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# Economic Development in Peacekeeping Host Countries

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## Abstract

To what extent does United Nations peacekeeping assist in laying the foundations for economic development? We conduct the first exploratory analysis of the effect of peace operations on the economic development of the host countries. We highlight the need for new inferential methods to reveal the extent to which robust conclusions about the success of missions can be drawn. We then apply synthetic control methods to 11 peace operations deployed since the end of the Cold War. Our results suggest that, in seven cases, peacekeeping does not seem to significantly affect economic rehabilitation. In two of the remaining four cases, the impact is negative rather than positive, pointing to persistent hurdles to identification. (JEL codes: D74 and P16).

**Key words:** economic development, peacekeeping, treatment effects

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## 1. Introduction

Economics and security are heavily intertwined: economic motivations often exert an important role in affecting the decision to go to war, whereas conflict matters for the economy and can shape the paths to economic development. According to the World Development Report 2011, countries trapped in repeated cycles of war and violent crime are badly served by the global framework for peacekeeping relief. The report argues that there is currently a lack of external support for restoring peace and creating jobs in the short term to reduce the attractiveness of turning to violence. In fact, the current arrangements for dealing with conflict—with distinct roles for military peacekeeping to bring conflicts to an end—reflect the 20th-century pattern of relatively clearly defined civil and interstate war. Yet, breaking the cycle of violence requires an international system ‘refitted to address 21st century risks’ (World Bank 2011, p. 3). The UK’s Department for International Development, the world’s second-largest donor of development assistance, has also been reassessing the need to work alongside military peacekeeping missions in promoting reconstruction and development (see e.g. FT, 11 April 2011).

This article is part of a growing debate about the relationship between peacekeeping interventions and state-building. More precisely, we investigate whether and to what extent military peacekeeping can assist in laying the foundations for economic development. The first United Nations (UN) peacekeeping mission was deployed in 1948 to keep a truce after the creation of Israel and was a small, unarmed observer force. Since 1948, the UN has launched more than 70 operations and at the time of this writing (December 2016), the global number of current operations is 16, with almost 105,000 military personnel. The number of UN peace operations has particularly increased after the end of the Cold War. Whereas during the entire Cold War, the UN launched just 18 missions, since 1990, the UN has launched nearly 50 missions. Crucially, as part of this expansion, UN peacekeeping missions play an increasing role in implementing and enforcing peace agreements in war-torn societies. Moreover, many missions launched since 1999 have carried the mandate to fight to protect civilians, a sharp break from the pre-Cold War era when peacekeepers used force only in self-defense.

The 1990s and 2000s were also characterized by a sharp decline in most deadly civil conflicts numbers. The Human Security Report 2005 attributes the decline in the number and intensity of wars to the increase in the deployment of these peace and security operations.<sup>1</sup> Most of the empirical research on the performance of peacekeeping suggest indeed that peacekeeping reduces the probability of a conflict resuming (Fortna 2004, 2010; Sambanis and Doyle 2007; Sambanis 2008; Doyle and Sambanis 2010).

Yet, in the past two decades, UN peace operations have seen drastic changes in the framing of their mandate, which often includes development assistance, economic recovery, and institution building. In fact, the UN has long been concerned with helping countries torn by conflict by creating the conditions for lasting peace. In October 2014, Secretary-General Ban Ki-moon established a High-level Independent Panel on UN Peace Operations to make an assessment of the state of UN peace operations today. The report suggests that ‘inclusive and equitable economic development is a pillar for sustaining peace. The UN should take into account economic dimensions, including livelihoods and jobs and transparent and accountable management of natural resources, including revenues, land and, particularly in zones of conflict, basic services’ (High-Level Independent Panel on UN Peace Operations 2015, p. 37). The report also states that the deployment of UN peacekeeping can act as an economic and capacity stimulus to the local community.

There is surprisingly little research on the economic impact of peacekeeping, and non-security-related outcomes have been rarely a focus of research. Against this background, we offer a novel analysis of the economic impact of peacekeeping missions in the host country.<sup>2</sup> Peacekeeping operations are normally carried out in poor countries with nearly absent state capacity and large informal markets. This situation makes them very susceptible to external shocks. Their primary contributions to economic development are indirect and lie in restoring or maintaining the security needed to engage in economic activities. A state of security is both a prerequisite for a functioning formal economy and an incentive for

1 ‘The 80% decline in the most deadly civil conflicts numbers that has taken place since the early 1990s owes little to any of the above factors. Here the evidence suggests the main driver of change has been the extraordinary upsurge of activism by the international community that has been directed toward conflict prevention, peacemaking and peacebuilding’ (Human Security Report 2005, p.155).

2 We use ‘host country’ to indicate the place where UN peacekeepers are stationed.

investment. If peace operations are successful in delivering a safe and secure environment, then the mission should laid the foundation for economic development. Without security there is no investment, given the uncertainty of future returns. Deploying peacekeeping forces has also more direct economic effects. Peacekeeping often includes civil engineering projects and provides humanitarian aid. Many services are also supplied locally to the mission, such as administration, accommodation, and transportation. The direct impact ranges from increased local spending to international supply chains. Moreover, a country's level of economic development affects its vulnerability to repeated conflicts. Economic development shapes the opportunity costs of returning to war (Walter 2004; Collier et al. 2009); over time economic growth and development are also the critical determinants of a low risk of a return to civil war (Sambanis 2008).

There are a number of available methods used to analyze the impact of peacekeeping, including accounting procedures (Carnahan et al. 2007), statistical models of individual countries (Mvukiyehe and Samii 2010) or of large  $N$  cross-sections or panels (Doyle and Sambanis 2000), and case studies (Durch 2006). Smith (2014) discusses the empirical techniques used to estimate the economic costs of war, which is similar to estimating the benefits of peacekeeping. We use the synthetic control method developed by Abadie and Gardeazabal (2003), a systematic way to choose comparison units in comparative case studies, to complement the quantitative studies on the impact of peacekeeping. To evaluate the impact of peacekeeping, we compare conflict-torn countries hosting peace operations with non-treatment groups made up of countries that have had recent conflicts but not peacekeeping missions. Overall, our results suggest that peacekeeping does not significantly affect economic development. Yet, there are several lingering threats to identification, and our results should be interpreted with caution. We begin Section 2 with a short overview of the potential effects of peacekeeping on economic outcomes. Section 3 discusses the counterfactual problem. Section 4 describes the synthetic control method and its main advantages in this study, and Section 5 presents our empirical results. Finally, Section 6 provides concluding remarks.

## 2. The Economic Impact of Peacekeeping

The economic impact of military interventions on the host economy can be both indirect, through improved security and health-care services—usually provided by affiliated actors such as non-governmental organizations (NGOs)—and direct, from the demand for local goods and services to job training. Four studies on the local economic impact of peacekeeping are offered by Carnahan et al. (2007), Solomon (1999), Mvukiyehe and Samii (2010), and Caruso et al. (2017). A comprehensive survey of peacekeeping economic impacts at both local and regional levels, including trends of how military interventions may develop until 2020, is offered by Tejpar (2009).

The indirect effects are possibly the most substantive. Conflict leads to a dramatic disruption of economic activity at both macroeconomic and microeconomic levels. Some economic consequences include high levels of unemployment, great inequality in the distribution of resources, food insecurity, loss and damage of existing capital and infrastructure, and reduced investment (Blattman and Miguel 2010). Gates et al. (2012) find that war has also detrimental effects on progresses in meeting the UN Millennium Development Goals, such as on the reduction of poverty, hunger, infant mortality, and on access to water and primary education. Whereas less-developed societies recover only a

portion of their pre-war performance, the least-developed societies endure the highest costs and fall into lasting poverty traps (Kugler et al. 2013). Peacekeeping operations may have an important place in helping war-torn countries to develop and sustain their own institutions and to revitalize the economy.

In fact, most of the empirical studies suggest that peacekeeping reduces the level of violence and increases the likelihood of peace. Beardsley (2011) finds that peacekeeping limits the spatial and temporal contagion of conflict, and Melander (2009) demonstrates that peacekeeping operations have a preventive effect in reducing the risk of genocides. Costalli (2014) examines the location of UN deployments in the Bosnian civil war, and finds that whereas the UN deployed where the most severe violence took place, peacekeepers had little effect on subsequent violence. According to Elbadawi (2008), UN peacekeeping generally succeeded in maintaining peace up to 5 years after the end of civil wars, although in many instances short-term gains are not sustained in the longer run, particularly after the UN mission ends. We also know that the size of a mission matters, as it influences cooperation between the so-called blue helmets and locals (Ruggeri et al. 2013), violence against civilians, and battle deaths between belligerents (Hultman et al. 2013, 2014). Finally, Bove and Ruggeri (2016) find that not only the size but also the diversity within the peacekeepers are associated with lower levels of hostilities.

If peacekeeping facilitates the transition from war to peace, then we should observe positive effects on a number of economic variables. Real improvements in security resulting from peacekeeping missions should boost economic activities of the host countries in the short-run, whereas the restoration of law and order should set the stage for long-term development. Caruso et al. (2017) explore the relation between the presence of UN peacekeepers and cereal production in Sudan, where the agricultural sector is adversely affected by conflict. They find that the presence of UN peacekeepers increases the production of crops, thus indicating a positive impact of peacekeeping on the local economy. Furthermore, the security umbrella provided by the peacekeepers encourages non-state actors, such as NGOs, and government development agencies, to direct aid and assistance to the host countries. In fact, many peacekeeping missions start at the same time as development assistance programs.

Peacekeeping operations have also a direct impact on the host country economy through a number of channels. The deployment of peacekeepers affects the housing, retail and service markets, and the labor force. We should expect an upward surge in economic activity as a consequence of the international mission subsistence allowance spent on the local economy, local mission procurements, and wages paid to locally hired staff. Indeed, peace missions often offer a number of job opportunities to locals, and part of the civilians and military wage is spent in the host country.<sup>3</sup> Accordingly, the [High-Level Independent Panel on UN Peace Operations \(2015, p. 78\)](#) claims that peace operations ‘can and should strengthen both the economy and national capacities by sourcing their goods and services requirements locally to the extent possible’. Often peacekeepers bring substantial resources into the host country, undertake civil engineering projects such as building schools and hospitals, and provide humanitarian aid including food and medicines. Also, disarmament and

3 Peace operations employ national personnel to fill predominantly administrative tasks (including interpreters) and clerical and support roles. More senior-level positions include mechanics, technicians, and clerical staff in areas such as procurement, inventory, accounting/financing, travel, and personnel (see Tejpar, 2009).

demobilization programs often involve material benefits to ex-combatants, such as farm and building material, transportation, and job training (Fortna 2010).

The relatively large amount of economic resources poured into a developing country may overheat the local market and create a bubble economy. Bove and Gavrilova (2014) explore the effect of North Atlantic Treaty Organization (NATO) military deployment in Afghanistan on the local economy. They find that International Security Assistance Force (ISAF) deployment is associated with an increase in the levels of wages and commodity prices. The literature on the effects of aid on growth in developing countries provides some theoretical foundations on the economic effect of peacekeeping. In the traditional Harrod–Domar model of economic growth and in variants of this model (Easterly 1997), foreign aid closes the domestic savings gap to increase investment or finance imports, leading to higher growth. However, several recent empirical studies have not been able to reproduce this result robustly across different time periods and countries (Tsikata 1998; Easterly 2003; Djankov et al. 2008). In fact, the estimated effectiveness of aid is highly sensitive to the choice of estimator and the set of control variables (Hansen and Tarp 2001). The situation when a country receives a large influx of foreign assistance bears also resemblance to the so-called ‘Dutch Disease’ phenomenon (Michaely 1981; Corden and Neary 1982; Paus 1995). The inflow of foreign exchange to pay for the extraction of a major natural resource leads to an overall decline in the tradable goods sector of the economy. Demekas et al. (2002) found that although humanitarian aid does reduce long-term capital accumulation, such as in the traditional aid-growth literature, it enhances welfare in the short run, particularly when labor supply is low. Moreover, the reconstruction aid may not result in Dutch Disease, since higher factor productivity in both sectors could offset the contraction of the tradable goods sector.<sup>4</sup> In both strands of the literature, the net effect is not obvious and has to be determined from the data.

The failure to integrate top-down estimates, usually regression based, with the more microeconomic bottom-up estimates, often using accounting methods, compounds the problem of a clear identification of the economic effects of peacekeeping. Carnahan et al. (2007) collected field data from the Chief Financial Officers or Chief Procurement Officers in eight active missions.<sup>5</sup> Data suggest an immediate upsurge in economic activity associated with the restoration of basic security. They also find that the spending from international staff allowances (e.g. purchase of local goods and services), local procurement, and on national staff wages provided a significant stimulus to the local economy. In some cases the local impact made a significant contribution to the gross domestic product (GDP) of the host country. By assuming a Keynesian multiplier of 1.5, in four of the nine missions the local impact was over 6% of GDP, and in two cases it was over 10%. Solomon (1999) estimates the direct, indirect, and induced impact of the United Nations Mission in Haiti (UNMIH) on the Haitian economy. He compares Haiti’s situation to a small isolated community in Canada with a military base and uses a similar multiplier to estimate the spin-off effect of the mission, which is estimated to amount to \$34 m in 1995–1996, a negligible share of the country GDP. Finally, using survey and administrative data from post-war Liberia, Mvukiyehe and Samii (2010) do not find evidence that deployments were substantial contributors to local social infrastructure and find a negative relationship between

4 The higher demand for domestic goods and services may be met without considerable reallocation of labour and capital, allowing both sectors to expand (Demekas et al., 2002).

5 UNMIK (Kosovo); UNMISSET (Timor-Leste); UNAMSIL (Sierra Leone); MONUC (Democratic Republic of Congo); MINUSTAH (Haiti); ONUCI (Côte d’Ivoire); UNMIL (Liberia); and ONUB (Burundi).

peacekeeping deployment locations and NGO contributions to social infrastructure. Nonetheless, they suggest that deployments seem to stimulate local markets and boost employment possibilities and incomes. The differences in findings arise for a variety of reasons, for example because these studies involve different implicit counterfactuals.

### 3. Counterfactual

There are no agreed criteria for the success of a peacekeeping mission, partly because of the lack of agreement on goals and what would have happened without a deployment (Bove and Smith 2011). In establishing the counterfactual—for example, what would Angola have been like in 2000 had there been no peacekeeping in 1995—many judgments are required about which impact is a consequence of the intervention and which would have occurred anyway without the mission. Benefits that would have occurred without the mission need to be clearly identified to show what outcomes can be attributed to the mission and whether the original objectives were met. However, there is often little information either about precise objectives or about what would have happened had peacekeeping not been undertaken. A peacekeeping mission may coincide with an improvement in security, but it is often difficult to judge whether this improvement would have occurred without the mission. Many studies on the success of peacekeeping try to control for the difficulty of the missions, e.g. whether there was already peace when peacekeepers were deployed or the observed level of violence, but these indicators do not always explain all of the variation in outcomes, and there is still room for unobserved factors to be influencing the difficulty of missions. This may cause bias in the results. The direction and magnitude of the bias will depend on whether peacekeepers and the UN in particular are going to missions that are harder or easier than the observed data suggest. Gilligan and Stedman (2003) and Mullenbach (2005) find that the deployment of peacekeepers is determined by whether the combatants have signed either cease-fires or peace treaties. If there are unobserved factors that make missions easier (e.g. the belligerents' desire for peace) and also make peacekeepers more likely to deploy, the benefit of peacekeepers will have been overestimated.

A quantitative method for generating a hypothetical counterfactual is to look at the outcomes where there has been no treatment, that is a control group. By seeing what happens in countries that are similar but have no peacekeeping missions, the non-treatment group, we could form counterfactuals for those countries that have peacekeeping missions, the treatment group. The experiences of the non-treatment group would form the basis of a hypothetical counterfactual for the treatment group. This matching technique plays important roles in many areas of economics; it was famously used by Becker (1973, 1974) to characterize marriage markets and fully developed as an econometric evaluation estimator by Heckman et al. (1998).

Most often it is applied in settings where the interest is in the average treatment effect for the treated and there is a large reservoir of potential controls (Imbens and Wooldridge 2009). In fact, the selection of comparison units is crucial in determining the success of peacekeeping missions because using inappropriate comparisons may lead to erroneous conclusions. If comparison units are not sufficiently similar to the units representing the case of interest, any difference in outcomes between these two sets of units may be a mere consequence of the disparities in their characteristics (King et al. 1994; Abadie et al. 2015). Gilligan and Sergenti (2008) correct for the nonrandom assignment of peace operations using matching techniques and find that UN interventions after the end of the Cold War

are effective in post-civil-conflict scenarios, while interventions when civil wars are still ongoing have no causal effect. Given the matched pairs, the treatment effect within a pair is estimated as the difference in outcomes, and the overall average as the average of the within-pair difference. Yet, the classical Mill's method of difference, upon which the matching method is based, is limited by the presence of unmeasured factors affecting the outcome variables as well as heterogeneity in the effect of observed and unobserved factors. Moreover, given the lack of a large reservoir of controls, that is comparable countries that have no peacekeeping missions, suitable single comparisons often do not exist, leading to some problematic pairwise comparisons. For example Azerbaijan is used as the sole control unit for Croatia, Bosnia, Lebanon, and Tajikistan, while Niger is chosen as the untreated unit to match Tajikistan.

We use the method proposed by [Abadie and Gardeazabal \(2003\)](#) and construct an artificial control group that is more similar to the treatment group in the initial period than any of the control groups on their own. The method weights the units in the control group to construct a synthetic counterfactual that replicates the initial conditions and the outcome potential of the countries of interest before exposure to peacekeeping. This approach does a better job at reproducing the characteristics of intervened countries than any single comparison country alone. In particular, it makes explicit the contribution of each comparison unit to the counterfactual of interest. More importantly, the method corrects for the presence of unmeasured time-varying factors affecting the outcome variables and for the heterogeneity in the effect of both observed and unobserved factors ([Abadie et al. 2015](#)). This should mitigate the bias stemming from the omission of important time-varying variables that affect both the evolution of per capita GDP as well as the presence of a peace operation. [Bove et al. \(2017\)](#) examine the relationship between the case study, synthetic control, and large- $N$  panel-data approaches, and provide a range of estimates of the effect of civil war on economic growth.

#### 4. Empirical Strategy

Consider  $i = 0, 1, 2, \dots, G$  countries that have experienced a civil war at time  $T_0$ , with  $1 < T_0 < T$ , and a peace operation occurring in country 0. Then, denote by  $D_{0t} = 1$  the treatment status, that is peacekeeping. The treatment effect for country 0 at time  $t$  on the outcome of interest  $Y_{0t}$ , that is per capita GDP, is defined as follows:

$$\alpha_{0t} = E[Y_{0t}|D_{0t} = 1] - E[Y_{0t}|D_{0t} = 0] \quad \text{for } t = T_0 + 1, \dots, T. \quad (1)$$

The potential outcome for the post-treatment period in the absence of the treatment is estimated as a weighted average of periods  $t = T_0 + 1, \dots, T$  outcomes in the  $i = 1, 2, \dots, G$  control groups,

$$E[Y_{0t}|D_{0t} = 0] = \sum_{i=1}^G \lambda_i \bar{Y}_{it}, \quad (2)$$

where  $\bar{Y}_{it}$  is a generic linear combination of pretreatment outcomes, and  $\lambda_i$  are weights, satisfying  $\sum_{i=1}^G \lambda_i = 1$  and  $\lambda_i \geq 0$ , to prevent extrapolation outside the support of the data. The weights are chosen to make the weighted control country resemble the treatment country prior to the treatment. That is, the estimation problem amounts to choosing the vector of

weights that minimizes the difference between the treated country, and the  $\lambda$ -weighted average of the control countries over the period in which none of them had been exposed to the treatment, that is:

$$\left\| \begin{array}{c} Y_{0t} - \sum_{i=1}^G \lambda_i \bar{Y}_{it} \\ Y_{0T_0} - \sum_{i=1}^G \lambda_i \bar{Y}_{iT_0} \end{array} \right\|,$$

where  $\| \cdot \|$  denotes a measure of distance. To determine the weights, we use all pre-intervention outcomes, as well as information on human capital, investment, and geographic characteristics (Barro and Sala-I-Martin 2003). In fact, as in Abadie and Gardeazabal (2003), we use an algorithm that minimizes the distance in terms of pretreatment outcomes. Specifically, let  $X_1$  be the  $(k \times 1)$  vector of pre-intervention outcomes for the treated country, and  $X_0$  be the  $(k \times i)$  matrix that includes the same variables for the unaffected countries; also, let  $V$  be a  $(k \times k)$  diagonal matrix with nonnegative entries measuring the relative importance of each predictor. Conditional on  $V$ , the optimal vector of weights,  $\Lambda^*(V) = (\lambda_1, \dots, \lambda_G)'$ , must solve

$$\min(X_1 - X_0\Lambda(V))'V(X_1 - X_0\Lambda(V)) \quad (3)$$

subject to  $\lambda_i \geq 0$  and  $\sum_{i=1}^G \lambda_i = 1$ . The vector of weights  $\Lambda^*(V)$  defines the combination of untreated control countries which best resemble countries hosting peacekeeping in economic growth before the intervention. We then select  $V$  such that the mean squared prediction error of pretreatment outcomes is minimized, that is:

$$\frac{1}{T_0} \sum_{t \leq T_0} \left( Y_t - \sum_{i=1}^G \lambda_i^* Y_{it} \right)^2. \quad (4)$$

When the number of pre-intervention periods in the data is large, as in our case, matching on pre-intervention outcomes helps control for the unobserved factors affecting the outcome of interest. Once it has been established that the unit representing the case of interest and the synthetic control unit has similar behavior over extended periods of time prior to the peace mission, a discrepancy in the real per capita GDP following the peace mission is interpreted as produced by peacekeeping itself.

The idea is that the future path of the synthetic control group, consisting of the  $\lambda$ -weighted average of all the control groups, mimics the path that would have been observed in the treatment group in the absence of the treatment.

We use a fairly standard set of economic growth predictors, such as per capita capital stock, human capital index, altitude, mean distance to the nearest coastline, the percentage of land in geographical tropics, an indicator of soil suitability, percentage of population affected by malaria in 1982, and the number of civilian casualties caused by civil war. We also include the lags of per capita GDP. Using all outcome lags as separate predictors improves the pretreatment fit of the dependent variable and should help mitigating the endogeneity stemming from omitted variable bias. Yet, it also makes most of the remaining predictors less relevant, that is they are assigned a small weight, but the choice of predictor variables remains a

controversial issue (Bove et al. 2017). The real per capita GDP, capital stock, and the human capital index are taken from the Penn World Table data set (version 9.0). Country geography data are from Gallup et al. (1999), and information on malaria is from Gallup and Sachs (2001). Information on peace operations is from the UN Department of Peacekeeping Operations.<sup>6</sup> Finally, data on civil wars and casualties are taken from the Uppsala Conflict Data Program (UCDP)/Peace Research Institute Oslo (PRIO) Armed Conflict data set, although information on battle deaths is not available for some countries in the donor pool. Accordingly, a civil war is defined as a conflict between a government and a non-governmental party, where the use of armed forces between the two parties results in at least 25 battle-related deaths in one calendar year. We consider a 20-year time window so as to have 10-year pre-peacekeeping data to calibrate the synthetic and 10-year post-peacekeeping to forecast the long-run effect of peacekeeping. The synthetic control method requires a number of comparative units, but it is sometimes difficult to find unexposed units at war that approximate the most relevant characteristics of the countries exposed to peacekeeping during exactly the same period. Therefore, we include donor countries which have been at war in the period considered, although not necessarily for the same number of years, that is there may not be a perfect overlapping in terms of war duration between the treated and untreated units when, for example, one of the unexposed unit ceases to be at war during the peacekeeping deployment in the country of interest. We report in the online appendix the weights of each control country in the synthetic case studies as well as comparisons of pretreatment characteristics between synthetic and actual case study.

One question is whether the estimated effects are statistically significant. This is quite important, since large sample inferential techniques are not appropriate for comparative case studies with a small number of treated and control units (Abadie et al. 2010). The synthetic control method enables us to conduct falsification exercises, the so-called ‘placebo studies’, an alternative mode of quantitative inference. This mode is based on the premise that the confidence that a particular synthetic control estimate reflects the actual impact of peacekeeping would be undermined if we obtained estimated impacts of similar or greater magnitudes in cases where the intervention did not take place. The idea is to apply the synthetic method to every potential control in our sample to assess whether the estimated effects for the country affected by peacekeeping is large relative to the distribution of the effects estimated for countries chosen at random and not exposed to the intervention.

## 5. Case Study Selection

A distinctive feature of the synthetic control method is the possibility to select *ad hoc* case studies to examine the economic consequences of peacekeeping in civil wars. As a preliminary step, we identify a pool of feasible experiments that meet the following conditions: (i) the treated country hosted a peace operations at the earliest in 2004, as we focus on 10-year post-operation window<sup>7</sup>; (ii) there exists a sufficient set of countries with civil wars that do not host peacekeeping in the 20-year time window to provide a pool of similar countries; and (iii) in case of subsequent peace operations, we select the first one in chronological order.

6 <http://www.un.org/en/peacekeeping/documents/operationslist.pdf>

7 With the exception of the Chad and Sudan, where we only have 7 and 9 years post-civil war, respectively.

Of the range of missions covered by the definition of peacekeeping, not all operations are alike. Fortna (2010) provides a useful classification. Although there is a widely shared consensus that the use of civilian police missions and observers are needed in crisis management and human security, comparing them with ‘full scale’ multidimensional peacekeeping missions may be problematic. As missions differ in scope and mandate, we exclude purely observers missions (e.g. UN Observer Mission in Georgia) and civilian police missions, for example UN Civilian Police Mission in Haiti), and focus only on operations with a military component, as they are expected to have a more meaningful direct and indirect effect on economic development.<sup>8</sup>

By meeting the above conditions, we end up with 11 case studies.<sup>9</sup> In the next section we therefore present results for the remaining 11 cases.

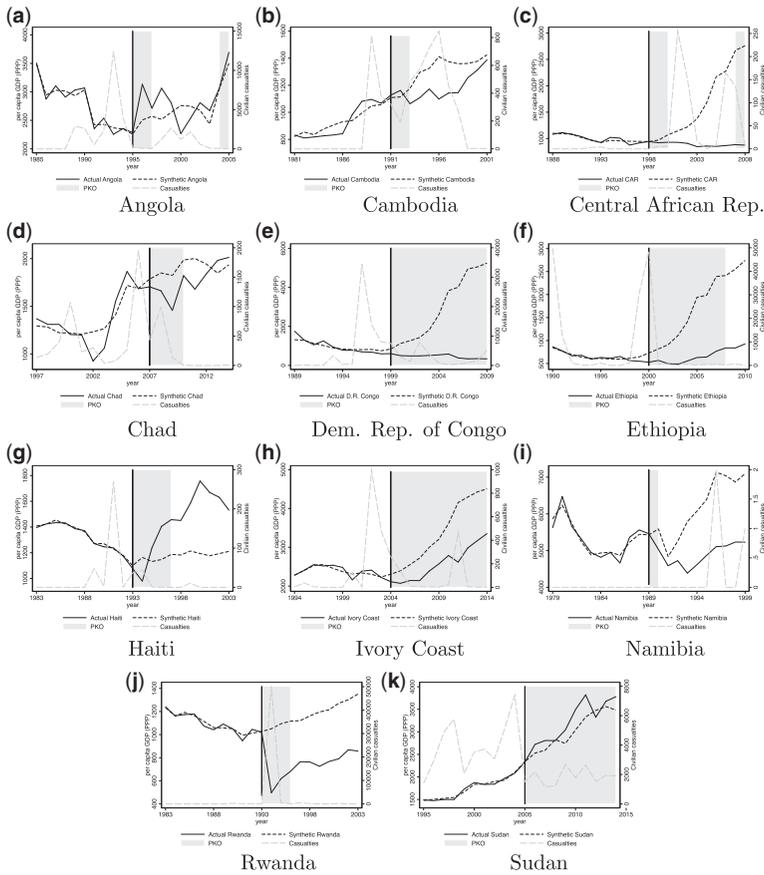
## 6. Results

Our results are reported in Figures 1 and 2. Figure 1 is on the effect of peacekeeping on per capita GDP. The solid line shows the evolution of per capita GDP in the treated unit, the dotted line represents the counterfactual, and the gray area indicates the actual duration of peacekeeping. Furthermore, we add for each country the number of civilian casualties every year, taken from the UCDP/PRIO Armed Conflict data set, to measure the intensity of war. Our analysis focuses on Angola, Cambodia, Central African Republic, Chad, Democratic Republic of Congo (DRC), Ethiopia, Haiti, Ivory Coast, Namibia, Rwanda, and Sudan. As explained above, we construct the synthetic of, for example, Angola as the convex combinations of countries in the donor pool that most closely resemble Angola in terms of pre-intervention values of economic development. The treated countries and the synthetic control behave similarly in most part of the sample, with few notable exceptions; in fact, the per capita GDP in the synthetic Cambodia and Chad does not closely track the trajectory of this variable in the treated units for the entire pre-intervention period. This is because there is no combination of civil war countries in our sample that can efficiently reproduce the time series of the per capita GDP in Cambodia and Chad during the pre-intervention periods. In all the remaining cases, the synthetic provides a sensible approximation to the per capita GDP that would have been achieved in the host countries in the post-intervention period in the absence of peacekeeping.

Note that the estimation of the effect of peacekeeping on per capita GDP is the difference between per capita GDP in the host country and its synthetic version after the deployment. In fact, in virtually all cases, slightly before or immediately after the year of the deployment, the two lines begin to diverge. Yet, the impact is somewhat heterogeneous. Angola, Haiti, and Sudan seem to have benefited from peacekeeping, and the discrepancy between the two lines suggests a positive effect during the deployment. In Central African Republic, Chad, DRC, Ethiopia, Ivory Coast, Namibia, and Rwanda, the impact of the mission appears negative. In most of these cases, however, the reasons might be found in

8 In fact, in addition to the traditional roles played by most peace operations, i.e. monitor and ensure compliance with ceasefire, provide security—most of these operations today perform tasks such as human rights monitoring, police reform, institution building, and economic rehabilitation.

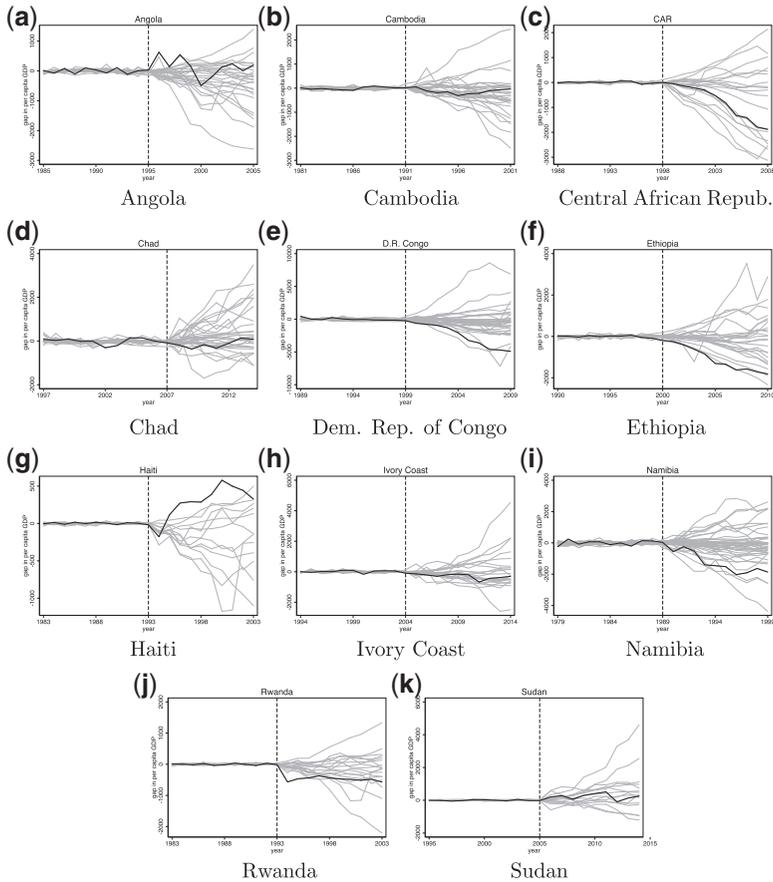
9 We were not able however to find reliable synthetic controls for the following five cases: ONUB-2004 in Burundi; UNIFIL-1978 in Lebanon; UNOMIL-1993 in Liberia; ONUMOZ-1992 in Mozambique; and UNAMIL-1999 in Sierra Leone.



**Figure 1.** Per capita GDP for Angola, Cambodia, Central African Republic, Chad, DRC, Ethiopia, Haiti, Ivory Coast, Namibia, Rwanda, and Sudan.

the unabated intensity of conflict even after the deployment of peacekeepers, as in the case of Cambodia, or in the periodic post-intervention cycles of violence, like in Central African Republic. In other words, in many operations peacekeeping is not followed by the expected decrease in violence, and therefore the operation is less likely to have a tangible effect on economic development. In some of these cases, like in Namibia, the negative difference between the two series continues to grow until the end of the sample period.

Rwanda is an exceptional case. The country experienced a sharp decline in per capita GDP, while its synthetic continued a moderate upward trend. This does not however imply that the drop in the GDP was caused by the deployment of peacekeepers but rather indicates that we need to look into the typology, size, and background of the operation. Rwanda is clearly an outlier for the enormous number of civilians killed during the civil war. At the same time, the operation received much attention for the limitations of its rules of engagement. In a similar vein, the operation in Namibia focused narrowly on monitoring the peace process and elections as opposed to multidimensional approaches, which include capacity-building functions such as the rehabilitation of essential infrastructure and assistance in economic reconstruction and development, such as in Cambodia or Haiti.



**Figure 2.** Placebo Gaps in per capita GDP for Angola, Cambodia, Central African Republic, Chad, DRC, Ethiopia, Haiti, Ivory Coast, Namibia, Rwanda, and Sudan [excludes countries with pre-intervention Mean Squared Prediction Error (MSPE) 1.5 times higher than treated's].

Moreover, the timing of the deployment is crucial as peacekeeping missions can be deployed before a potential war or during or after an actual war. Take the DRC. In 1999 the UN authorized a force of nearly 6000 troops, the United Nations Organization Mission in the Democratic Republic of the Congo, known by the French acronym, MONUC, to monitor the cease-fire. However, since its deployment, heavy fighting continued between rebels and government forces and between Rwandan and Ugandan forces. Only in 2002 Rwanda and the DRC signed a peace deal known as the Pretoria Accord, which however did not stop a subsequent wave of violence and insecurity throughout the country. Moreover, the diverging time series between the synthetic and the real DRC during the period just prior to the peacekeeping intervention (1992–1999) originates from unprecedented levels of violence and conflict in the region.

To evaluate the significance of our estimates, we check how often we obtain results of this magnitude if we choose states at random for the study instead of peacekeeping host countries. We run placebo studies by applying the synthetic control method to all countries in our sample. If the synthetic control had failed to fit per capita GDP for the real host

country in the years before the peacekeeping intervention, we would have interpreted that much of the post-intervention gap between the real and the synthetic country was also artificially created by a lack of fit, rather than by the effect of intervention. Similarly, placebo runs with poor fit prior to the intervention do not provide information to measure the relative rarity of estimating a large post-intervention gap for a country that was well fitted prior to intervention. Figure 2 shows placebo runs while leaving out countries with a MSPE greater than one and half the MSPE of the treated country. The gray lines represent the gap associated with each of the runs of the test, that is the gap in per capita GDP between each country in the donor pool and its respective synthetic version. The superimposed black line denotes the gap estimated for the real host countries (e.g. Angola). We use conventional test levels and consider the effect of peacekeeping insignificant when more than 10% of the permutations are either above or almost identical with the baseline effect in the treated countries in the short run.<sup>10</sup> As the figure makes apparent, the placebo creates gaps of magnitude similar to the ones estimated for most of the peacekeeping host countries, with the exception of Angola, Haiti, Ethiopia, and Rwanda. Recall that in Angola and Haiti, peacekeeping had a positive effect on the GDP, whereas in Ethiopia and Rwanda, the effect was negative. We cannot reject the null hypothesis of no treatment effect of peacekeeping on per capita GDP for the remaining countries.

There are however a number of caveats that we should carefully bear in mind. First, data on civil war and conflict intensity are often very sketchy. It is not always clear when fighting starts or stops and whether a particular case qualifies as a civil war. For example, some data sets on civil wars include a case for the secessionist rebellion in Angola, while others do not. Second, the decision of when and where to deploy peacekeepers and where to send them is not random, that is treated and control units be of different nature. Although the synthetic control method mitigates endogeneity concerns by accommodating for unobservable (and time-varying) confounders, it may still fall short of addressing this selection issue. This might be particularly severe for case study with very high level of violence and conflict, for example the genocide in Rwanda. Interestingly, the direction of this potential bias is not obvious and may actually mitigate a potential positive impact of peacekeeping, when, for example, peacekeepers go to conflicts that are more intractable in a way that has not been accounted for by the synthetic control method. In fact, most of the literature suggests that peacekeepers are sent to more difficult cases, those with characteristics that make peace less likely to last (Fortna 2010). Third, it is sometimes difficult to attribute benefits to a peacekeeping mission when there are development agencies doing work at the same time. It is frequently the case that peacekeeping missions start at the same time as increased developmental assistance; this is because the additional security provided by peacekeeping allows developmental agencies to become more involved. There are cases where peace operations and development programs run side by side, so that causality cannot reasonably be attributed to the UN peacekeeping operation alone. Fourth, the impact of peacekeeping on economic development may encompass a multitude of diverse effects which can possibly balance themselves out (conflict recurrence, aid, and assistance programs to the host countries). Finally, the 10-year window for pre-intervention period to calibrate the synthetic control might not suffice for ruling out the presence of unobserved

10 Abadie et al. (2010) examine whether more than 5% of the fake experiments in the potential controls are above the outcome variable of the treated unit. Given the smaller sample size, we use the 10% level.

factors that could steer the post-treatment trajectories of per capita GDP. Unfortunately the very unstable and uncertain economic situation of the cases considered cannot allow us to rely on longer time series for the pre-operation period.

## 7. Conclusions

Since the end of the Cold War, UN peacekeeping missions are being increasingly involved in development efforts, often working side by side with humanitarian organizations, NGOs, and aid agencies. Peacekeeping operations have an essential role in bringing about all the conditions for successful reconstruction, including establishing law and judicial systems, rebuilding infrastructure, monitoring human rights, and electoral processes; yet, it is not clear whether they have any effect on the economic rehabilitation of host countries. Previous studies on peacekeeping place too large a weight on the security dimension, neglecting additional positive benefits accruing from the operation, in particular its impact on development outcomes. In fact, peacekeeping missions aim to improve security and, through security, the economic recovery of war-torn countries, which is critical in supporting incentives for peace. Whereas most of previous research has focused on conflict-related outcomes, such as the recurrence of wars, we investigate whether there are development consequences associated to peacekeeping missions.

One of the most challenging area in peace operations is to determine what impact can be attributed to the operation as against other factors. Given the high number of influences that can blur the attribution of causality, there are many obstacles to attributing benefits. Because comparison units are meant to approximate the counterfactual of the case of interest without the intervention, we restrict the donor pool to units with outcomes that are thought to be driven by the same structural process as the unit representing the case of interest and that were not subject to peacekeeping during the sample period of the study. In particular, we use the synthetic control method and make use of a combination of comparison units selected as the weighted average of all potential comparison units that best resembles the characteristics of the case of interest. Our findings suggest that, with few exceptions, peace operations do not appear to have significant positive effects on the economic development of host countries. Yet, our results are exploratory and partial, and it is still unclear whether peacekeeping has the potential to kick-start the local economy, or at least to provide a stimulus. Given the limited number of quantitative works on the economic impact of peacekeeping and the lack of consensus on a number of important empirical questions, additional empirical research in this area is certainly needed.

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