

Rallying the Troops:
Collective Action and Self-Interest in UN Peacekeeping Contributions

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Data

Data and do file with statistical models can be found at:

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/IS7ZDQ>

Abstract

Is the acquisition of personnel for UN peacekeeping missions susceptible to free riding by UN member states? If so, what drives this behavior and what impact does this have on obtaining required personnel for the mission? Using data from 21 missions in 13 African countries between 1990 and 2010, this article addresses whether UN peacekeeping missions experience a shortfall in personnel due to incentives to free ride by contributing states. It argues that as the number of states contributing to a mission increases, contributors have a greater incentive to free ride and make suboptimal personnel contributions, leading to greater overall shortfall in the mission's personnel. However, this free riding behavior can be mitigated by the economic incentives of contributor states. The findings support two central tenets of collective action theory: that free riding by member states contributing to the mission is more prevalent when the number of contributors is larger, and when selective incentives such as economic gains are lower. These findings have implications for the strategic composition and efficacy of peacekeeping forces. More broadly, the results underscore the struggle of international organizations to obtain compliance from member states in achieving their international objectives.

Keywords

Peacekeeping, United Nations, international cooperation, civil war

Introduction

Why do UN peacekeeping operations often fall short of the personnel levels authorized for the mission? Since 1990, missions have experienced an average monthly shortfall of 21.6% in total personnel, consisting of troops, military observers, and civilian police. This problem arises as the UN seeks to secure personnel commitments from its 193 member states, each of whom calculate the benefits and risks of what can be long and costly endeavors. The challenge of sufficiently equipping a mission has been compounded by the changing nature of peacekeeping since the end of the Cold War, which has shifted from supporting ongoing conflict resolution efforts to more direct intervention in conflict zones (Fortna & Howard, 2008; Diehl & Druckman, 2010; Hultman, Kathman, & Shannon 2014). As the UN is increasingly asked to shift from peacekeeping to more robust mechanisms of peace enforcement, it becomes important to understand why resource shortfalls within missions occur. While a small body of research examines factors relating to peacekeeping resource deficiency (Bratt, 1997; Jett, 1999; Jones, 1999, 2001; Skogmo, 1989), little empirical work addresses how these factors contribute to the UN's ability to acquire personnel in a systematic fashion, and as of yet, no study examines why numerical personnel shortfalls occur in missions.

Leveraging original data, this study uncovers why missions fall short of authorized personnel levels. We argue that personnel shortfalls are primarily the result of free riding among UN member states. While states contribute peacekeepers to accrue some public and private benefits, they often fail to provide optimal amounts of the required good. We offer two distinct findings that indicate free riding behavior when it comes to personnel provision: shortfalls occur when there are a greater number of countries contributing to a mission, and shortfalls occur when the private incentives for states to contribute personnel are low. The result is that free riding

prevents UN peacekeeping missions from reaching their required capacity. Such deficiencies have important consequences for global security and conflict resolution, and call into question the efficacy of the United Nations as a peacebuilding entity.

Shortfalls in UN peacekeeping

In 2000, the UN issued a major report assessing the shortcomings of peacekeeping operations. The report noted commitment gaps for peacekeeping missions, stating that, ‘many member states are saying “no” to deploying formed military units to United Nations-led peacekeeping operations, far more often than they are saying “yes”’ (17).¹ Given the widely-held assumption that larger shortfalls inhibit mission effectiveness, this is a problematic trend.

The ongoing conflict in the Democratic Republic of Congo (DRC) illustrates the personnel shortfall problem. Despite concerted efforts to secure adequate personnel for MONUC, there were long delays in acquiring the needed resources. This mission was created in 1999, but by 2002 only a small Uruguayan guard was present. It was not until late 2003 that the UN was able to secure a larger multinational force capable of dealing with the widespread violence taking place (see Figure 1). This period in MONUC’s history is widely considered one of the biggest peacekeeping failures ever.

[FIGURE 1 IN HERE]

MONUC represents a broader problem within UN peacekeeping: the difficulty, and in many cases outright failure, to acquire the requested personnel needed to outfit missions. Since 1990, UN peacekeeping missions have experienced an average monthly personnel shortfall

¹ The report is known informally as the ‘Brahimi Report’ after its author Lakhdar Brahimi.

21.6% below the authorized level. Shortfalls range from 5.9% for UNMOGIP in India and Pakistan to 54.6% for ONUSAL in El Salvador (see Figure 2). Of the three types of personnel sent to peacekeeping missions, none is exempt from this problem: troops see an average monthly shortfall of 17.0%, civilian police average 30.3%, and military observers 16.7%.

[FIGURE 2 IN HERE]

Understanding why missions fall short helps to better identify states' incentives to contribute these personnel to UN peacekeeping. It also improves our understanding about why some missions have been more effective than others at managing conflicts, given previous research showing that personnel capacity improves security and helps to manage violence (Hultman, Kathman, & Shannon, 2013, 2014). While extant literature addresses shortfall in a way that has implications for free riding and public good provision (Olson, 1965; Olson & Zeckhauser, 1966; Sandler, 1977; Bobrow and Boyer, 1997; Khanna, Sander & Shimizu, 1998, 1999; Sandler & Hartley, 2001; Shimizu & Sandler, 2002), it does not specifically identify the reasons for shortfall. Factors frequently considered by scholars to influence peacekeeping support include economic interests (Gaibulloev, Sandler & Shimizu, 2009; Stojek & Tir, 2015), the prospect of obtaining a seat on the Security Council (Benson & Kathman, 2013; Smith & Boutellis, 2012; Perry & Smith, 2013), and the scale of the conflict (Fortna, 2008; Gilligan & Stedman, 2003). A number of studies also emphasizes that peacekeeping missions' effectiveness requires adequate resources, particularly in terms of personnel numbers and equipment (Bratt, 1997; Feil, 1998; Findlay, 2002; Holt, Taylor & Kelly, 2009; Hultman, Kathman & Shannon, 2013, 2014; Jett, 1999; Jones, 1999, 2001; Kreps, 2010; Skogmo, 1989).

Building on this work, our argument focuses on factors that *cause* shortfall, and leaves open the opportunity to investigate the resulting impact of shortfall on peacekeeping effectiveness. While some previous literature considers why states may or may not be incentivized to contribute, there is no study that assesses the numerical shortfall of missions against the authorized personnel levels. This is problematic because if personnel gaps are understood to hinder missions' effectiveness, then researchers should know why these gaps occur.

Peacekeeping personnel shortfall as a collective action problem

In *A Treatise of Human Nature*, David Hume (1738) recognizes that an individual will choose to 'free himself of the trouble and expence' of solving a common problem, and to 'lay the whole burden on others' (538). Olson (1965) further tells us that, despite having common interests, rational and self-interested actors will typically fall short in achieving mutually desired outcomes, because individual units maintain incentives to rely on the efforts of others. This behavior, in which actors seek to enjoy the benefits of the good without contributing to its provision, is commonly referred to as free riding, or the collective action problem. Free riding plagues the provision of collective goods such as peacekeeping, because the benefits of an additional contribution by any actor to the good are shared by all other actors in the group. Moreover, one actor is usually more willing than all others to produce the good. Other actors then accept the benefits of that actor's contribution without themselves contributing, and receive their desired amount of the good by contributing very little or nothing at all.

UN peacekeeping is subject to free riding because it produces the 'pure' public good of greater security, which is both non-rival and non-excludable to countries (Diehl, 1993; Khanna,

Sandler & Shimizu 1998). The collective action problem suggests that states either will not pursue the public good of peacekeeping, or will under-produce the desired amount of peacekeeping (Bobrow & Boyer, 1997: 726). However, one approach finds that financial contributions to UN peacekeeping persist in the face of the free rider problem, and that contributions are primarily driven by concern for providing a global public good (Gaibullov, Sandler & Shimizu 2009). In addition to its public benefits, peacekeeping also produces an ‘impure’ public good, since some recipients benefit more so than others. Some argue that peacekeeping’s benefits are mostly private, or contributor-specific (Bove & Elia, 2011; Gaibullov et al., 2015; Khanna, Sandler & Shimizu, 1998). These private and contributor-specific benefits help peacekeeping provision overcome the free rider problem and lead to more efficient provision of the public good (Olson & Zeckhauser, 1966: 279; Sandler, 1977; Khanna, Sandler & Shimizu, 1998: 182).

What, however, are the public and private benefits of peacekeeping? The provision of security to states inhabiting the international system is the most obvious example of a public good resulting from peacekeeping (Khanna, Sandler & Shimizu, 1998, 1999; Shimizu & Sandler, 2002). Indeed, previous research demonstrates that internal conflicts, especially those occurring in Africa, often spread beyond borders. These spillover effects create major economic and security concerns not only for proximate states, but also for states concerned about the stability of the region (Brown, 1996; Kathman, 2011). This includes states with significant trade and investment interests in the conflict country or region, which are becoming more numerous as resource-strapped countries purchase land in rural developing countries to cultivate agricultural products and biofuels for their own populations (Sassen, 2013). Civil violence also increases a number of other global risks. When state institutions are weakened by internal conflicts, they

breed criminal activities such as human and drug trafficking and terrorism. Moreover, internal conflicts deteriorate global human rights practices and increase the occurrence of mass killings (Jones et al., 2009). To the extent that these outcomes spill over into other states and destabilize the system, effective peacekeeping generates important public benefits.

Alongside the more diffuse collective benefits of peacekeeping are contributor-specific benefits. Countries are more likely to contribute if doing so supports specific national interests that they believe are worth protecting. Conflict-affected countries provide contributors with trade and investment opportunities that strengthen their incentives to provide peacekeepers. When a conflict-affected country has developed economic ties with other states, its partners recognize that an operationally effective peacekeeping mission can help limit losses or generate the stability needed to increase the gains from trade and investment. This emphasis on economic motivations aligns with previous research on interventions in civil conflicts that shows that trade and investment interests influence the calculus of potential third-party interveners (Aydin, 2012; Stojek & Chacha, 2015). Regarding security concerns, a state's physical proximity to a conflict motivates it to support a UN peacekeeping operation. When a state believes that a nearby conflict will spill over into its own territory it may become more willing to support a UN operation by providing it with personnel to ensure the mission's effectiveness. Finally, another private benefit includes financial gain from offering personnel. The UN reimburses troop-contributing countries at a rate of \$1,028 per month for each peacekeeper. Low as that may seem, this is a source of income for many developing states. It also benefits national militaries by providing them with additional training and weaponry that can later be used by the country's own military (United Nations, 2014). The result is that most peacekeepers come from poorer countries and possess relatively less training, while countries that possess relatively well-trained troops are reluctant to

contribute personnel since they fall well short of recovering their opportunity costs for doing so (Durch, 1993: 50). The Brahimi Report states that, "...in the last few years, 77% of the troops in formed military units deployed in United Nations peacekeeping operations, as of end-June 2000, were contributed by developing countries," (17). Instead, developed countries tend to support missions with financial contributions or equipment, leading to something of a division of labor within UN peacekeeping.

How do free riding and the collective action problem affect peacekeeping personnel provision in particular? Countries who contribute personnel weigh their concerns for collective goods provision with the possible private benefits of contribution.² This means that an important consideration for a potential contributor is the number of other countries it expects to also contribute peacekeeping personnel. From an ideal collective goods provision standpoint, one country contributes all peacekeeping personnel (being largely motivated by the potential benefit of doing so). However, as long as the number of contributors is small, private gains are more likely to be captured by individual contributors. As the number of actors contributing resources increases, contributor-specific benefits become more diluted. This incentivizes free riding and generates higher mission shortfalls, because having a larger number of contributors reduces the marginal gains for a country of adding one additional troop, observer, or police officer to the mission. We therefore expect more problems in fully staffing UN missions as the number of contributing countries increases. This leads to our first hypothesis:

² Countries can also choose to support and provide the public good of peacekeeping in ways besides personnel contribution. More economically developed countries prefer to support missions financially, rather than by offering personnel (Bobrow and Boyer, 1997). Other states, despite being cajoled by other members of the international community, choose not to support UN peacekeeping in any material form.

H1: As the number of personnel-contributing countries increases, mission shortfall increases.

A country also weighs the private benefits of contributing personnel. When private benefits are low, free riding behavior is more likely. When contributor-specific benefits are high, the incentive for countries to free ride is reduced, leading to more contributions and less personnel shortfall in a mission. Many of the public goods approaches to peacekeeping consider the reimbursement of \$1,028 a month as the primary private benefit driving the contribution of personnel. But recent work calls this idea into question, pointing out that for a number of developing countries, the rising cost of military salaries has outpaced reimbursement, since the rate has not increased since 2002 (Coleman, 2014). Moreover, the UN is in arrears to a number of developing countries for their contributions, including debt to India of \$80 million and Ethiopia of \$54 million. Additionally, troop reimbursements are generally not considered to make up a large proportion of a contributing state's defense budget (Cunliffe, 2013:172). Finally, while countries such as Pakistan and Bangladesh may be perceived to use peacekeeping deployments as a source of military income, a close inspection determines that they should give much more than they do if this is a primary incentive. Between 2000 and 2010, Pakistan sent on average only 5% of its military to peacekeeping missions, while Bangladesh sent only 1.2%. While troop reimbursement is a source of income for countries, it is likely not the primary benefit that ultimately drives a country's decision to contribute (Cunliffe, 2013:173-75).

We argue that stronger private benefits for contributors exist than the reimbursement rate. Previous research has shown that when countries have greater economic interests in a conflict country, peacekeeping missions are more likely to be established in that country (Stojek & Tir, 2015). It seems then that economic interests drive countries to participate and contribute in

missions. Because direct gains from trade and investment accrue to only those who actually engage in the exchanges of goods and capital, we expect that conflict-affected countries under a UN mission that engage in international trade and receive foreign investments will generate selective benefits for outsiders. This will lead countries to contribute personnel to economically attractive and open countries, reducing the incentive to free ride and the overall shortfall in personnel. Thus, our second and third hypotheses:

H2: When personnel-contributing countries have greater trade interests in the conflict country, shortfall is reduced.

H3: When personnel-contributing countries have greater investment interests in the conflict country, shortfall is reduced.

We leave open the possibility that contributions do not track directly with perceived economic benefits for all UN members. It is possible that some countries with strong economic interests in the conflict country refrain from contributing troops, finding it more efficient to encourage other states to contribute personnel. This may be accomplished through exercising political leverage, or by offering private incentives to states in return for their contribution of personnel to a mission. We therefore assert only that economically open conflict states are more likely to see shorter overall shortfalls, and not that individual countries' economic interests in the conflict country directly correlate with their own contributions.

For neighboring countries, peacekeeping mitigates the contagion effects of conflict (Beardsley, 2011). This means a private benefit to peacekeeping exists for countries near the conflict country. They should therefore be more willing to provide personnel to nearby missions, which will reduce overall mission personnel shortfalls. Indeed, Bove & Elia (2011) find that

geographic proximity to a conflict is a robust predictor of contributions to peacekeeping missions. This leads to a fourth hypothesis:

H4a: A greater number of contiguous states to the conflict state reduces shortfall in the mission.

It is, however, also possible that free riding may still occur among states that are contiguous to the conflict state receiving a UN peacekeeping mission. A larger number of contiguous states may in fact generate collective action problems among this smaller group of states, thereby contributing to larger personnel shortfalls. Additionally, it is also possible that states that are not contiguous to the conflict would assume that contiguous states would be more interested in resolving the conflict, reducing any perceived need to offer personnel to UN peacekeeping missions. Therefore, we present an alternative to Hypothesis H4a:

H4b: A greater number of contiguous states to the conflict state increases shortfall in the mission.

It should be recognized that since a purely private to public goods ratio rarely, if ever, exists in peacekeeping, free riding is likely to occur to some degree. Evidence of free riding is in fact found in studies which show that a smaller number of countries are sending greater proportions of personnel in recent years (Bobrow & Boyer, 1997; Perry & Smith, 2013). While some studies have identified patterns of free riding, specifically regarding the financing of peacekeeping operations (Olson & Zeckhauser, 1966; Shimizu & Sandler, 2002), we have yet to understand the conditions or extent of free-riding in the personnel provision for peacekeeping missions. We now turn to an analysis of the factors that lead to peacekeeping personnel shortfall.

Research design

To test our hypotheses, we analyze a sample of 21 UN peacekeeping missions taking place within 13 African countries between 1990 and 2010. This sample constitutes 38% of all intrastate and interstate missions deployed during this time period.³ A peacekeeping mission enters our dataset once the UN Security Council has passed a formal resolution authorizing a peacekeeping mission, and leaves it once the UN has concluded the mission.⁴ Because these decisions can be dated to a particular month, and because some of the variables we employ vary by the month, the unit of analysis is the mission-year-month. The monthly nature of the data provides novel insight into missions' internal factors, since deployment levels, and thus personnel shortfall levels, are not constant across a mission. This means one can view a mission's shortfall as a phenomenon that changes within the life of a mission according to the factors that we model. Since the duration of peacekeeping missions over this sample period differ – meaning missions begin and end in different times – all models control for time by including dummies for the year as well as the month.⁵ Most of the models presented also include mission fixed effects in order to control for mission-level factors that do not vary across a

³ Nearly half of all intrastate peacekeeping missions in UN history have been deployed to Africa. However, by limiting the analysis to peacekeeping missions in one region, it is possible that the inferences drawn here are limited and do not similarly apply to other regions. Broader datasets are being developed that will make global analyses possible in future work.

⁴ We rely on formal UNSC resolutions and formal reports of the UN Secretary-General to identify the year and month of a mission's conclusion.

⁵ Controlling for time periods is important because phenomena may occur in one time period that influences peacekeeping missions' shortfall levels, but not in others. Controlling for month specifically is necessary because UN member-states' willingness to support peacekeeping may vary within years for different reasons. For instance, there is often a push for increased member-state support to peacekeeping in the fall months around the time of the annual United Nations General Assembly as well as when the Special Committee on Peacekeeping Operations releases its annual report in February/March. Additionally, a conflict's intensities can vary within the calendar year due to weather-related changes (Buhaug & Lujala, 2009; Carter & Veale, 2013, 2015), influencing contributors' perceptions of risk for donated personnel.

mission's lifespan that we cannot otherwise model. We also include a dependent variable lagged one month in all models.⁶

Dependent variable

The dependent variable, called *Shortfall*, is an original variable that measures the level of personnel shortfalls in a UN peacekeeping mission in terms of troops, military observers, and police. We obtain these values for each month within each year of a peacekeeping mission by subtracting the number of formally authorized personnel from the actual number of deployed personnel. This means that the dependent variable is measuring the total numerical personnel shortfall in a mission for each year and month that it exists. We determined and coded the authorized personnel level from UNSC resolutions, Secretary-General reports, and sometimes other formal UN reports. While we note that authorization levels are only made official if set by the UNSC, these documents sometimes do not list the authorized numbers, instead simply confirming recommendations made by other UN staff; hence, our need to refer to additional sources to ensure its values are accurate. Data on deployed personnel come from Kathman (2013). Because the dependent variable is a count we use a negative binomial regression, which corrects for over-dispersion in our data.⁷

⁶ We lag monthly level variables by one month. Annual variables or those that do not vary within missions are not lagged.

⁷ The negative binomial fixed effects model has been criticized recently. For example, Allison (2012) points out that the commonly used conditional likelihood method proposed by Hausman, Hall & Griliches (1984) is not a true fixed effects method since it allows for unit-specific variation in the dispersion parameter instead of in the conditional mean. To overcome this, we employ a recommended alternative way to employ fixed effects, which is to include dummy variables. Since this alternative method may introduce incidental parameter bias, we also reestimate our models using Poisson fixed effects regression.

One might argue that the shortfall measure may be an unrealistic representation of inadequate resources in a mission, since the authorization level may be different from the number of personnel required for the conditions on the ground. However, while the authorization level is originally set by a Technical Assessment Mission prior to the establishment of the mission, the authorization level is then adjusted at multiple points within a mission as conditions change. For example, the authorization level for the missions in the Democratic Republic of the Congo (MONUC and MONUSCO) changed no fewer than 11 times between 1999 and 2014. Thus, while the authorization level may not be as dynamic as it could, it is evident that it changes in accordance with conditions in the mission, and is therefore a good benchmark against which to measure shortfall.

Independent variables

We rely on four independent variables to test our hypotheses. For Hypothesis 1 we use a variable *Contributors* that counts the total number of countries contributing personnel to a mission in a given month. This variable is coded using monthly contributor data, which was originally compiled by Perry & Smith (2013). This variable ranges from 0 (only one observation) to 74. We expect the sign on this variable coefficient to be positive, indicating that more contributors are associated with larger shortfalls. Figure 3 confirms that there is substantial fluctuation in the number of contributors to a mission on a monthly basis. We note that the number of contributors varies over the course of a mission. Consequently, we lag this variable by one month.

To test our second and third hypotheses, we use the variables *Trade* and *FDI*. The former measures the total value of imports plus exports for the conflict country, which serves as a proxy

for the current and future trade interests of UN member states. The latter measures the total foreign direct investment stock in the conflict country, which also is a proxy for current and future investment interests of UN member states. Recalling that the unit of analysis is the mission-year-month, these measures represent the general economic openness of the conflict country and not bilateral trade and investment data for contributing countries. This may at first raise the criticism that we are subsequently unable to identify causal evidence for Hypotheses 2 and 3. However, as discussed above, we leave open the possibility that contributions may not correlate directly with a state's own economic interests in the conflict country, but rather that they may be encouraged to participate on behalf of other states that do have such interests, such as wealthier, developed countries that would prefer not to engage their own military personnel. This may be particularly true of such states as the permanent five members of the Security Council (Stojek & Tir, 2015).

In creating these variables, trade data is obtained from the World Trade Organization, while investment data is taken from the UN Conference on Trade and Development (UNCTAD). Both are measured in millions of current US Dollars. Only annual data is available for both variables, which means that there is no variation within years for each conflict country. Values are calculated for each month-year of a peacekeeping mission by dividing the conflict country's annual value by twelve. We expect the coefficients on both of these variables to take on a negative sign. Due to concerns about collinearity, we usually do not put these two variables in the same model, although doing so does not influence our conclusions.

To test the final hypothesis, we use the variable *Contiguous States*, which measures the total number of states that share a border with the conflict state. However, since all of these contiguous states may not be viable personnel contributors, we count only those states that had

previously contributed personnel to missions. We identified six states that have no history of peacekeeper contributions: Angola, the Democratic Republic of the Congo, Eritrea, Liberia, Sudan, and Swaziland. We therefore disregard these states in the measurement of the variable. The *Contiguous States* variable does not vary at all within peacekeeping missions, only across missions. Thus, when testing H4 we are unable to include unit fixed effects. We expect that states adjacent to a state undergoing civil conflict share similar security concerns, which may generate opportunities to free ride and lead to larger peacekeeping shortfalls.

Controls are included for a number of additional factors that could potentially confound the relationship between these independent variables and our outcome of interest. The first variable we control for is *Mission Length*, measured in months of existence. Although we do not have strong expectations about the sign that this variable should ultimately take, longer missions might see an internal push by UN staff or contributors to get other member states to provide more troops, or they may become subject to contributor fatigue, in which contributors reduce the amounts of personnel they are willing to offer to peacekeeping missions. Because authorization levels can change over the course of a mission, sometimes growing either larger or smaller, we control for these occurrences using two variables called *Personnel Increasing* and *Personnel Decreasing*, respectively. Including these variables is important because changes in authorization levels may signal that concluding a mission is becoming either more or less difficult, which could influence contributors' calculations about the risks that their seconded troops may face or the duration they may be away from home. Additionally, we use the variable *Deaths* to capture how many total civilian and battle deaths have occurred in a time period to further control for a mission's difficulty. Data on *Deaths* is from the Uppsala Conflict Data Program (UCDP)

Georeferenced Events Dataset. (Melander & Sundberg, 2013; Sundberg, Lindgren & Padskocimaite, 2010; see also Eck & Hultman, 2007).

We also control for third party interventions in a conflict with the variable *Biased intervention*. It is not uncommon for a third party with a bias towards one of the sides in a civil conflict to become militarily involved. Doing so unilaterally, rather than as part of a multi-national UN force, removes constraints that might otherwise hinder their agendas. When this happens, it is possible that contributors would perceive that donated personnel would face more dangerous military situations, leading them to hold back peacekeepers. Additionally, if third parties are doing the heavy lifting in a conflict, there may be a less incentive for contributors to become involved in peacekeeping. At the same time, third party interventions may sometimes complement UN efforts, leading to less difficult missions, and fewer incentives for contributors to follow through on personnel commitments. This variable is binary and varies by month. It is taken from the UCDP Dyadic Dataset (Harbom, Melander & Wallensteen, 2008).

We control for three other factors that vary annually, but not within years. *Population* measures the population of the conflict country (World Bank). *Polity* measures the regime type of the conflict-affected country in which a mission takes place (Marshall & Jagers, 2002). Stojek & Tir (2015) find that more democratic states are less likely to be the targets of peacekeeping missions, although Gilligan & Stedman (2003) and Fortna (2004) find no relationship between democracy and either intervention or peace duration. Drawing on these findings, we include this variable to identify if the regime type of the conflict country affects other countries' desire to contribute personnel. Both of these variables' values are assumed to be constant throughout the calendar year. Finally, we use the variable *P5 colony* control for whether or not the conflict-affected country in which a mission takes place was a former colony of any of

the permanent members of the UNSC. This variable does not vary within missions.

Consequently, it can only be included in models without unit fixed effects. Descriptive statistics are presented in the appendix.

Results and Discussion

Table I reports the results of the empirical tests. We begin by discussing our first hypothesis. Looking at Models 1 and 2, which do not include unit fixed effects and substitute the trade and investment variables for one another, we see that the number of contributors returns a positive and significant coefficient, as expected. However, since these models do not include unit fixed effects the reader might want to take these results with some reservation. To better ensure our confidence in these coefficients, Models 3 and 4 add the mission fixed effects and, again, substitute the trade and investment variables for one another. Model 5 includes the trade and investment variables in the same model. In these models we see that the coefficients on the contributors variable shrinks slightly, yet remains positive and statistically significant. Thus, consistent with our expectations, the results indicate that as the number of countries that are contributing troops, military observers, and police increase, so does that level of personnel shortfall in a UN peacekeeping mission. Using Poisson fixed effects regression for robustness, the results of the contributors variable experience only minimal change in coefficient size and remain statistically significant.

[TABLE I IN HERE]

We use Model 5 to calculate the substantive influence of the number of personnel contributing countries on UN peacekeeping mission shortfall, holding all other independent variables at their mean values. Figure 4 shows that a one standard deviation change from the mean in the number of contributors (or, from moving from roughly 37 to 55 contributing countries) yields an additional personnel shortfall of about 335 personnel. Given that the average personnel shortfall across all UN peacekeeping missions in this dataset is slightly less than 1,500 personnel, we read this as a substantively meaningful influence. Additionally, because previous research indicates that a peacekeeping mission's personnel capacity is critical for providing security and effectively managing violence (Hultman, Kathman, and Shannon, 2013, 2014), this result indicates a troubling dynamic for UN peacekeeping.

We now turn to the results of testing the second and third hypotheses, respectively. To test H2, we look at the variable *Trade*, which is included in the first, third, and fifth model. This variable is not significant in any of these models. It does not matter whether or not unit fixed effects are included or whether or not we remove the *FDI* variable. Thus, the results do not confirm our second hypothesis. It does not seem to be the case that trade interests of UN member states in a conflict-affected country receiving a peacekeeping mission systematically influence the personnel shortfalls in that mission.

The tests for H3, which posits that the investment interests of UN member states should be associated with lower levels of personnel shortfall, are presented first in Model 2. In this specification, *FDI* returns a statistically significant and negative coefficient, as expected. Model 4 includes the mission dummies. Again, this variable returns a negative sign and is significant, although its coefficient is attenuated somewhat. Model 5 shows results that are nearly identical to those reported in Model 2. Using this final model to look at *FDI*'s substantive influence, we

again look at figure 4. This picture shows that a one standard deviation increase in the mean of FDI is predicted to reduce shortfalls by about 114 personnel, a notable influence that supports the third hypothesis. The results of Models 3 and 4 are robust when using Poisson fixed effects regression instead of negative binomial regression.

Why would it be the case that UN member states' investment interests are related to peacekeeping shortfalls, but their trade interests do not seem to be? Since both trade and investment interests are often important drivers of international behavior, some informed speculation on this question is in order. In brief, we suspect that the differences returned in the statistical tests for these two economic indicators results from the fact that investments overwhelmingly include the movement of sunken physical assets into conflict-affected countries, while this is less likely to be the case for international trade. States that suffer from lost trade can probably recoup a reasonable portion of these losses by increasing trade with other states in order to substitute, reducing incentives to become more involved. This is less likely to be the case for long-term capital investments, leading UN member-states to have relatively strong incentives to support a UN peacekeeping mission that would help stabilize a country that receives higher amounts of FDI.

Finally, we again turn to Models 1 and 2 for the results of H4, in which we might expect a positive or negative association between the number of contiguous states with a history of offering personnel to UN peacekeeping and missions' shortfalls. In both models the coefficient on *Contiguous* is positive and significant, which supports Hypothesis 4b and indicates an additional free-riding element in UN peacekeeping contributions. Again, we show a one standard deviation change from the mean to illustrate its substantive influence on shortfalls. Figure 4 shows that moving from having three to five of these contiguous states increases UN

peacekeeping missions' shortfalls by about 848 total personnel, a large increase. All together, these results support our contentions about collective action problems in UN peacekeeping, although only one of the variables capturing the influence of selective incentives was found to reduce missions' shortfalls.

Before concluding, we briefly point the reader to two results for the control variables that are worth noting. First, longer missions were for the most part found to have smaller shortfalls. This indicates that that as missions go on (and sometimes on and on), the UN still appears able to muster personnel support for peacekeeping operations. Second, *Deaths* was always negative and significant, indicating that where violence was greatest, shortfalls were becoming smaller. This suggests that the UN is able to get relatively more required personnel to the most violent conflicts. It is also a result that is in line with previous research indicating that the UN is by-and-large able to provide peacekeeping support to places that need it most (Fortna, 2008; Gilligan & Stedman, 2003). Overall, we read these two results in particular as good news for UN peacekeeping.

[FIGURE 4 IN HERE]

Conclusion

As the nature of UN peacekeeping has evolved, it is important to understand factors that support or inhibit missions from reaching authorized capacity. Insufficient resources may pose major challenges to the efficacy of the mission and threaten the security of the country in question, as well as the surrounding region and beyond. This study establishes why missions so often fail to obtain the number of personnel authorized by the UNSC. By exploring the role of

free riding among UN member states, we find that peacekeeping contributions from more countries lead to greater personnel shortfalls and suboptimal amounts of the public good of peace. We also show that free-riding increases when more countries share a border with the conflict country. However, we find that countries may be less likely to engage in free riding behavior when they perceive higher levels of private benefit from contributing peacekeepers.

These findings have a number of implications for peacekeeping policy. One solution to the free riding problem is to promote missions with fewer states sending more peacekeepers. Conventional wisdom implies that the more countries involved in a mission, the stronger it is in terms of capacity and effectiveness. However, our results suggest that if the UN were to focus on securing a small number of well-equipped countries with selective incentives for involvement in the mission, there would be greater reputational and economic benefits for those countries, which would reduce free-rider incentives. It would also induce clearer channels of responsibility, where contributor countries would have a heightened sense of accountability for ensuring the public good of peace is delivered.

A second policy suggestion is not a new one. Olson & Zeckhauser (1966) suggest that the remedy for free riding lies in ‘institutional changes to alter the pattern of incentives’ for UN members (279). Since there appears to be a ready stream of states willing to fund missions, the UN should consider increasing financial remuneration for those contributing personnel. This might induce greater numbers of personnel from countries already participating, and encourage wealthier states with better-trained personnel to play a more direct role in peacekeeping. The UN might also consider specifically compelling wealthy countries to contribute with more selective and direct incentives. By being more creative in enticing contributor countries and providing adequate support for their participation, the UN may see a significant resolution to free riding in

personnel contributions to peacekeeping missions. Increasing the capacity of peacekeeping is critical in alleviating intrastate conflict around the world and displaying the efficacy of the UN. While free riding may persist more broadly in many areas of human behavior, this is not a fate to which the UN must resign itself.

Appendix

Table AI. United Nations Peacekeeping Missions, 1990 - 2010

<u>Conflict country</u>	<u>Missions</u>	<u>Sample date range</u>
Angola	UNAVEM MONUA	Jan 1990 – Jun 1997 Jul 1997 – Jan 2000
Burundi	ONUB BINUB	Jun 2004 – Nov 2006 Jan 2007 – Dec 2010
Central African Republic	MINURCA	Apr 1998 – Jan 2000
Chad	MINURCAT	Aug 2007 – Dec 2010
Democratic Rep. of Congo	MONUC	Sep 1999 – Jun 2010
Ivory Coast	MINUCI UNOCI	Jun 2003 – Feb 2004 Mar 2004 – Dec 2010
Liberia	UNOMIL UNMIL	Sep 1993 – Aug 1997 Oct 2003 – Dec 2010
Morocco	MINURSO	Sep 1991 – Dec 2010
Mozambique	ONUMOZ	Jan 1993 – Dec 1994
Rwanda	UNOMUR UNAMIR	Jun 1993 – Aug 1994 Oct 1993 – Mar 1996
Sierra Leone	UNOMSIL UNAMSIL	Jul 1998 – Dec 2000 Jan 2001 – Nov 2005
Somalia	UNOSOM I UNOSOM II	Apr 1992 – May 1994 Jun 1994 – Jan 1995
Sudan	UNMIS UNAMID	Mar 2005 – Dec 2010 Nov 2007 – Dec 2010

Table AII. Descriptive statistics

	<u>N</u>	<u>Mean</u>	<u>Std. Deviation</u>	<u>Min</u>	<u>Max</u>
Shortfall	1358	1452.083	2861.554	0	27,107
Contributors	1324	37.33	18.035	0	74
Contiguous	1406	3.337838	2.09567	1	7
Trade	1121	834.8582	1027.218	7.25	5,225.878
FDI	1026	5646.421	9384.409	.7172284	45,081.59
Mission	1364	59.37317	60.43078	1	274
Length					
Personnel	1382	.0571635	.2322389	0	1
Inc.					
Personnel	1382	.0361795	.186804	0	1
Dec.					
Total Deaths	1191	289.7624	6028.309	0	146,927
Biased					
Intervention					
Population	1144	20995.41	17075.68	2,640	62,522
(thousands)					
Polity	1149	-.7815492	4.412345	-8	6
P5 Colony	1406	.7083926	.4546642	0	1

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Figure 1. Authorized versus actual peacekeeper deployment in the Democratic Republic of Congo, 1999-2014

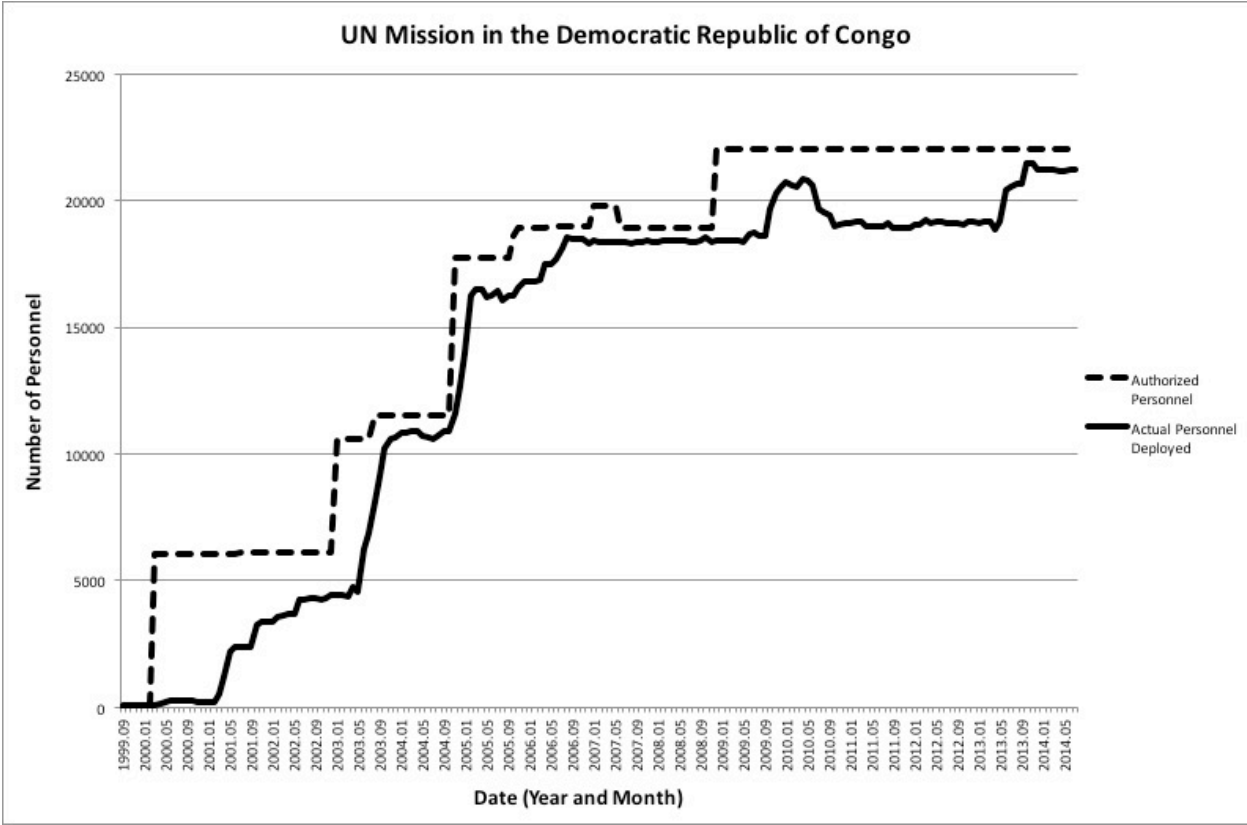


Figure 2. Average monthly shortfall of personnel for United Nations peacekeeping missions (1990-2010)

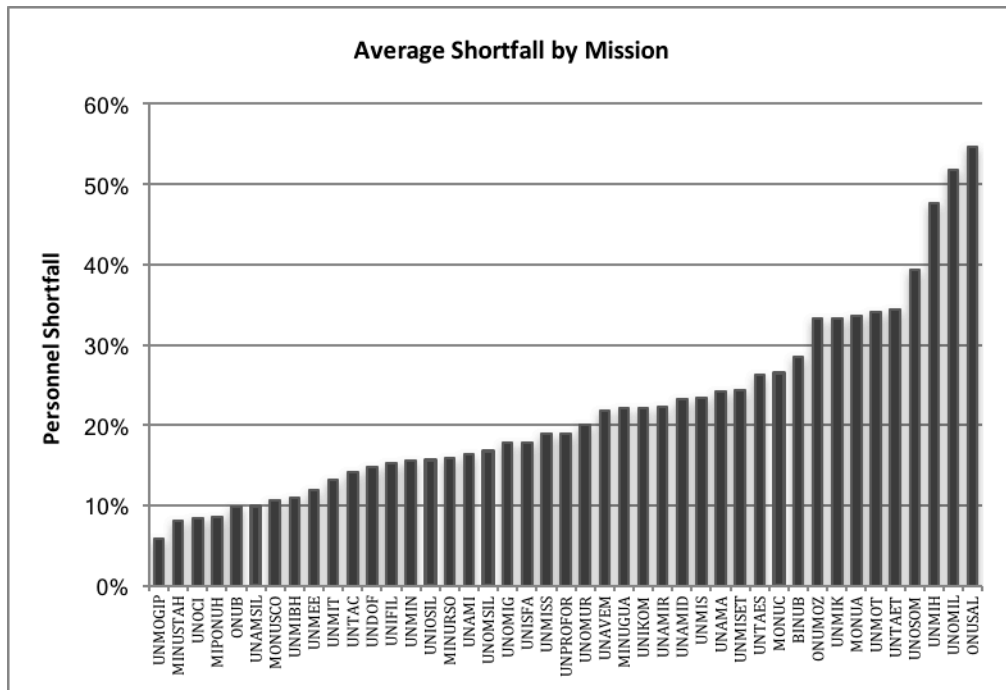


Figure 3. Average number of contributing countries to United Nations peacekeeping missions per month

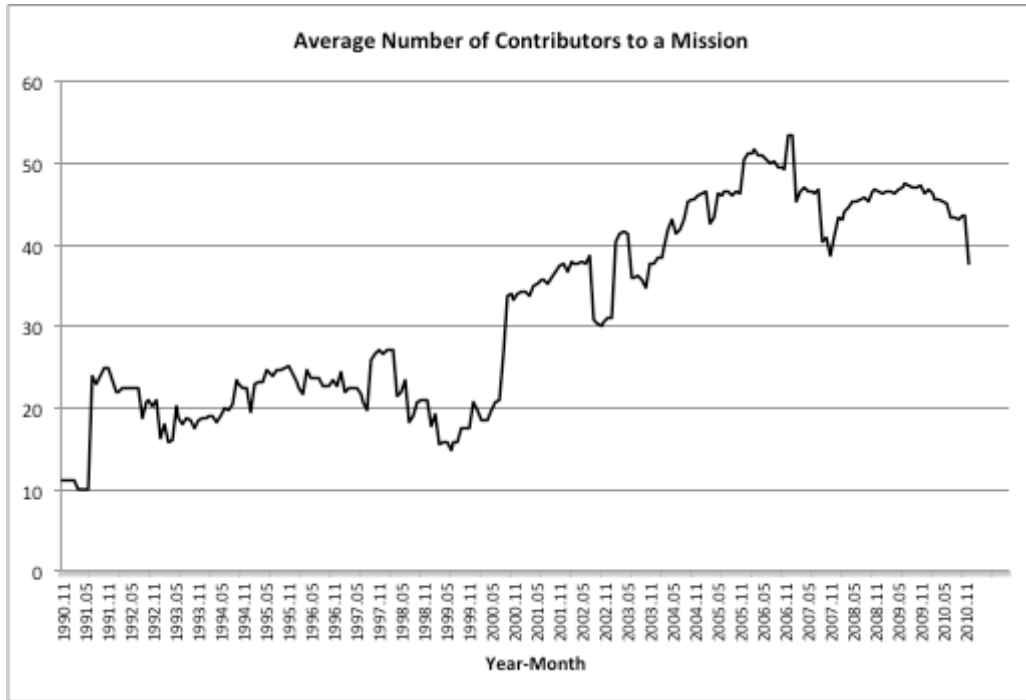


Figure 4. Influence of a one standard deviation above the mean change for theoretically pertinent variables

Variable	Predicted numerical change in personnel shortfall
Number of contributing countries	335
Economic openness of the conflict country (FDI)	114
Number of contributors contiguous to the conflict country	848

Table I. Predictors of Personnel Shortfall in UN Peacekeeping Missions, 1990 - 2010

	Model 1	Model 2	Model 3	Model 4	Model 5
Shortfall _{t-1}	4×10^{-4} * (1×10^{-4})	.001* (1×10^{-4})	3×10^{-4} * (1×10^{-4})	4×10^{-4} * (1×10^{-4})	4×10^{-4} * (1×10^{-4})
Contributors _{t-1}	.050* (.020)	.051* (.015)	.044* (.017)	.048* (.018)	.047* (.018)
Contiguous States	.518* (.227)	.573* (.151)	-	-	-
Trade	-3×10^{-4} (2×10^{-4})	-	-3×10^{-4} (2×10^{-4})	-	3×10^{-4} (4×10^{-4})
FDI	-	-1×10^{-4} * (3×10^{-5})	-	-1×10^{-4} * (2×10^{-5})	-1×10^{-4} * (4×10^{-5})
Mission length _{t-1}	.005 (.007)	.011* (.005)	-.097* (.011)	-.103* (.013)	-.102* (.012)
Personnel Increasing _{t-1}	.215 (.188)	.081 (.171)	.241 (.170)	.213 (.156)	.194 (.160)
Personnel Decreasing _{t-1}	-.966* (.320)	-.918* (.289)	-.837* (.315)	-.796* (.285)	-.780* (.286)
Deaths _{t-1}	-4×10^{-5} * (4×10^{-6})	-4×10^{-5} * (4×10^{-6})	-2×10^{-5} * (3×10^{-6})	-3×10^{-5} * (4×10^{-6})	-3×10^{-5} * (4×10^{-6})
Biased intervention _{t-1}	-.238 (.363)	-.223 (.400)	.242 (.272)	.105 (.292)	.075 (.286)
Population	-4×10^{-5} * (2×10^{-5})	-1×10^{-4} * (2×10^{-5})	1×10^{-4} * (4×10^{-5})	1×10^{-4} (1×10^{-4})	1×10^{-4} (1×10^{-4})
Polity	-.016 (.055)	-.078 (.048)	-.094 (.079)	-.137 (.097)	-.130 (.099)
P5 colony	-.026 (.415)	.039 (.270)	-	-	-
Constant	4.882* (1.354)	4.414* (1.220)	-14.925* (2.406)	-16.684* (2.636)	-16.605* (2.717)
N	974	921	974	921	909
Mission dummies	No	No	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes
AIC	13387.32	12274.2	13122.13	12079.41	11833.94
BIC	13475.19	12361.1	13219.76	12175.92	11915.75

Negative binomial regression coefficients with robust standard errors clustered on the UN peacekeeping mission in parentheses. Statistical significance: *p<0.05.

