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When are Women Deployed? Operational Uncertainty and Deployment of Female Personnel to UN Peacekeeping

Kajsa Tidblad-Lundholm

Department of Peace and Conflict Research, Uppsala University, Uppsala, Sweden

ABSTRACT

This study explores how the duration of missions affects the participation of women in United Nations (UN) peace operations. I argue that women are less likely to be deployed in the early stages of missions because new missions are associated with high levels of operational uncertainty, which is ultimately a type of risk. Instead, women's participation will increase over time as the uncertainty decreases and the operating environment becomes more predictable. In an extended analysis, I also explore if the level of gender equality in a troop contributing country affects the decision to deploy women to the early phases of missions. Applying a large-N approach, I study the proportion of women in military contributions to UN peace operations between 2009 and 2015. Using a set of multilevel mixed-effects generalized linear models, the main argument find empirical support. However, when the robustness of the findings is challenged, there is indication that there could be additional factors that affect operational uncertainty and the perceived risk associated with an operating environment. The result of the extended analysis indicate that more gender equal countries are more prone to deploy larger proportions of female military personnel, regardless of when the deployment takes place.

KEYWORDS Women's participation; UNSCR 1325; peacekeeping; peace operations; United Nations

Introduction¹

Since the establishment of the United Nations Security Council (UNSC) resolution 1325 in 2000, the United Nations (UN) has strived to increase the participation of women in UN peace operations.² Both policy makers and researchers have stressed the importance of increasing the participation of

CONTACT Kajsa Tidblad-Lundholm  kajsa.tidblad.lundholm@gmail.com

¹This article builds on the author's master's thesis, see Tidblad-Lundholm, "Women's Participation in UN Peacekeeping."

²See for example UNSC, *resolution 1325*; UNSC, *resolution 1820*; UNSC, *resolution 2242*; Mungcal, "UN Campaign to Increase Women Military Peacekeepers Off Track."

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women to improve the quality and efficiency of UN peacekeeping.³ Still, the process of including more uniformed female personnel is rather slow. In December 2018, only 4.2 percent of the almost 79,400 military personnel deployed to UN peace operations were women.⁴

While the goal to increase the number of female peacekeepers is set by the UNSC, the decision to deploy women ultimately rests with the individual troop contributing countries (TCCs). A growing field has recognised the importance of learning more about which factors motivate and hinder women's participation in UN peacekeeping. As scholars, policy makers and uniformed personnel learn more about which factors constrain women's participation in UN peacekeeping, informed measures can be taken to reduce these barriers. Previous studies have elaborated on *where* and to *what types* of missions women are deployed.⁵ Karim and Beardsley amongst others have found female peacekeepers to be less frequently deployed to mission environments associated with higher levels of risk, such as those with high conflict intensity and conflict related sexual violence.⁶ Other studies have explored how the mandate of a mission⁷ and the characteristics of the TCCs⁸ affect the decision to deploy women to UN peace operations. There is also indication that female participation varies over time within missions.⁹ In this paper, I aim to contribute to our understanding of gender bias in peacekeeping deployments by exploring if female military personnel are systematically less deployed at the early stages of UN peace operations. The concept of risk includes different factors, and some of these factors are not always directly observable. TCCs are therefore likely to base their decisions to deploy women on perceived risk, including uncertainty. I argue that that the operational uncertainty that characterizes early phases of peacekeeping missions is associated with a lower willingness of TCCs to deploy women.

Scholars have argued that the gendered protection norm – the norm confirming men as protectors and women (and children) as those who need

³See for example Egnell, Hojem, and Berts, *Gender, Military Effectiveness, and Organizational Change*; Ghittoni, Lehoucq and Watson, "Elsie Initiative for Women in Peace Operations Baseline study"; Karim and Beardsley, *Equal Opportunity Peacekeeping*; Kenny, "Using Financial Incentives to Increase the Number of Women in UN Peacekeeping"; UNPK, "Women in peacekeeping"; Valenius, "A Few Kind Women."

⁴UNPK, *Summary of Troop Contributions to UN Peacekeeping Operations*.

⁵See for example Beardsley, "The Known Knowns and Known Unknowns of Peacekeeping Data"; Berg and Bjarnegård, "Dissecting gender imbalance"; Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations"; Karim and Beardsley, "Female Peacekeepers and Gender Balancing"; "Ladies Last"; *Equal Opportunity Peacekeeping*; Kreft, "The Gender Mainstreaming Gap"; Olsson and Möller, "Data on Women's Participation in UN, EU, and OSCE Field Missions."

⁶See for example Berg and Bjarnegård, "Dissecting Gender Imbalance"; Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations"; Karim and Beardsley, *Equal Opportunity Peacekeeping*.

⁷Karim and Beardsley, "Female Peacekeepers and Gender Balancing"; Kreft, "The Gender Mainstreaming Gap."

⁸Karim and Beardsley, *Equal Opportunity Peacekeeping*; Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations."

⁹Smit and Tidblad-Lundholm, "Trends in Women's Participation in UN, EU and OSCE Peace Operations."

protection – restrain women from serving in high risk environments, for example those with high conflict intensity.¹⁰ I argue that a similar set of norms will restrain women from deployment to newly installed missions, as the uncertainty, and thereby the perceived risk, associated with operating in new environments is relatively high. Instead, women's participation in UN peacekeeping will increase with the duration of missions as the uncertainty decreases and the operating environment becomes more predictable over time.

I test this argument using a large-N approach studying the variation in the proportion of female military personnel deployed by troop contributing countries to UN peace operations between 2009 and 2015. Using a set of multilevel mixed-effects generalized linear models the main argument initially finds support as TCCs are found to deploy fewer women during a mission's first calendar year. Instead, the proportion of women is seen to increase with time. The relation is significant when controlling for other risk-associated factors, such as conflict intensity and prevalence of sexual violence, as well as TCC specific factors, such as gender equality in the TCC. However, when challenging the main findings by limiting the sample to missions starting after 2009, the effect is not statistically significant. This indicates that there could potentially be additional factors affecting the perceived risk associated with an operational environment. Additionally, this study finds more gender equal TCCs to be more prone to deploy larger shares of women to UN peacekeeping, regardless of *when* the deployment takes place. Hence, while the analysis lends support to the argument that operational uncertainty is an important factor to consider, it also acknowledges other factors that determine the willingness of TCCs to deploy women.

There are both normative and instrumental arguments for increasing women's participation in peace operations. In a UN Security Council open debate on women in peacekeeping, the UN Secretary General António Guterres said: 'This is not just a question of numbers, but also of our effectiveness in fulfilling our mandates.'¹¹ Drawing on organization and leadership literature, some argue that including more women in male dominated military institutions will help form culture and norms in a favourable direction. This is expressed in an early study conducted by the UN Department of Peacekeeping Operations (DPKO) where they conclude that women's presence 'makes men peacekeepers more reflective and responsible; and it broadens the repertoire of skills and styles available within the mission, often with the effect of reducing conflict and confrontation'.¹² The processes of shaping mission culture and norms take place from the onset of missions. If women are

¹⁰Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*.

¹¹UNSC, "Deployment of Female Personnel Boosts Effectiveness."

¹²DPKO, *Mainstreaming a Gender Perspective In Multidimensional Peace Operations*, 4.

systematically deployed later than their male colleagues they cannot be expected to have the same impact on forming mission culture and norms. This could potentially hamper the UN's ambition to work effectively to protect civilians and promote inclusive peace. The findings from this study thus highlight a tension between the rhetoric and ambition of the UN, and the practice of its troop contributing member states.

Previous Research

Previous works have established that women are less likely to be deployed to missions associated with higher risk.¹³ Karim and Beardsley have convincingly argued that the gendered protection norm withholds women from deployment to mission areas with more battle related deaths, fatalities amongst peacekeepers and higher levels of sexual violence.¹⁴ These findings are in line with Berg and Bjarnegård who find female UN troops to be less present in operating environments with high levels of reported sexual violence.¹⁵

Previous research further indicates that the type of risk restraining women from participation in UN peacekeeping is not only the direct threat of violent confrontation, but also indirect factors like economic development.¹⁶ By including GDP per capita, Karim and Beardsley find support for their argument that other elements of risk, such as health risks and risks associated with operating in countries with weak or failed-state governments, also have a negative effect on women's participation.¹⁷ This finding indicates that the concept of risk withholding women from participating in peacekeeping is broader than the direct risk of violence and motivates the study of other types of indirect risk factors.

It has also been established that the deployment of women by UN member states is affected by characteristics of the contributing countries. Studying deployment of women as a binary outcome, Crawford, Lebovic, and Macdonald has found more progressive TCCs to be more prone to deploy women to UN peacekeeping.¹⁸ This implies that contributors with higher levels of women's rights, as well as more democratic senders, are more inclined to deploy women to UN peacekeeping. Similarly, when operationalizing gender equality as the share of women in domestic labour forces, Karim and Beardsley find that more gender equal contributors are more prone to

¹³See for example Berg and Bjarnegård, "Dissecting Gender Imbalance"; Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations"; Karim and Beardsley, *Equal Opportunity Peacekeeping*.

¹⁴Karim and Beardsley, "Female Peacekeepers and Gender Balancing"; *Equal Opportunity Peacekeeping*.

¹⁵Berg and Bjarnegård, "Dissecting Gender Imbalance."

¹⁶Karim and Beardsley, *Equal Opportunity Peacekeeping*.

¹⁷*Ibid.*

¹⁸Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations."

deploy women to UN peacekeeping.¹⁹ These findings are in line with Carreiras who argues that increased gender equality, through increased participation of women in the political and social arenas, has a positive effect on recruitment of women to military forces.²⁰

Another fundamental discussion within the field is the impact of the proportion of women in TCCs' domestic armed forces. A reoccurring argument is that states with higher participation of women in its domestic armed forces should be more likely to send women to peace operations.²¹ To date, global data on the number of women in domestic forces is scarce. Therefore, this information is sometimes deliberately excluded from analysis²² or partly approximated.²³ While they urge caution in generalizing from the results due to data shortcomings, Karim and Beardsley find a positive relationship between the participation of women in domestic military forces and the participation of women deployed to UN peacekeeping.²⁴ Intuitively this makes sense. Having more women in the domestic armed forces indicate that the contributing states allow women to be part of the military institutions, which should stimulate deployment of women to peacekeeping missions. It further indicates a larger supply of female candidates for deployment.²⁵ Although it seems plausible that the presence of women in national armed forces has an impact on women's participation in UN peacekeeping, the previous works presented here have shown that it is not the only factor explaining women's participation.

While previous research has highlighted the importance of risk for understanding when women are deployed as UN peacekeepers, it has not sufficiently taken into account the operational uncertainty that characterizes missions in their early stages of deployment. TCCs do not always know the risk of sending peacekeepers, and base their decision on perceived risk. When there is high uncertainty, the perceived risk increases. The temporal aspects of uncertainty and willingness to deploy women have not yet been systematically examined. This study aims to bridge that gap by focusing on the temporal aspect of women's participation in UN peacekeeping. In the following theory section, I outline this study's main argument and explain why I expect the participation of women in UN peacekeeping to be low in the beginning of missions when uncertainty is high and increase with the duration of missions as the risk becomes more predictable.

¹⁹Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*.

²⁰Carreiras, "Gender and Civil-Military Relations in Advanced Democracies," 171.

²¹Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations"; Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*; Schjølset, "NATO and the Women."

²²Crawford, Lebovic, and Macdonald, "Explaining the Variation in Gender Composition of Personnel Contributions to UN Peacekeeping Operations," 265.

²³Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*.

²⁴Karim and Beardsley, *Equal Opportunity Peacekeeping*, 70–2.

²⁵*Ibid.*

Theory

The theoretical explanations for the negative correlation between risk and women's participation in UN missions are primarily derived from ideas regarding the comparative advantages between the sexes, perceptions of differences in the sexes' capabilities, perceptions of what capabilities a peacekeeper should possess and ultimately prevailing norms regarding manhood and womanhood. Although many states have started to revise their military institutions to include a broader gender perspective, military institutions are often thought of as masculine spaces.²⁶ Spaces where stereotypically masculine characteristics such as physical strength, bravery, rationality, ability to carry out orders, aggression and leadership are strongly appreciated and valued.²⁷ In cases where the level of risk is high, these characteristics are valued even higher which promotes participation of those perceived to possess these characteristics, stereotypically men.²⁸ A central aspect of the military masculinity ideal is that it is masculine to engage in combat and take lethal risks.²⁹ Therefore, combat itself is a gendered activity favouring carriers of the masculine identity.³⁰ Berg and Bjarnegård argue that the main explanation behind the negative correlation between risk and the participation of women is the result of existing norms and perceptions in the recruitment process:

When recruiting for an assignment with a high risk of combat, the preferred candidate is as close as possible to an idealized military masculinity. In such a recruitment process, being male becomes an invisible but preferred characteristic because it is a first shortcut to a favourable assessment.³¹

The perception of men being most fit for deployment and combat is closely interlinked with the gendered protection norm – the norm confirming men as protectors and women (and children) as those who need protection.³² This norm reinforces the perception of men as the natural warrior and protector, while it confirms women as those who should be protected.³³ Karim and Beardsley argue that the gendered protection norm constrains the participation of women in the riskiest UN missions via two mechanisms.

First, the norm can influence political and military leaders in the contributing countries to withhold female personnel from entering missions associated

²⁶Whitworth, *Men, Militarism, and UN Peacekeeping*; Kronsell, "Sexed Bodies and Military Masculinities."

²⁷See for example Berg and Bjarnegård, "Dissecting Gender Imbalance"; Duncanson, "Forces for Good?"; Higate, "'Soft Clerks' and 'Hard Civvies'"; Karim and Beardsley, "Ladies Last"; King, "The Female Combat Soldier"; Whitworth, *Men, Militarism, and UN Peacekeeping*.

²⁸Karim and Beardsley, "Female Peacekeepers and Gender Balancing."

²⁹Berg and Bjarnegård, "Dissecting Gender Imbalance," 3.

³⁰Ibid.

³¹Ibid, 5.

³²Carpenter, "Women, Children and Other Vulnerable Groups"; Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*.

³³Karim and Beardsley, *Equal Opportunity Peacekeeping*, 76–8.

with higher risk because leaders themselves perceive women as those who should be protected, rather than act as protectors.³⁴ Whilst characteristics commonly related to masculinity include aspects of being strong and rational, femininity is thought to include characteristics such as: 'vulnerability, emotion, passivity, privacy, submission, and care'.³⁵ If women are perceived as not having comparative advantages in protection, that will have a negative effect on TCCs' decisions to deploy women to missions associated with higher risk.³⁶

Second, because women are brought up in societies where masculine militaries and gendered protection norms exist, the female military personnel's own perceptions of their abilities can make them consider themselves unfit for deployment to areas associated with higher risk.³⁷ Relating to this logic, women have been found to be less risk-seeking than men.³⁸ Regardless of whether this characteristic is genetic or socialized, it can explain why women themselves refrain from participating in missions associated with higher risk.³⁹

Extending the impact of existing norms about the perceived capabilities of the sexes, Karim and Beardsley argue that leaders within troop contributing countries can refrain from sending women to missions associated with higher risk because they want to avoid the expected public cost of losing a woman in the field.⁴⁰ Generally, TCCs have an interest in keeping all their peacekeepers safe.⁴¹ Karim and Beardsley suggest that this preference may be even stronger in cases where the peacekeepers are women.⁴² If the norms and values of citizens in troop contributing countries question if women should be deployed as peacekeepers, the loss of female peacekeepers can result in costly backlashes for the leaders.⁴³ The risk of politically costly public debates, in the case of a fallen female peacekeeper, is further increased as female soldiers tend to obtain disproportionate attention in media when they are injured or killed.⁴⁴ In line with the gendered protection norm, the relatively higher costs military and political leaders incur in the case of an injured or killed female peacekeeper would make them reluctant towards sending female peacekeepers to risky missions.⁴⁵

³⁴Ibid.

³⁵Ibid, 28.

³⁶Ibid, 37.

³⁷Karim and Beardsley, *Equal Opportunity Peacekeeping*, 76–8; Harris and Miller, "Gender and Perceptions of Danger."

³⁸See for example Byrnes, Miller, and Schafer, "Gender Differences in Risk Taking"; McDermott and Cowden, "The Effects of Uncertainty and Sex in a Crisis Simulation Game."

³⁹Karim and Beardsley, *Equal Opportunity Peacekeeping*, 76–8.

⁴⁰Karim and Beardsley, "Female Peacekeepers and Gender Balancing," 483.

⁴¹Bove and Elia, "Supplying Peace"; Karim and Beardsley, "Female Peacekeepers and Gender Balancing."

⁴²Karim and Beardsley, "Female Peacekeepers and Gender Balancing," 469.

⁴³Ibid.

⁴⁴Sjolander and Trevenen, "One of the Boys?"

⁴⁵Karim and Beardsley, "Female Peacekeepers and Gender Balancing," 469.

Tying into the concept of uncertainty, Iris Marion Young outlines how typical ideas of protective masculinity are strengthened by unpredictable situations and actors. If the world out there is uncivilized, and the movements and motives of 'other men' are unpredictable, masculine characteristics are called for to keep those who need protection safe.⁴⁶

This study broadens the concept of perceived risk to include the *uncertainty* associated with deploying personnel to a new mission. Building on recognized theory on the relation between risk and female deployment, while also recognizing how norms and culture have affected the roles of women in armed forces and the organization of military institutions, I claim that the participation of women will be lower in the early stages of UN peacekeeping and increase with the duration of the mission.

Not knowing how the mission and its staff is going to be greeted by local actors, having to establish contacts on the ground, establishing and safeguarding base camps and exploring on-site are all elements that include uncertainty. I argue that this uncertainty reflects a type of risk that is not necessarily captured by observables, such as conflict intensity, but is inherent to the new mission setting. Due to this uncertainty associated with the early stages of missions, TCCs prefer to deploy military personnel who are brave, physically strong, rational and able to carry out orders. According to the gendered protection norm and existing perceptions of the ideal soldier, these peacekeepers are likely to be male. Existing norms will therefore make leaders hesitant towards deploying female staff in the early stages of missions, and the female personnel will, to a higher degree than their male colleagues, perceive themselves as unfit for the task.

With the duration of missions, the level of uncertainty decreases as personnel on the ground become familiar with local actors and the mission environment. This tendency can be found when studying the UN Secretary General's Mission Reports. In the early stages of UNAMID (Darfur) the UN Security General's report on the situation on the ground reflected uncertainty and lack of sustainability, and that the main task for peacekeepers was to make sure camps and personnel were safe.⁴⁷ In later reports, the brief of the situation on the ground reflects what the UN personnel knows about the recent developments of conflict dynamics and intensity, and the main tasks of peacekeepers included carrying out patrols and assisting with humanitarian tasks.⁴⁸ Even if the environment is hostile, it becomes more predictable over time, thus allowing missions and TCCs to learn how to avoid risk. Predictability helps mitigate risk for all peacekeepers and when the risk decreases the perceived comparative advantage of being male decreases. Predictability can also

⁴⁶Young, "The Logic of Masculinist Protection," 4.

⁴⁷UNSC, *Report of the Secretary-General (S/2008/98)*.

⁴⁸UNSC, *Report of the Secretary-General (S/2013/607)*.

help TCCs identify certain areas and tasks that are less affected by risk, this information can be used by TCCs to prepare for coming deployments.

Another aspect that is likely to affect when women are deployed are the roles of women in national militaries and in UN peacekeeping. The UN acknowledges that there is a connection between peacekeeping personnel carrying out more humanitarian tasks and perceived need for female peacekeepers. For instance, the UN argues that women have become ‘increasingly part of the peacekeeping family’ as peacekeeping has ‘evolved to encompass a broader humanitarian approach’.⁴⁹ As the majority of currently ongoing UN missions have wider mandates including humanitarian aspects, the demand for characteristics that are perceived to be feminine, such as care, increases once the mission and its basic security have been established. For some tasks, like establishing connections with local women and searching women and children at checkpoints, female peacekeepers are even preferred over male peacekeepers.⁵⁰ As the demand for other types of characteristic than the stereotypical male protector role increase with duration, the perceived comparative advantages of being a male decrease.

Additionally, the gendered protection norm and ideas of the sexes’ different capabilities are also likely to have an impact on the organization of military institutions and affect what roles women have in domestic military institutions. Military institutions have historically been masculine spaces and many still are. Contributing countries can have country specific regulations and praxis regarding what parts of the domestic military organization are open for women. There can also be variation in the gender balance between different types of units depending on national institutions’ admission requirements as well as ability and willingness to recruit and train women for different military assignments. Although it is difficult to empirically examine, due to data shortages, it could be that the types of units deployed at the early stages of missions are units that generally include less women because national institutions have stronger gender bias in those types of units. This could also be a reason for why we would see less female peacekeepers during the early phases of missions.

Given how the gendered protection norm affects decision makers and individual personnel, the roles of women in the military as well as military organizations, I expect the participation of women in UN peacekeeping to be low in the beginning of missions when uncertainty is high and increase with the duration of missions as the risk becomes more predictable.

H_1 = The participation of women will be lower in the early stages of UN peacekeeping missions and increase with mission duration.

⁴⁹UNPK, “Women in Peacekeeping.”

⁵⁰UNSC, “Deployment of Female Personnel Boosts Effectiveness”; Karim, “Reevaluating Peacekeeping Effectiveness.”

Research Design

The large-N dataset used to empirically test the hypothesis includes information on the proportion of female military personnel deployed by a troop contributing country to a UN mission on a yearly basis from 2009 to 2015. The unit of analysis in this study is troop contributing country-mission-year. The dataset includes 125 troop contributing countries⁵¹ and 24 UN missions⁵² with a total of 3475 observations. Any UN member state that deployed at least one military personnel during the time period studied is considered a troop contributing country.⁵³ Further, all UN peacekeeping missions that have been active during the time period and seen presence of military UN personnel are included in this study.⁵⁴

Systematically collected gender-disaggregated data, including information on which contributing country deployed which type of personnel to what UN mission, are available since 2009. Hence, the time period is naturally limited. Still, the dataset includes over 20 individual missions, some of them new and some of them older. The findings of this study should be generalizable to the behaviour of active TCCs in current and future peacekeeping missions, as long as the premises for how UN military personnel are deployed, their payment and their operating environment do not dramatically change.

The dependent variable has been operationalized as the average proportion of female military personnel in a contribution deployed by a troop contributing country to a mission in a given year. The average proportion has been calculated by dividing the average number of female military personnel deployed by a TCC to a certain mission in a given year with the average number of total military personnel deployed by the same TCC to the same mission in the same year.⁵⁵ The information has been provided by the International Peace Institute (IPI) Peacekeeping Database.⁵⁶ Figure 1 illustrates the distribution of the dependent variable in a histogram. This histogram effectively communicates the reality; despite the UN's stated wish to include more women in peacekeeping, the majority of all contributions that took place between 2009 and 2015 contained no women at all.⁵⁷ But, as seen in the histogram, there are also a few contributions that only included women. These are examples of contributions containing less than a handful of personnel, where all deployed military staff were women. This highlights one of the

⁵¹For a full list of included troop contributing countries, see online appendix, Section A.

⁵²For a full list of included missions, see online appendix, Section B.

⁵³Brunei and Palau are not included in this study due to systematic lack of data in the control variables.

⁵⁴The UN categorizes military personnel as 'military troops' and 'military experts', both categories are included as 'military personnel' in this study. The category 'military experts' includes military observers, investigators, advisors and more, see DPKO, *Roles and Training Standards for UN Military Experts*.

⁵⁵For more information about the dependent variable, see online appendix, Section C.

⁵⁶International Peace Institute (IPI) Peacekeeping Database, "Gender data."

⁵⁷There are 2431 observations in the first bar (0-1%), 2272 of these observations contain 0 percent female personnel.

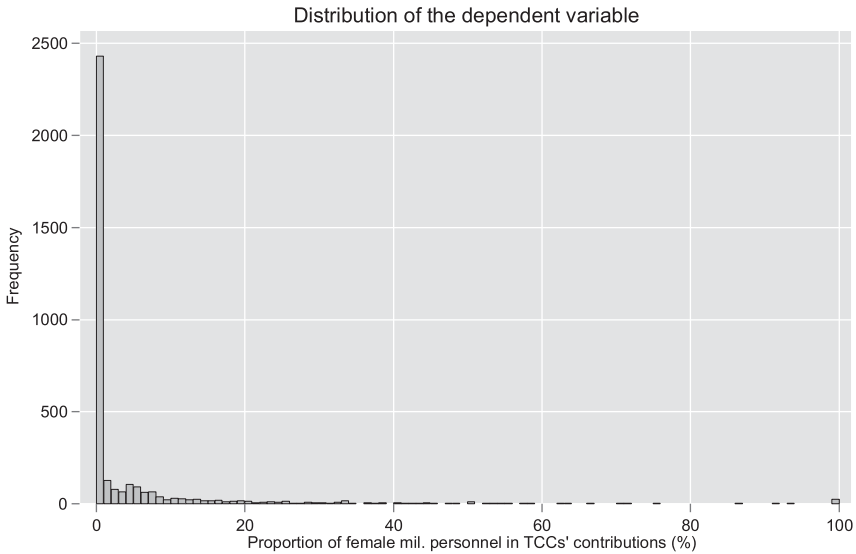


Figure 1. Distribution of the dependent variable proportion of female military personnel in a TCC's contribution to UN peacekeeping.

weaknesses of using the percentage share of women as an indicator of women's participation, as the measurement is sensitive to the absolute number of deployed personnel. To mitigate this issue, this study controls for the absolute number of deployed military personnel in a contribution.

The independent variable *duration of UN peacekeeping missions* has been operationalized in two different ways: *new mission* and *duration of mission* combined with *squared duration of mission*. The main independent variable is *new mission*, a dichotomous variable taking the value 1 if the mission is considered a new mission and taking the value 0 for all other mission-years. This variable will capture the expected negative effect of early stages of a mission on the proportion of women in a contribution. As previous studies have neglected the impact of mission duration as an explanatory factor, there is little empirical reference for when a mission should be considered to be *new*. For convenience, I have coded missions as new during their first calendar year of military operation.⁵⁸ This implies that all missions that started in 2013 takes the value 1 during 2013, whereas all missions that started earlier than 2013 takes the value 0 in 2013.⁵⁹

⁵⁸It is important to stress that all missions do not deploy military personnel on the start date of the mission. A mission could for instance have received a civilian component before the military component of a mission was deployed. Therefore, the independent variable is based on the year that marks first deployment of military personnel.

⁵⁹A weakness of this operationalization is that it does not consider the actual duration of a mission. As missions start on different dates during a year, some of them can theoretically have been ongoing for a just a month and be coded as new whereas others can have been operating for nearly a year

The theory explaining why duration of missions would have a positive effect on the presence of female peacekeepers stresses the impact of operational uncertainty in the early stages of missions as the main driver of the effect. But the theory also suggests that the expected advantage of being a male peacekeeper decreases with duration and that we therefore should see an increase of female peacekeepers over time. *Duration of mission* is a continuous variable indicating the duration of a mission, at a given time, in years. The duration of a mission is measured in years from the year when military peacekeepers were first deployed to a mission. This variable captures the expected positive effect of duration of mission on the share of female peacekeepers. The theory suggests that operational uncertainty will decrease over time and that the reduction of uncertainty will, *ceteris paribus*, reduce the perceived risk associated with a mission. This process is not likely to be linear, rather the impact of duration is expected to decrease over time as the operating environment becomes more predictable. *Squared duration of mission* is included to account for this expected diminishing effect. The information used to establish when military personnel were first deployed has been collected from Hultman, Kathman and Shannon, the IPI Peacekeeping Database and the missions' own information platforms.⁶⁰

Table 1 provides descriptive statistics of the main variables as well as the control variables. As seen in the table, the mean proportion of female personnel in a troop contributing country's contribution to a mission is just over 4%. The standard deviation indicates that there is a relatively large variation around the mean, a tendency which was also seen in the histogram in Figure 1. The descriptive statistics further tells us that approximately 6% of the 3475 observations are identified as contributions to new missions. These missions include MINUSCA (Central African Republic), MINUSMA (Mali), UNISFA (Abyei, Sudan) UNMISS (South Sudan) and UNSMIS (Syria). Further, the duration of missions in the dataset varies between 0 and 67 years with an average of nearly 15 years.

In an attempt to isolate the statistical effect of duration on women's participation, this study controls for both mission and force contributing country relevant factors. *Battle related deaths* (moving average of past 5 years /1000) has been included as an indicator for conflict intensity in the area

and still be coded as new. For comparability, it would have been preferable to code new mission based on the actual duration of the mission rather than based on calendar years. Luckily, none of the missions included as new in this study were deployed in the first few or last few months of the year. Hence, there is relatively little actual duration variation between the missions coded as new mission. The ideal data structure would be TCC-mission-rotation, but until date there is no such global data. One could consider using a monthly data structure to capture the actual duration of new missions. However, as very few of the control variables included in this study are reported per month, it would be very difficult to study the monthly variation in the dependent variable.

⁶⁰Hultman, Kathman and Shannon, "United Nations Peacekeeping Dynamics and the Duration of Post-Civil Conflict Peace"; International Peace Institute (IPI) Peacekeeping Database, "Gender Data."

Table 1. Descriptive statistics of main variables and controls.

Variable	N	Mean	Standard Deviation	Min	Max
Female military personnel (ratio)	3475	0.0416	0.120	0	1
New mission	3475	0.0584	0.2346	0	1
Duration (years)	3475	14.73	17.22	0	67
Battle related deaths (moving average 5y/1000)	3475	0.666	1.16	0	8.50
PK fatalities in mission (previous 2y/1000)	3475	0.018	0.021	0	0.12
SVAC in mission area (previous 2y, dummy)	3475	0.59	0.49	0	1
Chapter VII	3475	0.67	0.47	0	1
GDP/pc mission area (log)	3475	7.31	1.08	5.34	10.57
Mission size/1000	3475	7.45	6.055	0.001	19.993
TCC women in labour force	3475	41.943	8.80	8.13	54.995
TCC GDP/pc (log)	3475	8.47	1.547	5.42	11.58
TCC contribution size/1000	3475	0.179	0.495	0.001	4.299

Note: The descriptive statistics were generated in Stata.

where the mission takes place. The information is drawn from the Uppsala Conflict Data Program (UCDP) Georeferenced Event Dataset (GED).⁶¹ *Peacekeepers fatalities* (sum of previous 2 years/1000) is also included as an indicator of risk facing the peacekeepers in a mission. The control variable includes peacekeeper fatalities due to combat as well as other causes of death, such as diseases and accidents, as these factors may also trigger the gender protection norm. The decision to use the sum of peacekeepers fatalities during the past two years is based on the theoretical argumentation that TCCs evaluate recent developments of risk facing peacekeepers to do risk assessments before deploying female personnel. The data has been provided by Marina E. Henke.⁶² This study also controls for the possible confounding factors log *GDP per capita* and the prevalence of *armed conflict related sexual violence* in the mission area. The information on GDP per capita in the mission country is taken from the UN Statistics Division,⁶³ while the information on the prevalence of sexual violence in armed conflict (SVAC) is drawn from Cohen and Nordås' SVAC-project.⁶⁴ The prevalence of SVAC is captured by a dummy variable taking the value 1 if the SVAC-project has coded any level of SVAC by any armed actor in the mission country in the past two years.⁶⁵

TCC contribution size/1000 captures the average number of personnel deployed by a force contributing country to a certain mission in a certain year. This variable is included as the dependent variable is sensitive to the

⁶¹Sundberg and Melander, "Introducing the UCDP Georeferenced Event Dataset." Syria is not included in the UCDP GED 18.1. The number of battle related deaths for Syria has therefore been provided by the UCDP, "Syria Country Profile." For missions taking place in more than one country, the number of deaths have been re-coded for the dyads or the territories which these missions are mandated to engage in, see online appendix, Section C.

⁶²Henke, "United Nations Peacekeeping Fatalities Dataset."

⁶³UN Statistics Division, "Per capita GDP."

⁶⁴Cohen and Nordås, "Sexual Violence in Armed Conflict."

⁶⁵For missions taking place in more than one country, the log GDP per capita and the prevalence of SVAC has been approximated, see online appendix, Section C.

absolute number of deployed personnel. *Mission size/1000* captures the average number of military personnel deployed to a certain mission in a certain year. To get an indication of the characteristics of a mission, the variable *Chapter VII* has been included. The variable takes the value 1 if a mission holds a chapter VII mandate in a given year. The information used to code this variable has been provided by the United Nations Department of Political Affairs (UNDPA) and by Van der Lijn and Smit.⁶⁶

Given the findings of previous research, there is strong reason to believe that the level of gender equality in a TCC can have an impact on the timing and proportion of women in a contribution. The variable *TCC women in labour force*, measuring the share of women in a contributing country's labour force, is therefore included as a proxy for gender equality. Although far from perfect in terms of validity, the participation of women in contributors' labour forces is a suitable measure as it sheds light on the general participation of women in society. *TCC GDP/pc* (log) gives the log GDP per capita of troop contributing countries. It has been included as a proxy for level of economic development of a contributor. Both these variables have been provided by the World Bank.⁶⁷

Year dummies are included as I expect the participation of women in UN peacekeeping to naturally increase over time due to the UN's and the troop contributing countries strive and active campaigns.

To test the stated hypotheses this empirical study will rely on a set of multi-level mixed-effects generalized linear models (MEGLM) with logit link functions. As all observations in the dataset belongs to a TCC, it would not be sound to assume that all observations and their error terms are independent of each other. The employed model will group all observations based on the TCC and control for non-independence between these observations through the use of mixed-effects. This is motivated as many of the country specific variables vary relatively little over this short period of time, making it difficult to capture the country specific factors with fixed effects. By using both fixed and random effects, the model can capture more within country differences.⁶⁸ As the multilevel mixed-effects generalized linear model creates individual intercept for each TCC, the model can assist in controlling for country specific regulations and other country specific characteristics which are difficult to capture. Further, as the dependent variable can only take values between 0 and 1 (0-100% women in one contribution), it is bounded by nature. The logit-link function accounts for the bounded nature of the dependent variable. The use of this type of model is also

⁶⁶UNDPA, "Field Missions Mandate Table"; Van Der Lijn and Smit, "Peacekeepers Under Threat?"

⁶⁷World Bank, "Labor Force, Female"; World Bank, "GDP Per Capita." For information on missing values and interpolation, see online appendix, Section C.

⁶⁸Grace-Martin, "Five Extensions of the General Linear Model"; Torres- Reyna, "Panel Data Analysis Fixed and Random Effects."

motivated by the fact that it has been used in previous studies, which makes it easier to compare the results of this study with the studies it builds on.⁶⁹

Empirical Findings and Analysis

Figure 2 presents descriptive trends of the share of female military personnel in some of the UN's newer peace operations active between 2006 and 2015. As seen in Figure 2 the share of women increased over time in the majority of missions. However, the trend is not identical in all missions. To learn more about the average effect of mission duration and to isolate the effect of operational uncertainty, I turn to regression analysis.

Model 1 in Table 2 explores the bivariate relation between new missions and the proportion of female military personnel deployed by a TCC to a certain mission. The bivariate model suggests that there is a negative relationship between new missions and the percentage share of women in a TCC's contribution. The negative coefficient is significant at the 99% confidence level, indicating that contributions to new missions see a relatively lower share of women than missions that have been ongoing for more than a calendar year. In model 2, the control variables have been added to the model. As seen in model 2, the coefficient of new mission is still negative and statistically significant at the 95% confidence level when controlling for mission and TCC relevant factors. That the coefficient is negative and statistically significant when controlling for other risk indicators, such as battle related deaths, peacekeeper fatalities, prevalence of SVAC and GDP per capita, lends support to the theory suggesting that the operational uncertainty associated with the new mission setting is an additional risk factor that is not captured by, for example, conflict intensity.⁷⁰ Instead, it is something unique for the new mission environment.

Figure 3 illustrates the predicted effect of early stages of missions on women's participation by predicting the mean of female military personnel depending on if the mission was new (yes) or not (no), while keeping all other variables at their mean. The figure to the left shows the predicted mean of women in a contribution using this study's main logit-transformed model. It shows that the predicted mean of women in a contribution to a new mission is lower than the predicted mean of women in a contribution to a mission that has been active for one calendar year. But, the substantial effect is difficult to interpret. To get an indication of the substantial effect of new mission on women's participation, the model used to predict the means in the right-hand figure has been simplified by excluding the logit link. This

⁶⁹Karim and Beardsley, "Ladies Last"; *Equal Opportunity Peacekeeping*.

⁷⁰I have also controlled for one-sided violence deaths in the operation environment, if the TCC is a Western state, how many military personnel the TCC has deployed to all ongoing UN missions in a given year, the size of the TCC's population. Including these variables in the logit-transformed mixed effects regressions do not substantially change the estimates of interest.

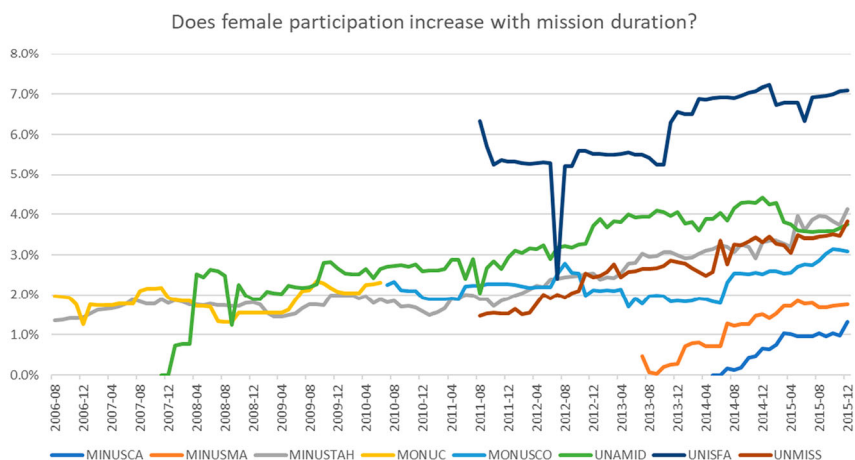


Figure 2. The share of female military personnel in UN missions 2006–2015. Source: SIPRI Multilateral Peace Operations Database.

means I relax the assumption that the residuals of the dependent variable are normally distributed. As seen, the figure excluding the logit link indicate that the predicted mean of women in a contribution to a new mission is 2.57%, while the predicted mean of women in a deployment to a mission that have been ongoing for more than one calendar year is 4.11%.⁷¹ This specification thus indicates that the share of female personnel in a contribution is expected to be, on average, 1.54 percentage points (pp) lower in new missions, compared to missions that have been active for more than one calendar year. Although this estimate should be interpreted with caution, and it does not confirm any causal relationship, it still indicates a considerable negative effect of new mission and operational uncertainty. Recognizing that the mean proportion of female military personnel in a contribution is 4.16%, an expected decrease of 1.54 pp in the new mission setting implies that we should expect to see 38% fewer women in contributions to new missions.⁷²

Model 3 in Table 2 explores the alternative specification of the independent variable, where the duration of a mission is simply captured in years. To allow for a diminishing effect of duration, the squared value of duration is also included. As seen in model 3, there is a significant relationship between duration and women's participation in peacekeeping but the effect seems to be

⁷¹ A difference between two parameters can be significant even if the confidence intervals for the individual parameters overlap.

⁷² For comparison, the raw descriptive mean of percentage share of women in a country's troop contribution to a new mission is 2.20% (Std. Dev. 7.56%, $n = 203$) while the mean percentage share of women in a contribution to a mission that has been ongoing for more than one calendar year is 4.28% (Std. Dev. 12.20%, $n = 3272$).

Table 2. Mixed effects regression of the proportion of women in military contributions.

	(1) Female mil. personnel ratio	(2) Female mil. personnel ratio	(3) Female mil. personnel ratio	(4) Female mil. personnel ratio	(5) Female mil. experts ratio	(6) Female mil. troops ratio
New mission	-1.026*** (0.202)	-0.538** (0.244)			-0.665* (0.343)	-0.711** (0.322)
Duration (years)			0.0887*** (0.00896)	0.0538*** (0.0159)		
Duration (years)*2			-0.00135*** (0.000142)	-0.000719*** (0.000215)		
BRD (mov.avg 5y)/1000		-0.373*** (0.0756)		-0.332*** (0.0719)	-0.563*** (0.113)	-0.368** (0.146)
PK fatalities (previous 2y)/1000		7.677** (3.223)		9.328*** (3.203)	1.731 (6.425)	15.08*** (3.778)
GDP/pc mission area (log)		0.185*** (0.0607)		0.119* (0.0639)	0.298*** (0.115)	-0.224* (0.132)
SVAC (previous 2y, dummy)		-0.237* (0.133)		-0.0700 (0.145)	-0.106 (0.193)	0.0886 (0.198)
Chapter VII		-0.109 (0.172)		0.203 (0.223)	-0.862*** (0.238)	-1.322*** (0.430)
Mission size/1000		0.0727*** (0.0123)		0.0483*** (0.0146)	0.112*** (0.0245)	0.0101 (0.0184)
TCC women in labour force		0.139*** (0.0205)		0.140*** (0.0207)	0.188*** (0.0355)	0.129*** (0.0230)
TCC GDP/pc (log)		0.0765 (0.0894)		0.0760 (0.0904)	0.0617 (0.128)	0.110 (0.102)
TCC contribution size/1000		4.089*** (0.287)		4.100*** (0.287)	0.791*** (0.162)	3.550*** (0.279)
Year dummies		Yes		Yes	Yes	Yes
Constant	-1.037*** (0.145)	-9.718*** (1.310)	-1.768*** (0.173)	-9.988*** (1.321)	-13.25*** (2.184)	-5.214*** (1.814)
Observations	3475 ^a	3475 ^a	3475 ^a	3475 ^a	2618 ^b	1965 ^c

Note: Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, grouped by TCC, ^a 125 groups, ^b 115 groups, ^c 116 groups. The statistical results were generated in Stata.

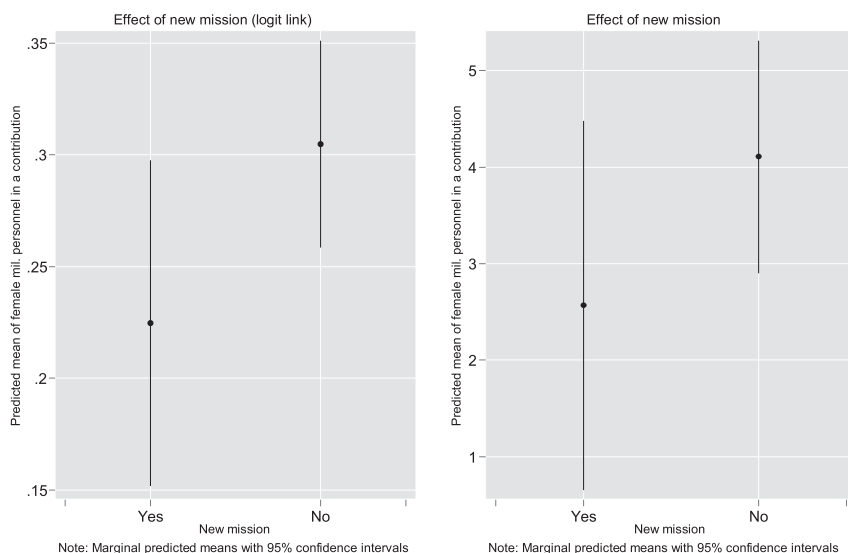


Figure 3. Predicted effect of new mission.

diminishing. In model 4, the control variables have been added to the model. Including the control variables does not change the nature of the estimate for duration, which is still positive and significant at the 99% confidence level with a diminishing effect.⁷³ The predicted effect of duration is illustrated in Figure 4 where the predicted mean of duration is plotted from when a mission is first installed (year 0) until the year it completes its fortieth year of operation (year 40). Looking at the slope of the line in Figure 4, one can see that the marginal effect of duration is larger in the beginning of missions and diminishes over time.

In line with previous studies, this study confirms that the number of battle related deaths associated with the location of a mission is expected to have a negative effect on the proportion of female personnel. Also in line with previous research, this study finds the level of economic development in the mission context to have a positive effect on women's participation. This suggests that the concept of risk is broader than the direct threat of violence. Further in line with previous studies, this study finds higher participation of women in a TCC's labour force to have a positive effect on the TCC's decision to deploy women to UN peacekeeping.⁷⁴

⁷³In the online appendix (Section D), I run this model without the logit transformation in an attempt to interpret the size of the effect of duration. Again, this estimate should be interpreted with caution, but it suggests that women's participation increase, on average, 0.3 pp per year. The coefficient is significant at 99% confidence level whilst keeping the control variables constant. The effect is diminishing over time.

⁷⁴In contrast to some previous studies, this study does not find a negative effect of fatalities amongst peacekeepers on women's participation. Rather, this empirical study suggests that there is a positive relationship between fatalities amongst peacekeepers and women's participation in peacekeeping.

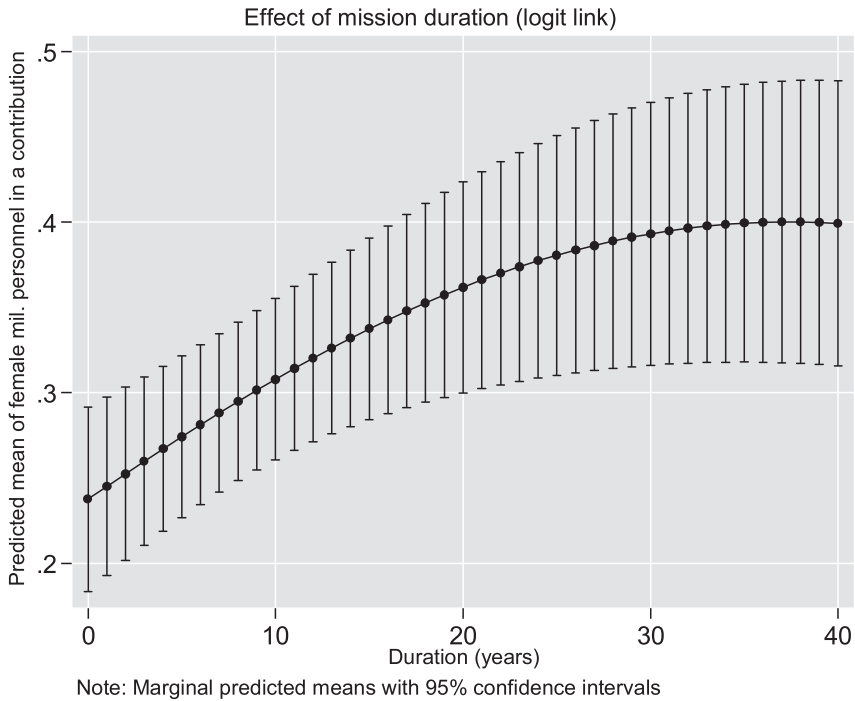


Figure 4. Predicted effect of duration (years).

As discussed in the research design section, the staff category ‘military personnel’ includes both military experts and troops. But, the characteristics of these two types of staff vary. The participation of women is generally higher among military experts than among troops,⁷⁵ and the contributions of experts are often much smaller than the contributions of troops. This means that deployment of only a few women can have a large impact on the proportion of women in a deployment. Further, due to their tasks, military experts are typically regarded as being exposed to less risk than troops. To learn more about the correlation between new mission and women’s participation, I have disaggregated the two types of military personnel. Model 5 looks only at the average proportion of women in a TCC’s contribution of military experts to a mission in a

This empirical finding needs to be put in context. In an attempt to construct a difficult test for this study’s main argument, the control variable has been operationalized to include peacekeeper fatalities due to combat as well as other causes of death, such as fatalities due to diseases and accidents. The suggested positive effect of fatalities amongst peacekeepers on women’s participation is prominently driven by MINUSTAH (Haiti), where extraordinarily many peacekeepers died without it noticeably affecting the relatively high share of women in contributions. Looking into the data, it becomes evident that these fatalities were caused by the earthquake that hit Haiti in 2010. When MINUSTAH (Haiti) is excluded from the analysis, the positive correlation between fatalities amongst peacekeepers and the share of female military personnel disappears. The exclusion of MINUSTAH does however not affect the statistical relation between this study’s main variables.

⁷⁵Smit and Tidblad-Lundholm, “Trends in Women’s Participation in UN, EU and OSCE Peace Operations.”

given year. While model 6 looks only at the average proportion of women in a TCC's contribution of troops to a mission in a given year. The estimate for new mission is negative in both models. When studying only troops the estimate is significant at the 95% level, while the sample only studying military experts the coefficient is significant at the 90% level ($p = 0.052$). These findings indicate that the theorized negative effect of operational uncertainty seem to affect the deployment of both troops and military experts.

Extended Analysis and Robustness Test

Having access to TCC specific information allows us to explore TCCs' decisions to deploy women to the early, uncertain, phase of missions. The results in Table 2 shows that apart from duration, battle related deaths and GDP in the mission area, the level of gender equality in a TCC seem to be a strong determinant of the proportion of women in a TCC's contribution. As seen in Table 2, the proxy *TCC women in labour force* is positive and significant at the 99% confidence level in all relevant models. So far, this study has included the impact of gender equality in TCCs to isolate the statistical effect of duration on women's participation. However, by including an interaction variable in Table 3, I seek to learn more about if and how the level of gender equality in TCCs affect the decision to deploy women to the early phases of missions.⁷⁶ Model 1 in Table 3 includes the interaction term *Old mission*TCC women in labour force*. The interaction term captures the interactive effect of missions that have been active for more than one calendar year and the level of gender equality in a TCC. By studying the coefficient of *TCC women in labour force* in model 1, one can get an understanding of the impact of gender equality in the new mission setting, as $\hat{\beta}_{TCC \text{ women in labour force}}$ is the estimated effect of *TCC women in labour force* when the mission is new. The positive significant coefficient of *TCC women in labour force* found in model 1 indicates that even in the new mission setting, contributors with a higher proportion of women in their labour forces are more likely to deploy larger proportions of women to UN peacekeeping. This effect is seen in Figure 5, which provides a scatterplot of the relation between women's participation in TCCs' labour forces and the proportion of women in contributions deployed to new mission.⁷⁷ As seen in the scatterplot, all contributions to new missions that saw more than 2% women were deployed by TCCs with over 40% women in their domestic labour force. Given this finding, one initial remedy to the issue of low participation of

⁷⁶In the online appendix (Section E), I explore if there are systematic differences in where more and less gender equal TCCs deploy peacekeepers. The descriptive statistics do not indicate any large systematic bias.

⁷⁷A similar scatterplot including all contributions, regardless of when the contribution took place, is included in the online appendix, Section D.

Table 3. Extended analysis and robustness tests, mixed effects regression of the proportion of women in military contributions.

	(1) Female mil. personnel ratio Interaction	(2) Female mil. personnel ratio Women in domestic forces	(3) Female mil. personnel ratio Excluding small contributions	(4) Female mil. personnel ratio First 10 years of operation	(5) Female mil. personnel ratio Missions that started after 2009	(6) Female mil. personnel ratio Missions that started after 2009
New mission		−0.775** (0.370)	−1.183** (0.490)	−0.517* (0.266)	−1.252*** (0.420)	−0.698 (0.582)
Old mission*TCC Wom. in labour force	0.00219 (0.0437)					
Old mission	0.439 (2.000)					
BRD (mov.avg 5y)/1000	−0.373*** (0.0756)	−0.296*** (0.0960)	−0.542** (0.219)	−0.307*** (0.0957)	−1.299*** (0.403)	−0.478 (0.742)
PK fatalities (previous 2y)/1000	7.680** (3.223)	6.650 (6.183)	−0.0888 (4.792)	8.807** (3.823)		9.159 (18.68)
GDP/pc mission area (log)	0.185*** (0.0607)	0.101 (0.0962)	0.237 (0.153)	0.0111 (0.120)	−0.194 (0.412)	−0.606 (0.776)
SVAC (previous 2y, dummy)	−0.237* (0.133)	−0.166 (0.207)	−0.821*** (0.279)	−0.349* (0.200)		−0.880 (1.038)
Chapter VII	−0.109 (0.172)	0.180 (0.252)	0.866* (0.455)	−0.0108 (0.323)		−1.004 (2.004)
Mission size/1000	0.0727*** (0.0123)	0.0172 (0.0201)	0.0701*** (0.0231)	0.0735*** (0.0236)		0.144 (0.148)
TCC women in labour force	0.137*** (0.0469)	0.105*** (0.0387)	0.163*** (0.0335)	0.151*** (0.0247)	0.195*** (0.0537)	0.193*** (0.0514)
TCC GDP/pc (log)	0.0764 (0.0894)	0.124 (0.152)	0.0933 (0.167)	0.103 (0.102)		0.556*** (0.170)
TCC contribution size/1000	4.089*** (0.287)	8.643*** (0.809)	1.295*** (0.217)	4.298*** (0.371)	6.629*** (1.071)	6.983*** (1.069)
Women in nat. forces		3.442 (5.757)				
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−10.16*** (2.348)	−8.430*** (2.278)	−8.531*** (2.405)	−9.294*** (1.702)	−8.398** (3.454)	−10.45 (6.696)
Observations	3475 ^a	1467 ^b	1308 ^c	2084 ^d	698 ^e	698 ^e

Note: Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, grouped by TCC, ^a 125 groups, ^b 42 groups, ^c 92 groups, ^d 118 groups, ^e 104 groups. The statistical results were generated in Stata.

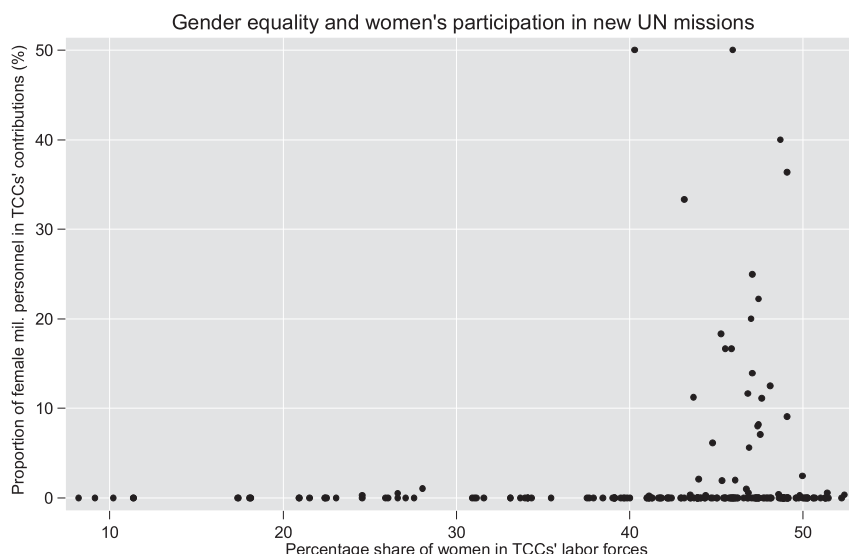


Figure 5. Women in TCCs' labour forces and the proportion of female military personnel in contributions to new missions.

women in the early stages of missions could be to encourage larger deployments from more gender equal TCCs. The scatterplot further illustrates the relatively lower shares of female personnel in contributions to new missions. [Figure 1](#), the histogram illustrating the distribution of the dependent variable, shows that some contributions contained only women. These are examples of contributions containing less than a handful of personnel, where all deployed military staff were women. As seen in [Figure 5](#), none of the contributions deployed to new missions saw more than 50% women. This implies that all contributions with a majority of women were deployed to missions that had been ongoing for more than a calendar year.

[Table 3](#) also include five models that are meant to test the robustness of the main findings. If the observed correlation between duration and women's participation is robust when controlling for underlying structures and excluding arguably dominating outlier observations, this provides credibility to the suggested theoretical relationship between operational uncertainty and women's participation in UN peacekeeping.

As discussed in the previous research section, there is an ongoing debate regarding the impact of women's participation in domestic military forces on the participation of women in peace operations. As there is systematic lack of data on women's participation in domestic forces, this factor has not been included in this study's main analysis. It is however included in [Table 3](#), model 2. The information used to code the variable *TCC women in national*

forces has been provided by Karim and Beardsley.⁷⁸ Including this variable provides a good test of isolation and robustness for this study's main argument, but I would advise the reader to be hesitant when drawing conclusions regarding the general impact of women in domestic forces based on this variable. The quality of the variable is limited as there is systematic bias both between TCCs and within TCCs. Not all TCCs report the share of women in their armed forces and those that do can report differently over time as well as choosing to report the gender balance of specific parts of its military organization. Although the variable is not perfect in terms of reliability and bias, it is useful as a control variable. As seen in model 2, the coefficient for new mission is negative and significant at the 95% confidence level while controlling for women's participation in domestic forces. This means the theorized effect of new mission holds when controlling for women in TCCs' domestic forces. This strengthens the credibility of operational uncertainty and early stage of missions as a determinant for women's participation in UN peacekeeping missions.

Further, as discussed in the research design, one weakness of using the share of female military personnel in a contribution as the dependent variable, is the fact that proportions are sensitive to the absolute number of deployed staff. To mitigate this problem, the size of contributions has been included as a control variable. However, when exploring the data, it becomes evident that all observations that have seen a contribution including more than 50% women have deployed less than five peacekeepers in total. These observations can possibly affect the results of the study, especially if the size of contributions tend to become smaller with the duration of missions. To avoid a situation where the main results are prominently driven by a few dominating observations where the total number of deployed personnel is low, all contributions of less than 10 personnel have been excluded from the analysis in model 3 (Table 3). As seen in model 3, the estimate of new mission is still negative and significant at the 95% confidence level when the small contributions are excluded from the analysis.

Similarly, one could wonder if the observed negative effect of new mission is mainly driven by relatively high levels of women in contributions to the UN's oldest missions. When the binary variable *new mission* takes the value 0, a mission can be on its second year of operation but it can also have been ongoing for 45 years or more. To make sure the negative effect of early

⁷⁸Karim and Beardsley coded the variable based on information from multiple sources including: 'the NATO Committee on Gender Perspectives' national reports (2004–2012); a DCAF report entitled "Security Sector and Gender in West Africa"; The Military Balance; a US Africa Command study of women in African militaries; the 2012 UK armed forces annual personnel report; the US Department of Defense's active duty military personnel statistics; and reported numbers from government websites.' Karim and Beardsley, "Ladies Last," 73. The approximated percentage share of women in TCCs' domestic forces do not vary during the time period studied. Karim and Beardsley have coded the variable for the time period 2009–2013, I have used the same values 2014–2015. For a list of included TCCs and the approximated ratio of women in domestic forces, see online appendix, Section C.

stages of missions is not driven by the UN's oldest missions, all observations of missions that have been ongoing for more than 10 years have been dropped from model 4. As seen in model 4, the estimate of new mission is negative when only the first 10 years of operation are included in the sample, although only significant at the 90% confidence level ($p = 0.053$).

Further, model 5 and model 6 in Table 3 include only missions that started in or after 2009. As the time period in this study is limited to 2009–2015, this study can only explore the effect of early stages of missions in military operations that have started in 2009 or after. It could be that there are other factors than *duration*, and the control variables included in this study, that make the UN's newest missions different from the older missions. If that is the case, this study could overestimate the negative effect of the operational uncertainty in early stages of missions. To investigate this matter, models 5 and 6 tests the main hypothesis on a subset of data including only contributions to the five missions that have been observed as *new* at some point during the time period used in this study. There are 698 observations in this subset and the duration varies between first year and fifth year of operation. Model 5 includes the independent variable new mission and four of the influential control variables, namely battle related deaths, GDP per capita in the mission area (log), TCC women in labour force and TCC contribution size, as well as year dummies. Here, the coefficient for new missions is negative and significant at the 99% confidence level. However, in the model including all control variables presented in model 6, the coefficient of new missions is no longer significant. Looking in to the descriptive statistics of the missions that started after 2009 it becomes evident that these missions see relatively low participation of women. The average share of women in a contribution to the new mission setting of these five missions is 2.2% whilst it is 2.6% in contributions to the same missions following their first calendar year of operation. When missions in the same sample are in their fifth year of operation, the average share of women in a contribution is 2.9%. Hence, although the participation of women has increased over time, the difference in absolute terms is small. It could be the case that we lack enough statistical power to detect the effect of interest in the limited sample with the full set of control variables. Given that the parameter of interest is significant when controlling for the most relevant possible confounding variables, there is still considerable empirical support for the main argument. However, there could be additional factors that make these new missions different from the older missions, and also affect the proportion of female military personnel.

Discussion and Conclusion

This paper has explored the correlation between mission duration and the participation of women in UN peacekeeping operations. I have argued

that TCCs will deploy fewer female military personnel to the early phases of missions; instead women's participation in UN missions will increase over time. I have presented a theoretical framework that suggests that newly installed missions are associated with uncertainty, and that contributing countries perceive this operational uncertainty as a type of risk. Building on previous studies exploring the relationship between risk and women's participation in peacekeeping, I suggest that the uncertainty associated with new missions will make TCCs less willing to deploy women in the early phases of missions. Instead, women's participation will increase with the duration of missions when the operating environment becomes more predictable and stable.

The quantitative research approach applied in this paper has not been able to identify the mechanisms at play. Still, the empirical findings generally lends support to the theoretical reasoning as most models indicate that the share of women is, on average, lower in the early phases of missions and increases over time. This correlation holds when controlling for other known risk factors as well as TCC specific factors. However, there could possibly be other factors, which are not controlled for in this study, that explain why we see relatively few women in the UN's newest missions. There are possibly other aspects of perceived risk that are not captured by battle related deaths, PK fatalities, GDP per capita, prevalence of SVAC or by operational uncertainty, operationalized as mission duration. This suggestion is in line with recent debates regarding the development of modern peace operation environments. Although both SIPRI researchers Van Der Lijn and Smit and researcher Marina E. Henke conclude that contemporary UN operations are generally not more likely to suffer casualties than previous missions,⁷⁹ there could still be factors that make these new missions different from the older ones and at the same time affect women's participation. For instance, the impact of asymmetric warfare, terrorism and epidemics has been overlooked in this study and its precursors. To learn more about operational uncertainty and perceived risk, future research should try to incorporate these aspects.

Another challenge for future research is to further explore the impact of TCC specific regulations and praxis regarding what parts of a TCC's domestic military organization are open for women. In the theory section, I explain how the relationship between duration and women's participation can also be affected by the different roles women have in contributing countries' domestic forces. The mixed-level model used in this study controls for country specific effects. Still, including a better measurement of women's chances of actually having suitable training and being candidates

⁷⁹Van Der Lijn and Smit, "Peacekeepers Under Threat?", 1; Henke, "Has UN Peacekeeping Become More Deadly?," 10.

for international deployment could assist in detecting possible omitted variable bias and identify the casual mechanism at play. On a similar note, and as discussed in the theory section, TCCs do often provide different types of military personnel and resources to UN missions during different stages of missions, depending on which expertise is perceived to be needed.⁸⁰ A TCC could for instance first deploy a military engineering company and later deploy a military intelligence company. If the ratio of women varies between different types of military professions, the deployment of certain types of personnel could covary with both duration and the proportion of women. The inability to control for factors such as roles, ranks, and tasks of deployed personnel are issues this study shares with other studies within the research field as we still lack detailed data. Controlling for these factors would not necessarily change the nature of the relation between mission duration and the ratio of female military personnel deployed to UN peacekeeping. Rather, it could add nuance to the concepts of operation uncertainty and perceived risk.

The UNSC has set a goal to increase the participation of women in UN peacekeeping. However, the process of including more women in peacekeeping is very slow. This study has contributed to the cumulative knowledge about what motivates and what hinders women's participation in UN peacekeeping missions. This study indicates that the share of women in a TCC's contribution to UN peacekeeping is lower in the early stages of missions and increases with duration of missions. We have also learnt that more gender equal TCCs are more willing to deploy a higher proportion of women regardless of when the deployment takes place. This information is valuable for researchers as well as policy makers and military leaders striving to increase the participation of women in UN peacekeeping. For future research on women's participation in peace operations to be successful, more gender-disaggregated data as well as data on peacekeeper roles and tasks are necessary. However, just like successfully including more women in peacekeeping and implementing the holistic approach of gender-mainstreaming suggested in UNSC resolution 1325; that will require prioritization, resources, time and willingness.

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⁸⁰Swedish Armed Forces, "Mali-MINUSMA."

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Data Availability Statement

Replication files and online appendix are available at: <https://www.pcr.uu.se/data/replication-data/>

About the Author

Kajsa Tidblad-Lundholm works as a research assistant at the Department of Peace and Conflict Research at Uppsala University. She works at the Uppsala Conflict Data Program (UCDP) and with the research project ‘Ending Atrocities: Third Party Interventions into Civil Wars’ directed by Associate Professor Lisa Hultman.

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