's proportion of female combatants and the effect on women's rights. It is difficult to gather this micro-level data if we want to gather it for past conflicts as well. Hence, although those aspects are important to grasp all the difficulties and limitations in this work, it is highly unlikely that such suggestions can be realized.

Conclusion

In this article, I examine the effect of female combatants on women's rights development in the post-conflict period. Although researchers have studied the influence of women on peace agreements and the impact of certain rebel groups on women's rights, they overlooked the relationship between the female proportion of combatants in a rebel group and post-conflict women's rights. I use a multiple linear regression analysis to examine the hypothesis that with a higher proportion of female combatants in a rebel group, societal women's rights increase after a conflict period. The estimations of the three models show that there is no statistically significant effect of the explanatory variable on the outcome. Therefore, my hypothesis is not supported by the empirical evidence. I apply various robustness checks to prove that those results hold under different measures and conditions. None of the robustness checks provides results that credibly jeopardize the initial findings.

Although the hypothesis of this paper is not supported, some interesting new questions emerge. The data show that the level of female participation in society before a conflict period is negatively correlated with the level of women's rights afterward. Future research could explore this finding and examine how conflicts influence countries with higher levels of female societal participation. Offering an early indication of that trend, the last robustness test shows an effect of the average level of female combatants within a country. Although this specific result has severe limitations due to the underlying variable, future research could further investigate this pattern in a detailed study.

In addition, my work has raised some questions with regard to previous research. Despite the influence of, for example, women's proportion on the gender inclusiveness of peace agreements (Thomas, 2023), my results show that no effects on women's social liberties can be found. Future research should consider a heterogeneous relationship between the proportion of women's rights and factors such as ideology and peace agreements to investigate whether the positive findings of previous scholars actually lead to a real improvement in women's rights.

In conclusion, my initial question can be answered to the extent that the proportion of women does not appear to have a notable influence on women's rights after a conflict period. However, it has become evident that the data coverage is currently too limited to draw a truly comprehensive, reliable, and definitive conclusion. Future research should apply newer and more extensive data to examine the question and

theory presented in my paper. This will eventually improve our understanding of conflict dynamics, intergroup relations, and the influence of women in armed groups, as well as their impact on post-conflict societal development, and by this contribute to a better understanding of sustainable peace.

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Appendix A: Beyond the Frontlines: Female Combatants as Champions for Gender Equality by Jakob Schneider

Appendix A: Table 2
Additional Control Variables

	Model 1	Model 2	Model 3
Female Combatants	−0.014	−0.012	−0.007
	(0.017)	(0.018)	(0.019)
Leftist Ideology	0.031	0.040	0.036
	(0.034)	(0.037)	(0.039)
Islamist Ideology	−0.049+	−0.045	−0.042
	(0.027)	(0.030)	(0.031)
Peace Agreement	0.033	0.092***	0.080**
	(0.024)	(0.026)	(0.027)
Victory for Rebel Group	−0.013	−0.008	−0.029
	(0.042)	(0.046)	(0.048)
Average Female Combatants	0.039	0.017	0.004
	(0.026)	(0.028)	(0.029)
Intensity of the Conflict	0.049	0.049	0.062+
	(0.030)	(0.033)	(0.034)
Conflict Duration	0.006***	0.005***	0.006***
	(0.001)	(0.001)	(0.001)
Pre-Conflict Women's Societal Participation	−0.256**	−0.274**	−0.295**
	(0.088)	(0.096)	(0.100)
GDP per Capita	−0.011	−0.011	−0.002
	(0.010)	(0.010)	(0.011)
life expectancy women	0.000	0.000	0.004
	(0.003)	(0.004)	(0.004)
Female Population	0.048	0.116**	0.141**
	(0.039)	(0.043)	(0.045)
Forced Recruitment	−0.022	−0.055	−0.052
	(0.046)	(0.050)	(0.052)
Secondary Education	0.003*	0.004*	0.003
	(0.002)	(0.002)	(0.002)
Num.Obs.	119	119	119
R2	0.735	0.770	0.785
R2 Adj.	0.599	0.651	0.675
Country Fixed Effects	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Note. Standard Errors in Parentheses. Data from V-Dem, WAAR, UCDP, WARD

Appendix A: Table 3

High and Low Estimates

	Model 1		Model 2		Model 3	
	Low Estimate	High Estimate	Low Estimate	High Estimate	Low Estimate	High Estimate
Female Combatants low	−0.002		0.000		−0.001	
	(0.008)		(0.009)		(0.010)	
Female Combatants high		−0.003		−0.007		−0.008
		(0.006)		(0.006)		(0.007)
Leftist Ideology	0.021	0.022	0.016	0.021	0.029	0.035
	(0.020)	(0.019)	(0.022)	(0.021)	(0.024)	(0.023)
Islamist Ideology	0.010	0.010	0.011	0.011	0.008	0.007
	(0.018)	(0.018)	(0.020)	(0.020)	(0.021)	(0.021)
Peace Agreement	0.055***	0.055***	0.063***	0.064***	0.056**	0.057**
	(0.015)	(0.015)	(0.017)	(0.017)	(0.018)	(0.018)
Victory for Rebel Group	−0.002	−0.002	−0.003	−0.001	−0.006	−0.004
	(0.023)	(0.023)	(0.026)	(0.026)	(0.027)	(0.027)
Average Female Combatants	0.006	0.007	0.005	0.012	0.006	0.015
	(0.010)	(0.010)	(0.012)	(0.011)	(0.012)	(0.012)
Intensity of the Conflict	−0.008	−0.008	0.005	0.006	0.017	0.018
	(0.016)	(0.016)	(0.018)	(0.018)	(0.019)	(0.019)
Conflict Duration	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Pre-Conflict Women's Societal Participation	−0.088*	−0.087+	−0.107*	−0.101*	−0.170**	−0.162**
	(0.044)	(0.044)	(0.050)	(0.050)	(0.053)	(0.053)
GDP per Capita	−0.018**	−0.018**	−0.019**	−0.019**	−0.018*	−0.018*
	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
Num.Obs.	490	490	490	490	489	489
R2 Adj.	0.354	0.354	0.368	0.370	0.408	0.410
Country Fixed Effects	✓	✓	✓	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 4

Binary Independent Variable

	Binary Model 1	Binary Model 2	Binary Model 3
Female Combatants Binary	−0.006	−0.013	−0.015
	(0.015)	(0.016)	(0.018)
Leftist Ideology	0.020	0.017	0.031
	(0.018)	(0.021)	(0.022)
Islamist Ideology	0.011	0.012	0.009
	(0.018)	(0.020)	(0.021)
Peace Agreement	0.055***	0.064***	0.056**
	(0.015)	(0.017)	(0.018)
Victory for Rebel Group	−0.001	0.000	−0.003
	(0.023)	(0.026)	(0.028)
Average Female Combatants	0.006	0.009	0.011
	(0.009)	(0.011)	(0.011)
Intensity of the Conflict	−0.009	0.005	0.017
	(0.016)	(0.018)	(0.019)
Conflict Duration	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Pre-Conflict Women's Societal Participation	−0.087*	−0.103*	−0.165**
	(0.044)	(0.050)	(0.053)
GDP per Capita	−0.018**	−0.019**	−0.018*
	(0.006)	(0.007)	(0.007)
Num.Obs.	490	490	489
R2 Adj.	0.354	0.369	0.409
Country Fixed Effects	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 5

Binary Dependent Variable

	Binary DV			Binary IV and DV		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Female Combatants Binary				−0.015	0.010	−0.214
				(0.390)	(0.375)	(0.388)
Female Combatants Categorical	0.005	0.051	−0.145			
	(0.206)	(0.199)	(0.211)			
Leftist Ideology	0.598	0.483	0.964+	0.604	0.520	0.882+
	(0.503)	(0.484)	(0.516)	(0.483)	(0.464)	(0.490)
Islamist Ideology	0.141	0.291	0.824+	0.141	0.283	0.855+
	(0.466)	(0.455)	(0.479)	(0.465)	(0.454)	(0.481)
Peace Agreement	0.262	0.025	−0.210	0.263	0.025	−0.205
	(0.425)	(0.412)	(0.441)	(0.426)	(0.413)	(0.441)
Victory for Rebel Group	0.430	0.270	0.585	0.435	0.276	0.616
	(0.639)	(0.625)	(0.649)	(0.647)	(0.629)	(0.663)
Average Female Combatants	−0.173	−0.094	−0.119	−0.163	−0.046	−0.190
	(0.295)	(0.290)	(0.300)	(0.250)	(0.247)	(0.252)
Intensity of the Conflict	−0.313	−0.003	0.273	−0.311	0.011	0.242
	(0.444)	(0.442)	(0.464)	(0.440)	(0.438)	(0.463)
Conflict Duration	0.083**	0.053*	0.031	0.083**	0.053*	0.032
	(0.027)	(0.026)	(0.026)	(0.027)	(0.026)	(0.027)
Pre-Conflict Women's Societal Participation	1.043	−0.546	−2.154+	1.052	−0.521	−2.165+
	(1.140)	(1.123)	(1.189)	(1.146)	(1.126)	(1.188)
GDP per Capita	−0.112	−0.131	−0.574*	−0.111	−0.132	−0.568*
	(0.169)	(0.175)	(0.272)	(0.169)	(0.175)	(0.270)
Num.Obs.	490	490	489	490	490	489
R2 tjur	0.27	0.29	0.33	0.27	0.29	0.33
Country Fixed Effects	✓	✓	✓	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 6

Polynomial Regression Analysis

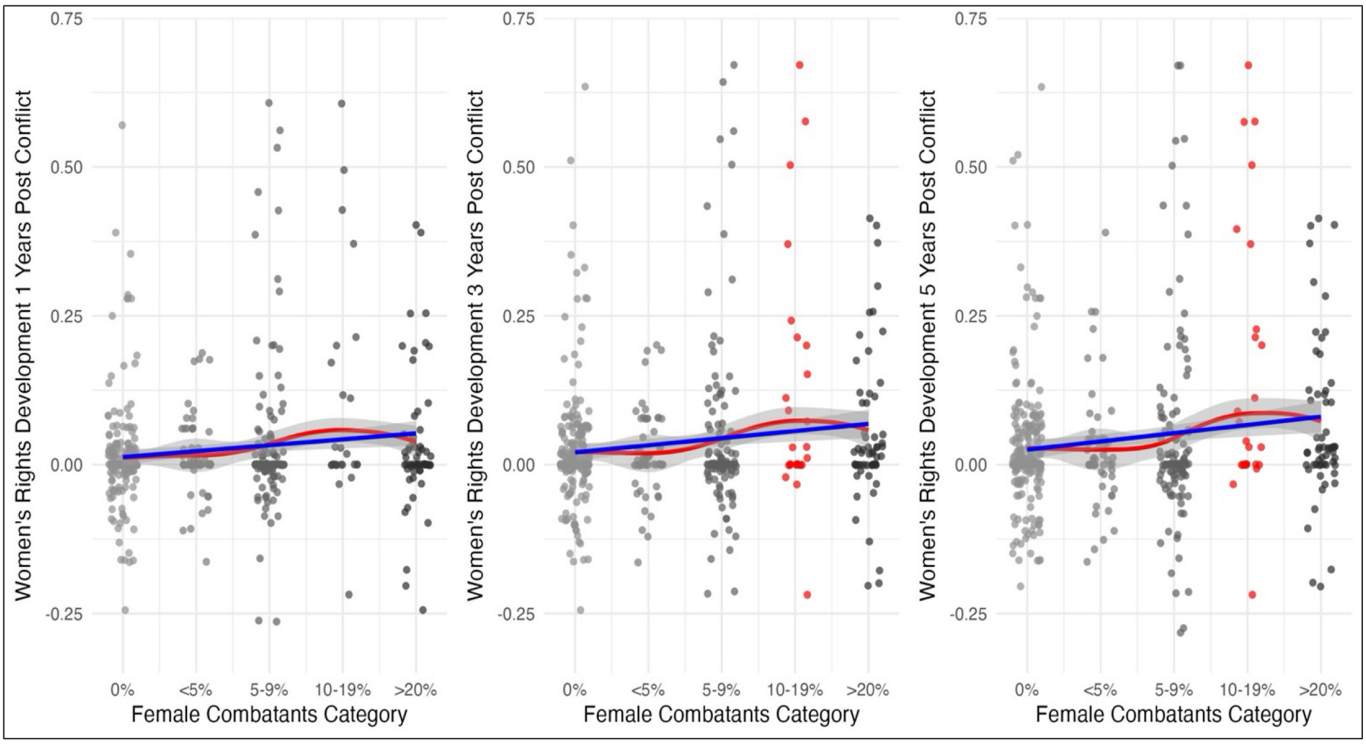
	Polynomial Regression Model		
	Model 1	Model 2	Model 3
Female Combatants Binary	−0.0077	−0.0138	−0.0176
	(0.0103)	(0.0116)	(0.0124)
IV Polynomial	0.0008	0.0014+	0.0014+
	(0.0007)	(0.0007)	(0.0008)
Leftist Ideology	0.0165	0.0099	0.0253
	(0.0194)	(0.0217)	(0.0232)
Islamist Ideology	0.0117	0.0143	0.0104
	(0.0179)	(0.0200)	(0.0214)
Peace Agreement	0.0552***	0.0646***	0.0575**
	(0.0152)	(0.0170)	(0.0182)
Victory for Rebel Group	0.0000	0.0019	−0.0004
	(0.0229)	(0.0257)	(0.0274)
Average Female Combatants	0.0036	0.0032	0.0077
	(0.0113)	(0.0127)	(0.0136)
Intensity of the Conflict	−0.0111	0.0004	0.0127
	(0.0163)	(0.0182)	(0.0194)
Conflict Duration	0.0014	0.0015	0.0013
	(0.0010)	(0.0011)	(0.0012)
Pre-Conflict Women's Societal Participation	−0.0839+	−0.0979*	−0.1583**
	(0.0444)	(0.0497)	(0.0531)
GDP per Capita	−0.0181**	−0.0191**	−0.0178*
	(0.0058)	(0.0065)	(0.0070)
Num.Obs.	490	490	489
R2 Adj.	0.355	0.372	0.411
Country Fixed Effects	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Figure 2

Linear and Non-Linear Relationship - Bivariate



Appendix A: Table 7

Regional Analysis - Model 1

	Model 1				
	Europe	Africa	Asia	Middle East	America
Female Combatants	−0.087	−0.017	0.004	0.032+	−0.059
	(0.062)	(0.013)	(0.013)	(0.017)	(0.118)
Leftist Ideology	0.379**	0.069	0.024	0.008	−0.057
	(0.068)	(0.050)	(0.026)	(0.030)	(0.324)
Islamist Ideology	0.080	0.014	−0.010	0.020	0.170
	(0.085)	(0.035)	(0.027)	(0.033)	(0.470)
Peace Agreement	0.044	0.049*	0.068*	0.073	0.039
	(0.045)	(0.021)	(0.031)	(0.057)	(0.038)
Victory for Rebel Group	0.140	0.040	−0.047	−0.110	0.000
	(0.130)	(0.033)	(0.040)	(0.070)	(0.086)
Average Female Combatants	−0.067	0.029+	−0.016	−0.051+	0.054
	(0.058)	(0.018)	(0.020)	(0.027)	(0.159)
Intensity of the Conflict	0.142	0.014	−0.046+	−0.072*	0.137
	(0.131)	(0.027)	(0.028)	(0.031)	(0.336)
Conflict Duration	0.004	0.004*	−0.002	−0.015**	0.008*
	(0.015)	(0.002)	(0.001)	(0.005)	(0.003)
Pre-Conflict Women's Societal Participation	−1.187**	−0.059	−0.102	−0.036	0.017
	(0.244)	(0.067)	(0.081)	(0.137)	(0.331)
GDP per Capita	0.000	−0.044**	−0.071***	−0.012	0.015
	(0.020)	(0.016)	(0.018)	(0.008)	(0.026)
Num.Obs.	23	201	171	54	41
R2 Adj.	0.859	0.504	0.184	0.311	0.681
Country Fixed Effects	✓	✓	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 8

Regional Analysis - Model 2

	Model 2				
	Europe	Africa	Asia	Middle East	America
Female Combatants	−0.169*	−0.018	0.002	0.035+	−0.078
	(0.057)	(0.015)	(0.014)	(0.018)	(0.125)
Leftist Ideology	0.424***	0.100+	0.018	0.007	0.278
	(0.063)	(0.057)	(0.027)	(0.032)	(0.344)
Islamist Ideology	0.036	0.004	−0.008	0.026	0.469
	(0.078)	(0.040)	(0.028)	(0.036)	(0.499)
Peace Agreement	0.078	0.032	0.086*	0.090	0.178***
	(0.042)	(0.024)	(0.034)	(0.062)	(0.040)
Victory for Rebel Group	0.243+	0.026	−0.032	−0.110	0.000
	(0.119)	(0.038)	(0.043)	(0.076)	(0.091)
Average Female Combatants	0.011	0.024	−0.010	−0.062*	0.003
	(0.053)	(0.020)	(0.021)	(0.030)	(0.169)
Intensity of the Conflict	0.256+	0.046	−0.047	−0.067+	−0.201
	(0.120)	(0.031)	(0.030)	(0.033)	(0.357)
Conflict Duration	−0.009	0.006*	−0.002+	−0.016**	0.010*
	(0.014)	(0.002)	(0.001)	(0.006)	(0.004)
Pre-Conflict Women's Societal Participation	−1.366***	−0.066	−0.138	0.002	0.188
	(0.224)	(0.076)	(0.087)	(0.149)	(0.351)
GDP per Capita	−0.017	−0.056**	−0.076***	−0.007	0.034
	(0.018)	(0.018)	(0.019)	(0.009)	(0.027)
Num.Obs.	23	201	171	54	41
R2 Adj.	0.900	0.508	0.267	0.230	0.713
Country Fixed Effects	✓	✓	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 9

Regional Analysis - Model 3

	Model 3				
	Europe	Africa	Asia	Middle East	America
Female Combatants	−0.125*	−0.030+	−0.001	0.037*	−0.069
	(0.042)	(0.016)	(0.014)	(0.018)	(0.114)
Leftist Ideology	0.399***	0.191**	0.023	0.001	−0.125
	(0.047)	(0.061)	(0.028)	(0.032)	(0.314)
Islamist Ideology	0.028	−0.019	0.001	0.032	−0.125
	(0.058)	(0.043)	(0.029)	(0.035)	(0.455)
Peace Agreement	0.096*	0.014	0.071*	0.115+	0.169***
	(0.031)	(0.026)	(0.034)	(0.060)	(0.037)
Victory for Rebel Group	0.165	0.017	−0.034	−0.130+	0.000
	(0.090)	(0.041)	(0.044)	(0.075)	(0.083)
Average Female Combatants	0.001	0.025	−0.005	−0.065*	0.117
	(0.040)	(0.022)	(0.021)	(0.029)	(0.154)
Intensity of the Conflict	0.166	0.072*	−0.043	−0.081*	−0.068
	(0.090)	(0.034)	(0.030)	(0.032)	(0.325)
Conflict Duration	0.001	0.006*	−0.003+	−0.021**	0.014***
	(0.010)	(0.003)	(0.001)	(0.006)	(0.003)
Pre-Conflict Women's Societal Participation	−1.261***	−0.092	−0.185*	−0.044	−0.402
	(0.168)	(0.082)	(0.087)	(0.146)	(0.320)
GDP per Capita	−0.007	−0.063**	−0.076***	−0.005	0.085**
	(0.014)	(0.020)	(0.019)	(0.009)	(0.025)
Num.Obs.	23	201	171	53	41
R2 Adj.	0.961	0.540	0.333	0.324	0.814
Country Fixed Effects	✓	✓	✓	✓	✓

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP

Appendix A: Table 10
Regional Fixed Effects

	Regional Fixed Effects			Regional Fixed Effects Clustered Standard Errors		
	Model 1	Model 3	Model 5	Model 1	Model 3	Model 5
Female Combatants	−0.004	−0.006	−0.011	−0.001	0.000	−0.004
	(0.009)	(0.010)	(0.011)	(0.008)	(0.009)	(0.010)
Leftist Ideology	0.025	0.022	0.035+	0.016	0.013	0.030
	(0.017)	(0.019)	(0.021)	(0.020)	(0.022)	(0.023)
Islamist Ideology	−0.005	−0.010	−0.020	0.010	0.014	0.014
	(0.014)	(0.016)	(0.018)	(0.018)	(0.020)	(0.022)
Peace Agreement	0.067***	0.080***	0.073***	0.050**	0.061***	0.053**
	(0.014)	(0.016)	(0.018)	(0.016)	(0.017)	(0.019)
Victory for Rebel Group	0.001	−0.005	−0.016	0.001	−0.004	−0.006
	(0.023)	(0.026)	(0.029)	(0.023)	(0.026)	(0.028)
Average Female Combatants	0.019*	0.023*	0.031**	0.004	0.003	0.008
	(0.009)	(0.011)	(0.012)	(0.012)	(0.013)	(0.014)
Intensity of the Conflict	−0.020	−0.010	0.001	−0.014	0.000	0.009
	(0.016)	(0.018)	(0.020)	(0.016)	(0.018)	(0.019)
Conflict Duration	0.003***	0.004***	0.004**	0.003**	0.003**	0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Pre-Conflict Women's Societal Participation	−0.046+	−0.056*	−0.091**	−0.088*	−0.110*	−0.163**
	(0.024)	(0.027)	(0.029)	(0.045)	(0.050)	(0.053)
GDP per Capita	0.001	0.001	0.001	0.000	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Num.Obs.	490	490	489	490	490	489
R2 Adj.	0.134	0.142	0.152	0.336	0.355	0.392

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001
Note. Standard Errors in Parentheses. Data from Vdem, WAAR, UCDP