

School of Economic, Political and Policy Studies

***International Peacekeeping Operations:
Burden Sharing and Effectiveness***

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International Peacekeeping Operations: Burden Sharing and Effectiveness

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Abstract

This article takes stock of some of the important contributions to the study of peacekeeping (PK). Two key topics stand out: peacekeeping burden sharing and mission effectiveness. For burden sharing, the theoretical foundation is the private provision of public goods and joint products. Implications for burden sharing differ whether financial or troop contributions are being shared, with the latter driven by jointly produced country-specific benefits. Financial burden sharing can also differ between United Nations (UN)-led and non-UN-led peacekeeping operations, wherein country-specific benefits are especially important for the latter. Many articles gauge peacekeeping effectiveness by the mission's ability to maintain the peace or to protect lives for a set time period. More recently, multiple criteria are raised for evaluating peacekeeping in today's world of multifaceted peace-building operations.

Keywords

UN peacekeeping, non-UN peacekeeping, public goods, joint products, peacekeeping effectiveness

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Since 1948, the United Nations (UN) has been involved in seventy-one peacekeeping operations (PKOs), fifty-three of which occurred after 1990. Currently, there are sixteen UN PKOs with twelve in Africa and the Middle East (UN Department of Peacekeeping Operations 2016c). Just over 100,000, uniformed troops (85,808), police (13,200), and military observers (1,738) are deployed to these sixteen missions at an estimated cost of US\$7.87 billion in the fiscal year commencing on July 1, 2016 (UN Department of Peacekeeping Operations 2016a). The geographical concentration of UN PKOs changes over time, depending on the location of the world's trouble spots. During the post-cold war era, there have been large- and small-scale non-UN PKOs led by the North Atlantic Treaty Organization (NATO), the African Union (AU), the Economic Community of West African States (ECOWAS), and individual countries. Noteworthy, non-UN PKOs include the Stabilization Force (SFOR) in Bosnia and Herzegovina, the Kosovo Force (KFOR), the International Security Assistance Force (ISAF) in Afghanistan, the Multinational Force—Iraq, US-led Operation Northern Watch in Iraq, an ECOWAS mission in Liberia, and an AU mission in Sudan.

Scholarly interest in the political economy of peacekeeping expanded greatly in the last two decades as the number and complexity of PKOs and their attendant resource commitment increased (see, e.g., Bove and Elia 2011; Diehl and Druckman 2010, 2013, 2016; Dorussen and Gizelis 2013; Gaibullov et al. 2015). As peacekeeping assumed enhanced prominence in addressing conflict, the *Journal of Conflict Resolution* (JCR) began publishing influential articles on various aspects of peacekeeping by Bertram (1995), Bobrow and Boyer (1997), Diehl, Druckman, and Wall (1998), Khanna, Sandler, and Shimizu (1998), Lebovic (2004), Regan (1996, 2002), Ruggeri, Gizelis, and Dorussen (2012), and others. The growth of PKOs in the post-cold war era meant the generation of data on financial contributions, troop deployments, peacekeeper casualties, civilian casualties, missions' characteristics, and the length of subsequent peace, all of which facilitate panel or time-series estimations associated with a host of hypotheses.

The primary purpose of this article is to take stock of what the literature teaches us about peacekeeping as a conflict resolution device. In particular, this article focuses on peacekeeping burden sharing and mission effectiveness because most of the extant literature addresses these concerns and, in so doing, considers equity and efficiency dimensions of peacekeeping. Given space constraint, I must ignore other important topics of PKOs, such as the prospects for negotiation and mediation (Grieg and Diehl 2005), within-mission deployment of peacekeepers (Ruggeri, Dorussen, and Gizelis 2017), and the determinants of mission-induced cooperative events (Dorussen and Gizelis 2013; Ruggeri, Gizelis, and Dorussen 2012). Thus, it is not my intention to provide an exhaustive survey on peacekeeping; rather, I highlight findings on peacekeeping burden sharing and mission effectiveness, derived, in part, from JCR articles on peacekeeping. In taking stock, this article puts past contributions into a unifying perspective. Another purpose is to suggest some future research

direction in the hopes of generating new peacekeeping articles for *JCR* and related journals.

Peacekeeping burden sharing possesses myriad fascinating aspects. For instance, burden sharing may involve financial contributions, troop supplies, or both to UN or non-UN PKOs. For UN missions, financial contributions are mostly assessed against UN members since 1974;¹ whereas troop contributions are voluntary and supported, in large part, by the financial assessments. Troop-contributing countries are compensated on a monthly basis for each soldier, police, or military observer. In some cases, this troop payment more than compensates for troops' cost and, in other instances of well-trained troops, the payment falls far short of this cost (Gaibullov et al. 2015; Solomon 2007). These differing institutional arrangements are shown to have influences on the mix of private (or country-specific) and public benefits derived from UN PKOs, thereby affecting burden sharing. By contrast, most non-UN missions rely on voluntary financial *and* troop contributions, except for some ECOWAS and AU PKOs for which the United States and the European Union (EU) partly reimburse participation cost (Tardy 2013). Differing institutional arrangements between UN and non-UN missions may also affect the realized mix of country-specific and public benefits. Next consider peacekeeping missions' effectiveness. Such effectiveness may be judged by a single primary criterion of maintaining or achieving the peace for a set period of time (e.g., Diehl, Reifschneider, and Hensel 1996; Doyle and Sambanis 2000, 2006) or by curbing the carnage (e.g., Bove and Ruggeri 2016; Hultman, Kathman, and Shannon 2013, 2014; Salverda 2013). More recently, some articles argue that multiple criteria are required to evaluate today's multifaceted peacebuilding operations that seek to rebuild postconflict countries and their institutions (Diehl and Druckman 2010, 2013).

Preliminaries

After World War II, UN peacekeeping had to contend with some potential and ongoing interstate wars, such as the conflict between Israel and its neighbors, the conflict between India and Pakistan, and rival Greek and Turkish claims to Cyprus. But since 1970, UN PKOs are primarily concerned with intrastate civil wars involving a rebel group and a government. At times, these intrastate wars also include one or more third parties that may be foreign (Regan 1996, 2002). For 1970–2015, Figure 1 indicates the incidence of intrastate and interstate wars based on data drawn from Uppsala Conflict Data Program (UCDP) and Centre for the Study of Civil War, International Peace Research Institute, Oslo (PRIO; 2016). As displayed, intrastate wars far outnumber interstate wars during this period. Intrastate wars rose in number from fifteen in 1975 to thirty-two in 1988. Since the start of 1990, intrastate wars averaged twenty-eight in number annually, with peaks and troughs. The extent of their carnage is partly captured by Figure 2, which displays the annual count of battle-related deaths for 1990–2015 (UCDP 2016). The current peak is associated, in part, with the Syrian civil war with its third-party intervenors that include Russia and

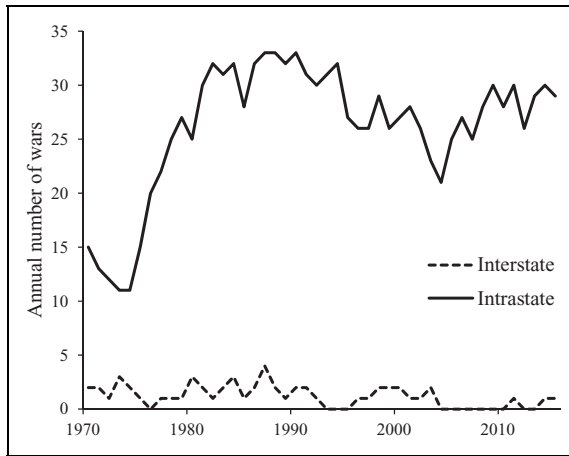


Figure 1. Annual number of intrastate and interstate wars, 1970–2015.



Figure 2. Annual number of battle-related deaths in wars, 1990–2015.

the United States. Clearly, Figures 1 and 2 underscore the need for UN and non-UN peacekeeping actions since 1990.

UN Peacekeeping

UN PKOs may be grouped into four categories of increasing complexity: (i) monitoring and observer missions, (ii) traditional peacekeeping, (iii) peacebuilding, and

(iv) peace enforcement. Monitoring and observer missions are at the consent of belligerents and consist of peacekeepers that observe and report any cease-fire violations. Traditional peacekeeping is also at the consent of adversaries and includes actions by lightly armed troops and police to end hostilities and to maintain peace in a conflict area. It generally consists of actions to interpose UN peacekeepers between adversaries to bring about a cease-fire. At times, traditional peacekeeping may include disarmament, demobilization, and reintegration of rebel forces. Some studies group these first two categories together (Diehl, Druckman, and Wall 1998). Peacebuilding is more complex, for which peacekeeping forces provide humanitarian aid and/or rebuild institutions (e.g., police force). Often, peacebuilding requires a long-term commitment to nation building, wherein actions try to establish free elections, rule of law, and judicial and legislative branches. Following the toppling of the Saddam Hussein and Taliban regimes in Iraq and Afghanistan, respectively, non-UN PKOs possess nation-building goals. Finally, peace enforcement operations involve the use of military force to end hostilities between warring sides, such as UN and non-UN missions in Haiti, Bosnia and Herzegovina, and Iraq. Such missions are the most logistically complex, costly, and risky and require that peacekeepers are sufficiently armed to separate and pacify the opposing sides. After the conflict, peace enforcement typically includes a significant nation-building component. This postconflict need for nation and institution building to manage state–society relations is stressed by Doyle and Sambanis (2000, 2006) and Hartzell (1999).

Any classification of PKOs is arbitrary and not all researchers agree on the same fourfold classification. In a recent article, Diehl and Druckman (2016) offer a finer taxonomy of PKOs that consists of eleven categories. Among others, these mission types include traditional peacekeeping/cease-fire monitoring; humanitarian assistance; election supervision/promotion of democracy; disarmament, demobilization, and reintegration; local security/law and order; and rule of law/civil society.

During 1948–1974, there were just twelve UN PKOs that, with the exception of the failed attempt to end hostilities in the Congo (1960–1964), were mostly small operations to monitor cease-fires or perform traditional peacekeeping. There were only twenty-three UN PKOs during the cold war,² as the Soviet Union and the United States exercised their veto power on the UN Security Council. In fact, there were no new UN PKOs from March 1978 to May 1988. From 1988 to the end of 1997, there were thirty-three new UN PKOs involving Latin America, Africa, the Middle East, Asia, and Europe, some of which included complex peacebuilding and peace enforcement operations. Since the start of 1998, there were twenty-five new UN missions (UN Department of Peacekeeping Operations 2016c).

Figure 3 displays the annual number of ongoing PKOs for 1948–2015, which increased from the end of the cold war in 1991, reaching a peak of twenty-two operations in 2007. UN PKOs averaged fewer than seventeen ongoing missions per year during 1992–2015, compared to just over four missions per year during the cold war. Since 1991, the increased number of missions places augmented peacekeeping personnel and financial demands on the UN.

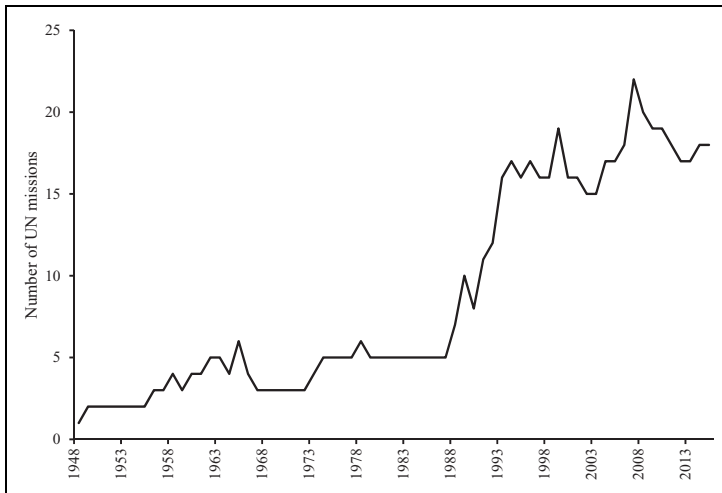


Figure 3. Annual number of ongoing United Nations peacekeeping missions, 1948–2015.

Until 1974, UN peacekeeping expenses were covered by the UN regular budget and voluntary contributions. Such contributions pose a real problem because some derived peacekeeping benefits (e.g., reduced conflict, unimpeded resource supplies, and increased stability) from PKOs are purely public with nonrival and nonexcludable benefits for the global community, thereby encouraging free riding among UN member states (Cornes and Sandler 1996; Khanna, Sandler, and Shimizu 1998). In the early 1960s, the expensive UN Operation in the Congo (ONUC) PKO brought on a financial crisis as the UN had to divert its resources from some UN tasks to cover past peacekeeping expenses. Voluntary contributions did not cover the unanticipated increase in ONUC spending. Financial concerns put the brakes on UN PKOs with only two small missions initiated between September 1965 and September 1973.

The UN needed to develop a permanent financing solution for supporting PKOs not reliant on voluntary contributions or the UN regular budget.³ This solution assumed the form of the UN General Assembly Resolution 3101, passed on December 11, 1973, which established nonvoluntary assessment accounts that assigned members fixed shares of UN annual peacekeeping expenses. In recent years, the five permanent UN Security Council members pay about 22 percent above their regular budget assessment scale for peacekeeping. Thus, if a country is assessed 10 percent of the UN regular budget, then it is assessed 12.2 percent of the UN peacekeeping budget each year. Rich industrial countries, not permanent Security Council members, pay their regular budget assessment shares. Other UN members are partitioned into eight additional assessment classes and cover from 7.5 percent to 90 percent *below* their regular budget assessment scale, depending on their per capita income. Approximately 95 percent of all UN peacekeeping expense are covered by



Figure 4. Total annual assessed contributions to United Nations peacekeeping, 1994–2015 (constant US\$.).

permanent members of the Security Council and rich industrial countries (UN Department of Peacekeeping Operations 2016b). Member states are obliged to pay their assessment within thirty days of billing; nevertheless, countries may exercise some discretion by delaying payments (Shimizu 2005). If a member is in arrears for its assessed peacekeeping payment for the two full preceding years, then Article 19 of the UN Charter provides that the member can lose its vote in the UN General Assembly. During the Reagan administration, the United States managed to maintain its vote by coming close, but not exceeding, this two-year in-arrears threshold.

Figure 4 displays total annual assessed contributions to UN peacekeeping in millions of constant US dollars during 1994–2015. Assessed payments reflect the annual expense of peacekeeping but do not indicate what is actually paid by members as some countries do not meet the year's assessment or else pay past years' arrears.⁴ In Figure 4, there is a fairly steady rise in PKOs' expenditures, consistent with the post-cold war increase and complexity of UN PKOs.

UN members contribute troops on a voluntary basis and are currently compensated at a base rate of US\$1,332 per month for each of their troops or military police (UN Department of Peacekeeping Operations 2016b). Recent top troop contributors include Ethiopia, India, Pakistan, Bangladesh, Rwanda, Nepal, Senegal, Egypt, Ghana, and Burkina Faso. UN peacekeeping personnel payments are covered by the UN assessment account. Countries with inexpensive and poorly trained troops make a net gain by contributing their troops. For example, Gaibullov et al. (2015) estimate select countries' annual cost in US\$ per troop as follows: Bangladesh, \$4,553 (in 2009); Ghana, \$5,555 (in 2012); India, \$9,768 (in 2012); Nepal, \$1,892 (in 2011); Pakistan, \$3,417 (in 2012); and Senegal, \$9,571 (in 2011). Given

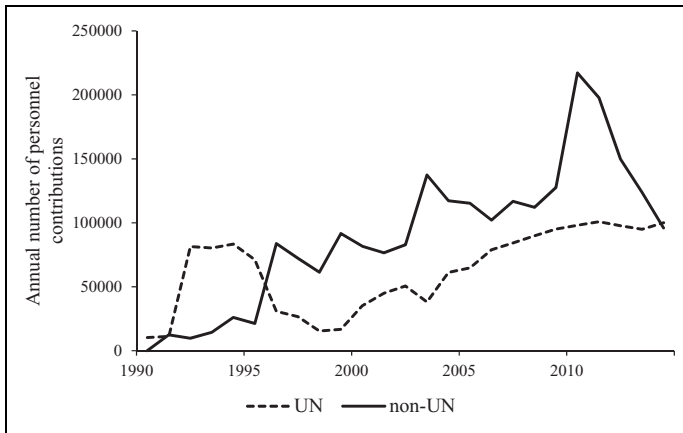


Figure 5. Annual number of personnel contributions to United Nations (UN) and non-UN peacekeeping operations, 1990–2014.

annual reimbursement rates of US\$12,336 during earlier years, these countries achieve country-specific gains from sending their troop on UN PKOs. However, UN per troop reimbursement does not come near to covering the cost of rich countries' well-trained troops. For select rich countries, Gaibullov et al. (2015, 730) calculate that the annual cost in US\$ per troop is as follows: Canada, \$137,054 (in 2011); France, \$119,273 (in 2009); Italy, \$156,181 (in 2011); and United States, \$138,465 (in 2013). With the increase in non-UN PKOs being largely manned by rich countries' military personnel, it is not surprising that their troop contributions to UN peacekeeping declined since 1995.

Non-UN Peacekeeping

Non-UN PKOs really became important after 1990 and the initiation of three large-scale NATO-led peacekeeping missions: the Implementation Force in Bosnia and Herzegovina (1995–1996), SFOR also in Bosnia and Herzegovina (1996–2004), and KFOR in Kosovo (1999–present). Other non-UN PKOs include AU missions in Somalia and Sudan; ECOWAS missions in Liberia, Sierra Leone, and Côte d'Ivoire; EU missions in Bosnia and Herzegovina and in Macedonia; and ISAF in Afghanistan. Generally speaking, countries participating in non-UN PKOs cover their own troop and equipment costs; hence, such missions impose greater expense on participating countries than UN PKOs.

Figure 5 displays the annual total number of peacekeeping troops, police, and military observers contributed to UN and non-UN PKOs, respectively, during 1990–2014.⁵ Prior to 1990, there were no non-UN peacekeeping missions and UN PKOs were generally small compared to the post-cold war era. Until around 1996 and NATO's takeover of peacekeeping in Bosnia and Herzegovina, UN peacekeeping

personnel far outnumbered those of non-UN PKOs. In recent years, UN and non-UN peacekeeping personnel have converged in number and crossed around 2014. The decrease in non-UN peacekeepers is due to the drawdown of these troops in Iraq and Afghanistan. Since 2003, Figure 5 indicates a fairly continual rise in the annual number of UN peacekeepers.

Burden Sharing and Peacekeeping

Given the relatively small amount of resources devoted to peacekeeping prior to 1990, peacekeeping burden sharing was not really an issue—hence, the absence of articles on these burdens before 1997. Once burden sharing became a research topic, the underlying theory is the voluntary provision of public goods. For NATO defense spending, Olson and Zeckhauser (1966) put forward a public good theory of alliance burden sharing, whereby the large, rich allies shoulder the defense burdens for the poor allies owing to the latter's free riding motives. In two *JCR* articles, Bobrow and Boyer (1997) and Khanna, Sandler, and Shimizu (1998) apply a joint product generalization (Cornes and Sandler 1984) of the pure public good alliance model to investigate peacekeeping burden sharing and demand.

To foster understanding of the literature on peacekeeping burden sharing, I first sketch the joint product model of peacekeeping. Peacekeeping effort by country i , denoted by q^i , gives rise to donor- or country-specific benefit, x^i , and global public benefit, z^i , in fixed proportions:

$$x^i = \alpha q^i \text{ and } z^i = \beta q^i, \quad i = 1, \dots, n, \quad (1)$$

for which α and β are positive. Donor-specific benefits may derive from in-field troop training, greater prestige, improved legitimacy, enhanced ally favor, increased trade stability, augmented neighborhood stability, and improved foreign direct investment (FDI) protection. For notation convenience, the model can be readily modified to permit multiple such benefits.⁶ The global public benefit denotes greater stability, derived from a less conflict-ridden world. Since public benefits arise from all peacekeeping contributions, the following holds:

$$Z = \beta(q^i + \tilde{Q}^i), \quad (2)$$

where *peacekeeping spillins*, $\tilde{Q}^i = \sum_{j \neq i}^n q^j$, stem from peacekeeping contributions of other countries. In this representation, n countries support the peacekeeping activity.

A contributor's well-behaved utility function, U^i , is⁷

$$U^i = U^i(y^i, x^i, Z, \mathbf{E}^i), \quad i = 1, \dots, n, \quad (3)$$

in which y^i denotes country i 's consumption of a private, nonpeacekeeping commodity that represents a numeraire or standard of value. \mathbf{E}^i is a vector of taste shifters, such as the distance between the donor and the conflict area, a donor's

trade openness, and the donor's share of FDI in the conflict region (Gaibullov, Sandler, and Shimizu 2009). The form of the budget constraint and the components of the taste-shifter vector hinge on whether financial or troop contributions are being analyzed. I first consider financial contributors for whom,

$$I^i = y^i + p^i q^i, \quad (4)$$

so that the country's income, I^i , is divided between supporting private consumption and peacekeeping. The private good's price is normalized to equal 1 and p^i is the price of peacekeeping. Substituting equations (1), (2), and (4) into the utility function gives the underlying maximization problem for peacekeeping country i as:

$$\max_{q^i} \left\{ U^i [I^i - p^i q^i, \alpha q^i, \beta(q^i + \tilde{Q}^i), \mathbf{E}^i] \right\}. \quad (5)$$

This problem yields first-order conditions (FOCs),

$$\alpha \text{MRS}_{xy}^i + \beta \text{MRS}_{Zy}^i = p^i, \quad i = 1, \dots, n, \quad (6)$$

where MRS_{xy}^i is donor i 's marginal rate of substitution between benefit x and the numeraire⁸ and MRS_{Zy}^i is the MRS between the public benefit and the numeraire. These MRSs are also known as the marginal willingness to pay (MWTP) for x or Z , respectively.

Equation (6) indicates that a Nash equilibrium is attained when each contributor equates the sum of its weighted MWTPs to the unit cost of peacekeeping. If $\alpha = 0$ and $\beta = 1$, then the pure public good model of peacekeeping results; if, however, $\alpha = 1$ and $\beta = 0$, then the contributor-specific model of peacekeeping follows. For $\alpha, \beta > 0$, contributor-specific and purely public benefits are jointly produced from peacekeeping.

There are a number of interesting findings to note at this juncture. First, the social or Pareto optimum is not equivalent to the Nash equilibrium when $\beta > 0$, insofar as the social optimum satisfies:

$$\alpha \text{MRS}_{xy}^i + \beta \sum_{i=1}^n \text{MRS}_{Zy}^i = p^i, \quad i = 1, \dots, n, \quad (7)$$

where the weighted *sum* of the MWTP for the global public benefit of peacekeeping is on the left-hand side. In the Nash FOC, contributors ignore the public benefit spillins that their peacekeeping efforts confer on other countries (i.e., $\sum_{j \neq i}^n \text{MRS}_{Zy}^j$ is ignored), thereby resulting in suboptimal provision. This suboptimality justifies the use of an assessment scheme to finance UN PKOs in a more optimal fashion. Second, rich countries, whose MWTP for the jointly produced peacekeeping benefit is large, may provide sufficient peacekeeping that poorer countries will free or easy ride on their efforts, thus giving rise to an exploitation of the rich by the poor (Olson and Zeckhauser 1966). The degree of exploitation hinges on the ratio $\beta/(\alpha + \beta)$ or

the extent of joint product publicness. The larger the ratio, the greater the anticipated exploitation (Bobrow and Boyer 1997; Cornes and Sandler 1984). This exploitation can be tested by examining the Spearman rank correlation between gross domestic product (GDP) and peacekeeping (PK) share of GDP.⁹ If this correlation is positive and significant, then richer countries are shouldering a greater GDP-adjusted share of peacekeeping, consistent with the exploitation. Third, as β approaches zero, so that donor-specific peacekeeping benefits are the prime consideration, the Nash equilibrium approaches the social optimum and exploitation disappears. In contrast, as α approaches zero, suboptimality and exploitation grow in importance owing to the lack of contributor-specific benefits to motivate peacekeeping efforts. Fourth, as the number of jointly produced contributor-specific benefits grow,¹⁰ contributor countries are more energized to act, thereby limiting suboptimality and exploitation concerns.

The FOC associated with equation (5) implicitly defines the demand for peacekeeping contributions in terms of the exogenous parameters:

$$q^i = q^i(I^i, p^i, \tilde{Q}^i, \mathbf{E}^i), \quad i = 1, \dots, n. \quad (8)$$

This demand depends on the income of the contributor, the price of peacekeeping, spillins from other contributors, and the taste shifters of the contributor. Typically, the unit price of peacekeeping cannot be observed. If peacekeeping is an income normal good, then peacekeeping support should increase with income. When a country's peacekeeping is substitutable for that of other countries, a donor decreases its contributions in response to increased spillins (Cornes and Sandler 1984). If, however, country-specific benefits are complementary to the jointly derived public benefits from peacekeeping, then a country's peacekeeping efforts increases with spillins. Complementarity creates a positive peacekeeping response to spillins because the donor's own peacekeeping efforts are necessary to receive donor-specific benefits (Cornes and Sandler 1994).

Bove and Elia (2011) and Gaibullov et al. (2015) investigate the supply of peacekeeping troops, s^i , based on an explicitly displayed joint product model.¹¹ The choice variable is now peacekeepers rather than financial contributions, q^i . The main change to the theoretical model concerns the opportunity cost of i 's total troops, S^i , for which

$$S^i = s^i + s_D^i. \quad (9)$$

Hence, i 's troops can be allocated to peacekeeping or home defensive purposes, s_D^i . In addition, the price per troop must be reduced by any reimbursement for UN PKOs. The influence of these changes adds s_D^i to the reduced-form troop supply,

$$s^i = s^i(I^i, p^i - p_{\text{UN}}^i, s_D^i, \tilde{S}^i, \mathbf{E}^i), \quad i = 1, \dots, n. \quad (10)$$

In equation (10), $p^i - p_{\text{UN}}^i$ replaces p^i in the case of UN PKOs, given compensation. Moreover, \hat{S}^i denotes troop spillins from other peacekeeping suppliers. An increase in own defense uses for i 's troops is anticipated to decrease the supply of i 's peacekeepers.

Taste shifters also differ on the supply side for providing troops rather than financial support. The suppliers' population is generally a positive inducement for supplying UN peacekeepers. The number of PKOs that a country engages in may be a positive or negative factor in supplying its peacekeepers (Bove and Elia 2011; Lebovic 2004; Victor 2010). This number is a positive factor whether there are training economies from in-field learning but is a negative factor if there is crowding out from other uses. Other taste shifters may concern if the troop supplier is attempting to foster its international legitimacy by offering peacekeepers (Victor 2010). The regime type of the donor may also be a taste shifter if, say, democracies are more inclined to supply their troops for peacekeeping missions (Lebovic 2004). Kathman and Melin (2017) view security concerns at home as motivating troop contributions. For instance, insecure countries facing potential coups, after past coup attempts, may transfer some of their troops abroad to limit this risk. Also, a country in an interstate rivalry may use UN peacekeeping deployment as a means to gain training for its troops, thereby making such rivalries a taste shifter. Some taste shifters, associated with financial contributions to peacekeeping, may also apply to supplying troops. Thus, proximity to a conflict zone or a supplier's economic interests in the conflict zone may affect peacekeeper supply. In short, there are many potential independent variables for affecting the supply of peacekeepers.

Given compensation paid for UN PKOs, but not for most non-UN PKOs, factors that affect a country's ability to supply troops—for example, its population and size of military—may play a more important role for UN peacekeepers supply. Thus, there are differences between the supply determinants of UN and non-UN peacekeepers.

Empirical Findings for Financial Burden Sharing

For 1995, Bobrow and Boyer (1997) use a Spearman rank correlation test between GDP and PK/GDP and find a weak negative correlation for thirty-six main PK contributors. This suggests that there is no exploitation of the rich by the poor for this one year, based on UN-assessed contributions. These authors conclude that this finding supports a joint product representation of peacekeeping. In a subsequent *JCR* article, Khanna, Sandler, and Shimizu (1998) apply a Kendall τ test to NATO countries and two increasingly large samples of UN PKOs financial contributors for 1976–1996. These authors uncover no significant rank correlation before 1991, thus indicating the absence of exploitation.¹² One must remember that UN peacekeeping expenditure was rather small during 1976–1990. Thereafter, there is evidence of exploitation for the NATO allies in terms of their support of UN

peacekeeping missions. This evidence is, however, much weaker for these authors' larger samples that include the NATO allies. For 1991–1996, Khanna, Sandler, and Shimizu (1998) find stronger evidence of exploitation when examining the financing of non-UN PKOs, whose budgets were much greater than concurrent UN PKOs.

Later, Shimizu and Sandler (2002) study burden sharing for UN PKOs and establish disproportionate burden sharing for 1994–1995 and 1998–2000 for NATO allies, in which the rich shouldered the peacekeeping burdens. For a broader sample, the evidence of exploitation was much less clear-cut, suggestive of country-specific joint products. There is some evidence of exploitation when combined financial support of UN and non-UN PKOs is tested. In a subsequent study, Shimizu and Sandler (2010) uncover similar exploitation results for 2001–2006.

The basic story that emerges is that there is no evidence before the end of the cold war that rich countries shouldered the peacekeeping burdens of poorer countries. In recent years, there is more exploitation and implied suboptimality as peacekeeping expenditure grew greatly. This enhanced exploitation is indicative of rising publicness in terms of UN and non-UN PKOs. Nevertheless, there is also evidence of jointly produced country-specific benefits because the exploitation findings do not come in consistently for larger samples of contributors.

To provide a clearer perspective of the determinants of peacekeeping burden sharing, I now turn to empirical estimates of the demand for peacekeeping spending, followed by estimates of the supply of peacekeepers. For 1994–2006, Gaibullov, Sandler, and Shimizu (2009) present alternative estimates of the demand for UN PKOs, based on the twenty-five largest contributors' actual annual payments.¹³ Their three-way error component model addresses potential omitted variable bias stemming from unobservable characteristics that are donor, time, or region-specific. The demand estimates for UN peacekeeping contributions is a function of spending spillins, GDP, OPEN, FDI SHARE, and DISTANCE. To account for spillin endogeneity, these authors apply a two-stage least squares estimator with a set of instruments. OPEN and FDI SHARE capture a donor's trade and investment interests in the conflict region, while DISTANCE is the distance between the donor's capital and that of the conflict country. These three independent variables reflect potential donor-specific interests in the conflict region, in sync with the joint product model.

For UN PKOs, the spillin elasticity is near one in value. This absence of free riding stems from the assessment accounts, which also influences the unit value of the spillin elasticity as financial contributions to peacekeeping are institutionally mandated to rise together. If these authors had used assessed, rather than actual, payments, the spillin elasticity would have been precisely one in value. None of the contributor-specific proxies are significant, so that contributors are apparently not driven by private interests with respect to financing UN PKOs. During the study period, the bulk of UN missions are in sub-Saharan Africa, where public, but not donor-specific interests, are motivating UN members' action.

A completely different outcome emerges from financial support given to non-UN PKOs, where all three donor-specific proxies are significant (Gaibullov, Sandler, and Shimizu 2009). Nearness to the conflict region motivates a country's financial support of non-UN peacekeeping, as does its trade and FDI interests in the conflict region. Proximity to the conflict greatly increases contributing countries' interest in bringing peace so as to avoid negative externalities from a continuing conflict. The spillover elasticity is positive and significant, indicative of complementarity between the peacekeeping-induced public and donor-specific joint products. GDP is, however, not a significant factor in their panel estimates. When investigated from a *financing vantage*, peacekeeping missions are partitioned: UN mission for global public benefits and non-UN missions for peacekeeper-specific benefits. This suggests that future PKOs with few contributor-specific benefits are best made into UN peacekeeping missions. Because many of the primary contributors to non-UN PKOs are the United States and its allies, there is a bias for such missions to be located in regions where these countries have strong interests, such as Europe, the Middle East, and Asia.

Empirical Findings for Troop Burden Sharing

There are many more peacekeeping troop burden-sharing than financial burden-sharing studies for two reasons. First, there is really no data source for financial contributions to non-UN missions. Gaibullov, Sandler, and Shimizu (2009) construct their own non-UN PKOs financial contributions based on the number of troops, thereby providing a lower bound for these contributions. International Institute for Strategic Studies (1990–2015) and Stockholm International Peace Research Institute (2016) have data on non-UN troop numbers. Second, there are no assessment accounts for UN or non-UN troops, making all such supplied personnel voluntary, which fosters the study of burden sharing.

Although troop burden-sharing studies differ by sample countries, sample missions, sample regions, and time periods, most studies appeal to the joint product model as their theoretical foundation with a marked emphasis on donor-specific benefits. Each study emphasizes a different set of such benefits, but troop earnings are an important private motivator for most UN studies (Bove and Elia 2011; Gaibullov et al. 2015; Victor 2010). In his *JCR* article, Lebovic (2004) examines just UN PKOs during 1993–2001 and shows that democratic countries participate in more missions and send more peacekeepers. Lebovic sees democracies as contributing to UN PKOs as a means of bolstering their international stature, a contributor-specific benefit. Past participation in UN PKOs is a significant inducement for a country's future participation or contributions. Also, the donor's population fosters troop contributions. In a complementary study, Victor (2010) focuses on UN and non-UN PKOs in Africa during 1989–2000 and finds that countries with less legitimacy are predisposed to support peacekeeping in Africa. In addition, poor countries send peacekeepers as a means of gaining compensation for their poorly trained

troops. This is also true for ECOWAS and AU peacekeeping missions, which are partly underwritten by the EU and the United States (Tardy 2013). States with larger militaries contribute more peacekeepers. By sending their troop abroad on PKOs, Victor (2010) views countries as reducing the risks of coups at home (also see Kathman and Melin 2017).

In an important study, Bove and Elia (2011) investigate peacekeeper supply for UN and non-UN PKOs during 1999–2009. They present a carefully crafted joint product model with a participation decision stage, followed by a troop supplying stage. Bove and Elia (2011) find that proximity to the conflict provides a contributor-specific motive, in agreement with Gaibullov, Sandler, and Shimizu (2009). Moreover, poorer countries with large military forces supply more UN peacekeepers, consistent with seeking to profit from supplying peacekeepers. Bove and Elia's (2011) proxy for the value of these countries' troops supports this inference. For non-UN missions, conflict intensity is the primary driver of troop supply, aimed at reducing regional instability. Bove and Elia (2011, 699) conclude that "contributor-specific benefits play the same role in UN and non-UN peacekeeping missions." There are problems with this conclusion because their reduced-form estimating equations have no spillin term by which to judge the relative publicness of the two forms of peacekeeping.

This concern is rectified by Gaibullov et al. (2015), who present spatial panel estimates of peacekeeper supply for UN and non-UN PKOs during 1990–2012. These authors establish that UN peacekeeper supplies are primarily motivated by poor countries' gains from their troop compensation. In contrast, non-UN missions display public benefits derived from troop spillins. Thus, for peacekeeper supply, Gaibullov et al. (2015) demonstrate that UN missions are more motivated by contributor-specific mercenary gains, while non-UN missions are more motivated by public benefits. Publicness depends on institutional arrangements in which assessment accounts increase the privateness of UN troop contributions and limits the privateness of financial contributions.

In an innovative article, Ward and Dorussen (2016) offer a network twist to the joint product model of troop burden sharing. These authors argue that foreign policy complementarities are additional inducements for countries to supply peacekeepers to particular UN missions during 1990–2011. By joining other countries possessing a similar foreign policy stance, countries may obtain benefits at home with voters. Their analysis is done at the mission level. Ward and Dorussen (2016, 402) show that "countries contribute a larger proportion of peacekeepers if they are more centrally located in the policy-preference network, but the effect is non-linear." In their study, country-specific benefits arise from policy complementarities, democracy, population, common colonies, US contributions, and distance to the conflict area, thereby supporting many earlier articles' motives for contributing peacekeepers.

The peacekeeping burden-sharing literature has greatly profited from the alliance burden-sharing literature in terms of theory and empirical tools. Unlike the alliance literature, the peacekeeping literature has shown how the degree of publicness and,

hence, burden sharing are influenced by institutional arrangement in terms of UN or non-UN leadership.

Effectiveness of Peacekeeping

Unlike peacekeeping burden sharing, peacekeeping effectiveness does not rest on an explicit formal theoretical model. Moreover, peacekeeping effectiveness or efficiency does not refer to some notion of social optimum as in the case of burden sharing. Nevertheless, this effectiveness may be viewed as a transnational public good that provides nonrival and nonexcludable benefits by achieving the stability aim of peacekeeping missions. If a mission's primary goal is to end a conflict and to keep it from recurring, then effectiveness benefits to neighbor countries arise from reduced refugee flows, increased trade, and less supply disruption. Similarly, the world gains from greater regional stability, increased commerce, reduced health risks, enhanced resource flows, and reduced uncertainty.

In many ways, peacekeeping effectiveness poses a more intricate question to answer than burden sharing because effectiveness is harder to identify especially with post-cold war multitask peacebuilding and peace enforcement missions.¹⁴ The big issue of effectiveness is how to gauge it. There are at least three key debates about effectiveness. One revolves around selection bias and a second hinges on whether a single criterion is sufficient for judging efficiency. A third debate concerns the temporal criterion for ascertaining a successful outcome—for example, how long must peace be maintained after a PKO ends hostilities to be deemed a success.

The peacekeeping effectiveness literature is related to studies that investigate the determinants of a stable peace following an intrastate war. In a *JCR* article, Regan (1996) shows that outside intervention into a civil war may facilitate reduced hostility, but he does not address such interventions' effect on the duration of the war. In a follow-up *JCR* study, Regan (2002) uses a hazard model to ascertain the duration of intrastate conflict. He finds that third-party interventions extend the length of intrastate war, unless the intervention is *biased* to one of the adversaries. Neutral interventions, orchestrated by international organizations, tend to prolong the conflict. This suggests that traditional UN PKOs may be ineffective. This finding is consistent with an earlier study that examined UN interventions in 147 *interstate* crises during 1946–1988 (Diehl, Reifschneider, and Hensel 1996). Such interventions often involved diplomacy; but in some instances, a UN PKO occurred. These authors set a steep standard of effectiveness—no militarized conflict within ten years of the UN intervention. Diehl, Reifschneider, and Hensel (1996) deduce that UN intervention of any kind was no better than no intervention in heading off a militarized interstate crisis. This provocative result hinges on their rather long-term no-crisis criterion. Hartzell, Hoddie, and Rothchild (2001) apply a shorter temporal benchmark to intrastate wars during 1945–1998, namely, a negotiated peace succeeds when tranquility is maintained for five years. Their study indicates that these

settlements possess a better prognosis of peace maintenance for low-intensity civil wars of long duration. Territorial guarantees for threatened groups also bolster the ability of peace settlements to maintain the peace. Notably, peace settlements with a third-party enforcer, such as the UN, have a better chance of success. This enforcement may arise from a UN PKO, thus suggesting a role for such missions, especially those of peacebuilding where supporting institutions are put into place.

Because the success or failure of a PKO may depend on the factors inducing the deployment of missions, these factors must be controlled when ascertaining missions' effectiveness. Failure to control such considerations may result in a selection bias (Fortna 2004, 2008; Gilligan and Sergenti 2008). For the conflict country, Mullenbach (2005) identifies supportive deployment factors that include the absence of a major power alliance, previous interventions by a major power, earlier interventions by the UN or a regional organization, and the lack of formidable military forces. Fortna (2004) finds that UN PKOs were not dispatched to where civil wars ended in victory or a peace treaty. Thus, these missions were more likely sent to hard-to-settle cases of intrastate war stalemate (see also Ruggeri, Dorussen, and Gizelis Forthcoming). Deployment of PKO missions is not dependent on democracy in the conflict country, the aims of the rebels, the export of primary commodities, or being a former colony of a permanent UN Security Council member. Fortna (2008) also shows that PKOs were deployed to high-casualties intrastate wars.

Most of the effectiveness literature relies on a single criterion, dependent on some measure of peace duration or low probability of conflict recurrence. For post-World War II civil wars, Doyle and Sambanis (2000, 2006) investigate the effectiveness of UN PKOs in preserving the peace for *two years and five years* after the intervention. However, their emphasis is on the two-year preservation runs. They also use two measures of peacekeeping success: lenient and strict. The latter requires that a moderate level of democracy is maintained during hostility-free years. Hence, their "single criterion" is conditioned on some maintenance of democracy. Among many results, they find that UN PKOs kept the short-term peace better if there was a peace treaty at the time of the PKO. Moreover, larger UN missions had greater effectiveness than smaller ones. When examining the four kinds of UN PKOs, they discover that multidimensional peacebuilding missions displayed the greatest effectiveness, presumably because these operations addressed some of the root causes of hostilities by increasing local capacity and curbing local sources of hostility. After controlling for selection bias, Fortna (2004) applies a hazard model to show that traditional UN PKOs and observer missions reduced the risk of war by 86 percent and 81 percent, respectively. Additionally, peacebuilding missions limited this risk by more than 50 percent, while peace enforcement limited this risk by just under 50 percent.

To control potential selection bias, Gilligan and Sergenti (2008) apply a technique where a control group, with conflicts but no UN peacekeeping intervention, is matched against a treated group, with conflicts and UN peacekeeping intervention. Their analysis is limited to the post-cold war civil conflicts in Africa. This matching

method must first establish that key independent variables for the control group are a close match to those of the treated group. After the match is established, the authors use a Cox proportional hazard model to ascertain the effectiveness of UN missions on the duration of peace or on the duration of war for the at-peace and in-war samples, respectively. Their results indicate that UN PKOs limited the hazard of recurring war by over 85 percent for countries at peace at the time of mission deployment. However, these missions are found to have no significant effect on shortening conflict when deployed to in-war countries. According to the authors, these results would have been missed if the selection bias had not been addressed.

Two recent articles focus on UN PKOs' ability to stem battlefield and civilian casualties as a single criterion of effectiveness. For ongoing African civil wars during 1992–2011, Hultman, Kathman, and Shannon (2014) analyze the effectiveness of UN PKOs deployments. They find that UN troops, but not UN police and observers, significantly reduced battlefield casualties. Their findings are sanguine about the benefits of UN peacekeeping in ongoing conflicts, given UN-signaled guarantees to the belligerents. In an earlier article, Hultman, Kathman, and Shannon (2013) show that sufficiently large UN troop and police deployment also limited civilian casualties. Both articles underscore that larger UN deployments are more effective in curbing the carnage.¹⁵

Diehl and Druckman (2010, 2013) raise the valid point that the application of a single criterion of effectiveness may be problematic, given the prevalence of multidimensional peacebuilding and peace enforcement missions that have nation-building aspects. Ending conflict may offer little solace in a postconflict state with dire humanitarian needs, little rule of law, prevalent arms, and dysfunctional government. In a recent article, Diehl and Druckman (2016) show that over 80 percent of post-1948 UN PKOs possess two or more of eleven identified goals. Thus, the effectiveness of a PKO intended to maintain peace, institute free elections, bolster human rights, foster local security, and achieve disarmament, demobilization, and reintegration of rebels must be judged on multiple dimensions. This is easier to accomplish for a single mission than a large n of PKOs. The problem with multiple criteria arises because each criterion has its own distinct unit of measurement. As such, it becomes very difficult to aggregate performance on each criterion into a single overarching measure of effectiveness. To engineer an aggregate measure, a researcher must overcome at least two formidable hurdles. First, a common scale must be devised to transform the performance of each criterion into a measure that can then be aggregated. Second, weights must be devised to apply to each criterion's value along this common scale because the fulfillment of some criteria is more important than others. For example, maintenance of peace is surely more important than, say, free elections. Essentially, this weighting scheme represents the identification of a social welfare function for the stakeholders. In most cases, there are many stakeholders with diverse goals and tastes, which make the weighting exercise even more formidable. Unfortunately, operationalizing multidimensional criteria of effectiveness is no easy feat, leading me to conclude that statistical analysis of

multidimensional effectiveness is some ways off. The need for a multicriteria study is also germane to non-UN peacekeeping.

Concluding Remarks

This selective survey shows that differing institutional arrangements for UN and non-UN PKOs result in diverse burden-sharing outcomes. For UN PKOs, assessment accounts limit the importance of donor-specific benefits compared to non-UN PKOs where financing is voluntary for most of these missions. When the focus is on UN troop contributions, compensation provides country-specific benefits for poor countries with cheap soldiers during the post-cold war era. A unifying theme is that myriad donor-specific benefits motivate troop contributions to UN PKOs, particularly those in Africa. In terms of peacekeeping effectiveness, UN PKOs foster peace in the short term and limit casualties. The development of a multicriteria index of PKO effectiveness is a worthwhile aim that needs refinement.

There are numerous directions for future research. First, burden sharing should also be investigated based on mission characteristics—for example, location, stakeholder diversity, and mission goals. Past studies lump all UN or non-UN PKOs together to focus at the country level when judging burden sharing. Second, improved measurement of non-UN PKOs' expenditure is needed to determine better how burdens for such missions are shared. Third, the study of burden sharing needs to be married with efforts to ascertain effectiveness. That is, the influence of equal or disproportionate burden sharing on PKO effectiveness should be studied. For instance, a non-UN PKO, primarily underwritten by a single country, may be more effective as there is little disagreement as to the overriding goal. Thus, disproportionate burden sharing may promote effectiveness. Fourth, an operational multiple-criteria measure of peacekeeping effectiveness needs to be developed. The methodology of the human development index may provide a way forward for combining different measures of societal well-being into an aggregate effectiveness index. Fifth, effectiveness of non-UN missions needs to be examined.¹⁶

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Notes

1. Assessment schedules change rarely over time (Solomon 2007). See Shimizu (2005) for more details on assessment accounts.
2. The cold war lasted from 1947 to 1991, ending with the collapse of the Soviet Union.
3. Information in this paragraph comes from Solomon (2007, 747-48).
4. Data on *actual* payments by each United Nations (UN) member can be found in UN (1995–2016) *Status of Contributions* for 1994–2015. Data for earlier years can be found in earlier reports of *Status of Contributions*.
5. For non-UN missions, peacekeeping personnel data are drawn from International Institute for Strategic Studies (1990–2015). Stockholm International Peace Research Institute (SIPRI) *Yearbook* (1995–2016) is an excellent source of information of multilateral peacekeeping operations (PKOs). In recent years, SIPRI (2016) is maintaining a database on multilateral PKOs. Data on peacekeepers supplied to UN PKOs are extracted from UN Department of Peacekeeping Operations (1990–2015) when constructing the UN series in Figure 5.
6. This requires that x^i be replaced with vector (x_1^i, \dots, x_r^i) , where there are r jointly produced country-specific benefits. For joint product k , $x_k^i = \alpha_k q^i$, $k = 1, \dots, r$.
7. Well-behaved means that utility is strictly increasing in y^j , x^j , and Z , strictly quasi-concave, and continuous.
8. From consumer theory, marginal rate of substitution (MRS) denotes the ratio of the two goods' marginal utilities. That is, $MRS_{xy}^i = (\partial U^i / \partial x^i) / (\partial U^i / \partial y^i)$.
9. Some articles use a Kendall τ instead of the Spearman rank correlation, since this τ can allow other important parameters to be kept constant (Khanna, Sandler, and Shimizu 1998).
10. The left-hand sides of equations (6) and (7) now has $\sum_{k=1}^r \alpha_k MRS_{x_k y}^i$ replacing αMRS_{xy}^i .
11. The use of the term supply or demand is arbitrary.
12. Khanna, Sandler, and Shimizu (1998) use actual, not assessed, peacekeeping contributions, which are also true of Shimizu and Sandler (2002, 2010).
13. In an earlier article, Khanna, Sandler, and Shimizu (1999) provide single-equation demand estimates for each of twenty-five contributors to UN PKOs during 1975–1996. These sample countries account for over 96 percent of UN PKOs support. In most cases, spillins are positive and significant, indicative of contributors spending in concert with one another.
14. Bertram (1995) warns that peacebuilding missions raise three dilemmas for the UN Charter: sovereignty, neutrality, and security versus democracy. Her *Journal of Conflict Resolution (JCR)* article is path breaking in highlighting the effectiveness challenge of these multitask PKOs.
15. Bove and Ruggeri (2016) show that UN mission diversity of peacekeepers, in terms of fractionalization and polarization, decreased violence directed at civilians. Recently, Ruggeri, Dorussen, and Gizelis (2017, Forthcoming) use geocoded data on UN troop deployment to measure the local effectiveness in reducing violence.
16. In a recent *JCR* article, Kim (2017) shows that UN interventions lead to better postwar quality of life outcomes than unilateral interventions.

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