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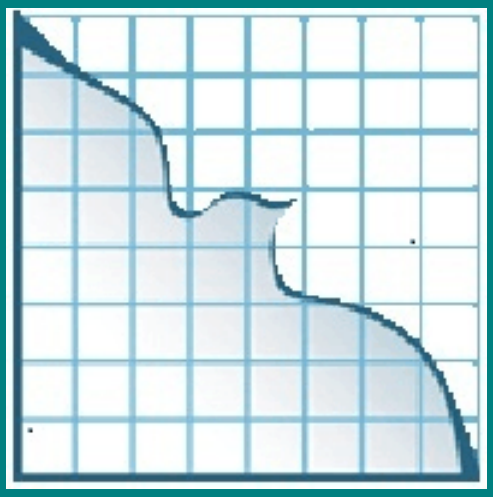

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THE EFFECTS OF AGRICULTURAL COOPERATIVES ON LAND CONFLICTS, VIOLENCE, AND COMMUNITY TRUST: HOUSEHOLD-LEVEL EVIDENCE FROM BURUNDI

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Abstract

Facing a population growth rate of 3.2 percent and dwindling per capita land access, many rural communities in Burundi are experimenting with land cooperatives to collectivize risk, share information, reap economies of scale (if any), and build trust between association members. We use unique field data gathered by one author (Almquist) during a one-shot evaluation of a cooperative association operating in three villages in southern Burundi. We employ pseudo difference-in-differences logistic regression models to assess the effects of the cooperative on the (1) incidence of reported land conflicts between 2008 and 2011, (2) perceived community land inequality, (3) reported acceptability of land inequality, (4) violence toward acquaintances, (5) trust of colleagues, and (6) trust of neighbors. We find no evidence that cooperatives affect the incidence of land conflicts, but do find that residents of cooperative villages exhibit heightened perceptions of, and lower tolerance for, land inequalities; they are less likely to report violence toward acquaintances, but cooperative members are more likely to do so than nonmembers; and nonmember residents of active cooperative villages report less trust toward neighbors. We speculate that one weakness of cooperatives is that they may heighten the risk of violence between members and nonmembers.

Burundi is one of the mostly densely populated and highly agrarian countries in Africa. Access to scarce farmland has played a significant role in motivating the recurrent mass violence characterizing much of its post-colonial history. Neighboring Rwanda has countered similar issues with government pushes for knowledge-based economic growth and rural land redistribution. Burundi, by contrast, boasts no similar efforts, despite a 3.2 percent population growth rate that threatens to double the number of mouths to feed in 22 years and raises the likelihood of a relapse into violent conflict. Faced with dwindling per capita land access, many rural communities are experimenting with land cooperatives as a means to collectivize risk, share information, bargain collectively, and reap economies of scale (if any). Such cooperatives, usually requiring a single public or private large landowner to donate a parcel to the enterprise, may also serve to bring neighbors into contact in a cooperative endeavor, thereby building trust between association members.[1]

The study reported on here leverages a unique dataset gathered in 2011 by one of the authors (Almquist) in the course of a one-shot evaluation of a cooperative association called Plant with Purpose operating in three villages in southern Burundi. We employ pseudo difference-in-differences logistic and ordered logistic regression models to assess the effects of the cooperative on the (1) incidence of reported land conflicts between 2008 and 2011, (2) perceived community land inequality, (3) perceived acceptability of land inequality, (4) violence toward acquaintances, (5) trust of colleagues, and (6) trust of neighbors. We conclude by speculating that one weakness of cooperatives—in addition to the common criticism that they are short-term solutions to a long-term problem—is that they may heighten the risk of violent conflict between members and nonmembers.

The article is structured as follows. Section 1 provides an in-depth overview of Burundi's post-colonial history, paying particular attention to the fraught issue of land distribution. Section 2 discusses ongoing debates over whether and how land inequality causes conflict, literature pertaining specifically to such questions in Burundi and its neighbor, Rwanda, and introduces a small model of how cognitive dissonance could

cause greater psychic discomfort among nonmembers of a cooperative than existed beforehand. Section 3 explains our pseudo difference-in-differences logistic and ordered logistic models. Section 4 provides the results of our models, and section 5 concludes with a discussion of policy implications.

In a study of an agricultural cooperative effort spread across three villages in southern Burundi, we find no evidence that cooperatives affect the incidence of land conflicts, but do find that residents of cooperative villages tend to exhibit heightened perceptions of, and lower tolerance for, land inequalities. We find residents of cooperative towns less likely to report violence toward acquaintances, but that cooperative members are more likely to do so. And while cooperative members report greater trust in colleagues, residents of active cooperative towns tend to report less. We conclude by speculating that one weakness of cooperatives, in addition to the common criticism that they are short-term solutions to a long-term problem, is that they may heighten the risk of violent conflict between members and nonmembers.

Land matters in Burundi's history

Prior to the advent of European colonialism in the Great Lakes region of Africa, Burundi was a part of a jointly ruled territory known as Ruanda-Urundi. The populations were composed of various clan-based lineages in a predominantly agricultural and pastoral economy, with roughly eighty-five percent of the population classified as Hutu, and roughly fourteen percent Tutsi. The remaining minority was a pygmy people known as the Twa. What today have become more hardened ethnic lines of "Hutu" and "Tutsi" were in many ways sociopolitical and economic distinctions applied interchangeably to individual clan members. The terms were fluid, and were often applied to denote a particular status within a patron-client relationship, with the Hutu ordinarily occupying the subordinate position of the recipient, and the benefactor donning the role of Tutsi. This was the case even if the recipient was from the Tutsi lineage, or if the benefactor originated from a Hutu clan. Lines between the two groups were historically blurred, and notions of age-old historic grievances between Hutu and Tutsi cannot be substantiated in the precolonial ethno-historical record.[2]

The 1885 Berlin Conference and the ensuing "scramble for Africa" left Ruanda-Urundi first in the possession of Germany. After its defeat in world war one, colonial Belgium then acquired the territory. Interconnected clan lineages increasingly transformed with the growing colonial influence of European Catholic missionaries, who propagated the manipulative Hamitic hypothesis—which favored Tutsis—and facilitated the hardening of ethnic lines in their newly obtained territory. As Belgian settlers began to perish in droves from the threat of new diseases in the Great Lakes region, the colonial power began to construct a ruling framework that would facilitate the exploitation of local populations without suffering the risk of excessive death of its own citizens. By playing one group against another in the colonial territories, Belgium was able to exact resources and tribute from her colonial subjects from a safe distance back in Europe. The missionaries remained, devoted to the cause of Christianizing and civilizing the native populations. They thus became a liaison for the Belgians, and subsequently advocated strongly for a minority Tutsi aristocracy to rule the domestic affairs of the territory, while the Hutu peasantry—the significant majority of the population—were made to work the land. This socially constructed ethnic cleavage took root and persisted, even as colonial independence movements began to arise the world over. The Tutsi population gradually acquired majority control of the bureaucratic administration of the government, the domestic security forces, as well as the military apparatus, and Tutsis were represented in disproportionately large numbers in institutions of higher education.[3]

The crystallizing of hostile ethnic relations in Burundi was greatly facilitated by the Hutu revolution in Rwanda, which took place from 1959 through 1962, an event which facilitated Belgium's granting of independence to both Rwanda and Burundi in 1962. Burundi's ruling Tutsi elite then realized that the only way to prevent such outbursts of ethnic violence and revolution in their own country would be to retain control of the state at all costs. Subsequent authoritarian Tutsi rule encountered periodic Hutu uprisings and coup attempts in the wake of independence. These were met with brutally repressive responses, including what one scholar has labeled "the first recorded case of genocide in the Great Lakes Region of Africa" occurring at the hands of the government, in 1972. In roughly four months of violence that year, the Tutsi army and security forces killed more than 200,000 Hutus, and displaced hundreds of thousands more from their villages. More than a reprisal for armed Hutu extremism, the government's response was a premeditated attempt to eradicate any existing or potential Hutu competition for control of the government, indicated by the rounding up of Hutu schoolchildren to be slaughtered, an overt attempt to clear the way for multiple future generations of uncontested Tutsi rule.[4]

The genocide of 1972 undoubtedly shaped the trajectory of Burundi's future. Ethnic relations took on a violent, vengeful character. The most prominent Hutu leaders were killed or run out of the country, leaving the government, the army, the security forces, and the education system nearly homogeneously populated by Tutsis. Elite Tutsis had access to state employment and resources, while the Hutu population was excluded from those resources and the patronage links that

accompanied them. The majority of the Hutu population was forced to work the land, resulting in a population disproportionally dependent upon subsistence farming for survival. This pattern led to a post-genocide period of relative law and order, with successive authoritarian governments maintaining a repressive peace by deploying armed security forces to crush dissent. However, unlike the genocide of 1972, an army-led coup in 1988, followed by brutally violent repressions that killed roughly 30,000 Hutus in northern Burundi, caught the attention of the world community. A combination of pressure from human rights advocacy groups, a wave of democratization movements across Africa, and multilateral international sanctions imposed on an already weak economy led the government to pursue the drafting of a democratic constitution in 1992, with a call for democratic multiparty elections to take place the following year.[5]

In a sweeping victory in July of 1993, Melchior Ndadaye, a Hutu candidate from the Front for Democracy in Burundi (FRODEBU), became the first civilian and democratically elected president in Burundi's history. Ndadaye's capture of a staggering 71 percent of the vote in internationally certified free and fair elections was mirrored later that month when FRODEBU captured 65 of the 81 seats in the national parliament. In a nation radically polarized between ethnic groups representing significantly disproportionate shares of the total population, the elections of 1993 portended more than just a political defeat for the ruling minority Tutsi cadres. In addition to fears of reprisal killings by newly empowered Hutus, the specter of losing control of valuable occupations in the government and the military—and the patronage links that radiated from them—was inconceivable. In a chronically underdeveloped country of subsistence farmers, where the average civil servant salary places that individual in the top six percent of income-earners, losing these links threatened dramatic economic and social decline. Thus, fears of both physical and economic threats to their survival motivated the Tutsi-dominated army to take matters into its own hands, whereupon they assassinated Ndadaye on 21 October 1993, barely four months after he was elected.[6]

Burundi's peaceful transition to democracy thus exploded into violent ethnic conflict, with Hutu rebel factions and the Tutsi-led army slaughtering civilians from rival ethnic groups in fighting that has been characterized as a "war of massacres." Over the course of the next fifteen years, the Burundian violence directly consumed nearly 300,000 lives, and displaced more than one-sixth of the total population, with a number far surpassing that figure perishing from illness and indirect effects of the war. Multiple rebel groups refrained from joining the peace talks resulting in the Arusha Agreement of 2000, leaving the parties at the table forced to sign "a peace accord without peace." The continued fighting left national infrastructure, the healthcare system, and the economy in ruins, with Burundian real per capita GDP dropping from US$240 in 1986 to just US$80 in 2002, and just one-third of the per capita rate at the time of independence forty years earlier. Moreover, while the country's economic performance has improved over the past half decade (by 2012, per capita income had risen to US$240 again), Burundi remains one of the world's most underperforming economies. For instance, it lagged behind Sub-Saharan Africa over the 1970-2007 time period both in terms of economic growth (2.1 percent to SSA's 3.8 percent) and investment (10.8 percent of GDP to SSA's 21.3 percent).[7]

Burundi's post-independence history in many ways embodies a conflict trap, whereby violent conflict devastates an economy, destroying gains of development, and thereby perpetuating a vicious cycle of violent conflict. The United Nations has elected to intervene in Burundi in order to mitigate the likelihood that the country relapses into violent civil war yet again. Focusing specific attention on Burundi through the Peacebuilding Commission, established in 2006, the United Nations has pressed for democratic elections, the dissemination of democratic institutions, and a power-sharing agreement between ethnic groups in both the political and military apparatuses. However, aside from a few journalistic reports, international attention has largely ignored the potential for future violent conflict in Burundi, and particularly to shrinking access to land across the country.[8]

As a result of the generational cycles of violent conflict, hundreds of thousands of Burundians fled their homes. At the height of the most recent violence, more than one of every six inhabitants of Burundi was displaced either inside or outside of the country, with many individuals still waiting to repatriate after the genocide in 1972. In addition to the nearly 400,000 refugees waiting to be repatriated into Burundian society in 2006, the nation played host to more than 24,000 refugees from the Democratic Republic of Congo. With the notable exception of the work of Liisa H. Malkki, little research has been done on the disruption such displacement has rendered upon Burundian agrarian society, or to the relationships of the displaced.[9]

Burundians choosing to flee violence in their communities effectively forsook their livelihoods. With thousands of refugees from decades-old violent conflicts remaining outside of the country, there was little guarantee of the displaced recovering anything they left behind. As roughly 90 percent of Burundians make their living in the agricultural sector, the majority scraping by as subsistence farmers, there was virtually no way to take significant assets into exile. Those interviewed during the field-research often reported fleeing in the night

with young children tied to their backs and a few nights' worth of food, thus leaving behind their houses, their farms, and their livestock. A large proportion of returnees interviewed reported having difficulties reclaiming their former houses and property. Virtually all reported that their livestock had either perished or were stolen during their sustained periods of displacement.

Acutely complicating the ability for returning Burundians to reclaim land and property forsaken during episodes of violent conflict was the adoption of the Burundian Land Code of 1986. After the 1972 genocide, the Tutsi government often sold Hutu land-holdings as patronage rewards. The Land Code of 1986 additionally provided that individuals holding receipts of purchase from the government would thereby legally own the land after fifteen years. Further, codified into national law were certain customary laws that allowed land abandoned for thirty years by its original owners to be claimed and legally possessed by those currently occupying it. Such provisions have greatly increased the difficulty for returnees attempting to reclaim land previously owned by themselves or their families. As paper titles and land deeds were virtually nonexistent in the 1970s, it is necessary that land ownership be proven through the testimony of witnesses. Many witnesses are deceased or displaced, though, and thus such land reclamation has become even more difficult in contemporary Burundi.[10]

A surge of repatriating refugees, with little nonagricultural opportunity for survival, has placed immense pressure on existing land-holdings. Such pressure has led to a rapid rise in land-related conflicts, and the eruption of land-based violence among the general population. As there is virtually no middle or managerial class in Burundi, few off-farm employment opportunities exist, and prospering through agricultural employment and subsistence farming is perceived to be impossible. The resulting disillusionment may be exploited and channeled into support for coups or wider civil unrest. In the Burundian context, the state apparatus itself, along with the patronage links that radiate from it, has emerged as the most rewarding prize to be captured. In light of a post-colonial national history characterized by cycles of mass violence, the opportunity for an opposition movement to exploit land-related issues in order to cultivate civil unrest and to mobilize masses against the fragile democratic government is ripe.

Land inequality and conflict

Theory and evidence

Scholars have long debated the role of land inequality in precipitating violent conflict. A possible causal relationship between these two might operate directly or indirectly through its effect on economic growth. In the first instance, land inequalities may increase the expected gains to the poor from usurping the property of the rich. Christopher Cramer describes a wide variety of arguments for and against links between inequality and (violent) conflict, both linear and nonlinear in form. Nonlinear proponents include those who argue for U-shaped and inverted-U-shaped relationships between the two phenomena. In the U-shaped camp is Albert Hirschman, who describes a possible "tolerance for inequality" that makes some moderate degree of inequality optimal: Any higher and people would attempt to violently usurp the wealth of the rich; any lower and socioeconomic mobility would appear less possible. In the inverted U-shaped camp are those who argue that extreme inequality disenfranchises the losers to such an extent as to make effective violent redistribution impossible, and that radical equality reduces the incentive for violent usurpation of others' property. In the middle, then, a region for potential unrest exists. In terms of indirect relationships via the intervening variable of economic growth, some cross-country panel evidence suggests that land inequality negatively affects economic growth.[11]

In Burundi, unequal access to land has been empirically linked to the explosion and exacerbation of violent conflict in 1993, which thrust the nation into more than a dozen years of civil war. Further, the absence of consistent rainfall in Burundi, the presence of which is the lifeblood of economic survival for the country's subsistence farmers, has been linked to the increased recruitment of rebels associated with violent conflict. The inability of dispossessed subsistence farmers to procure enough productive land for themselves and their descendants has been proposed as a significant factor influencing the breathtaking speed and scope of the Rwandan genocide in 1994. Marijke Verpoorten similarly finds that high population density and low land access among young men are both highly predictive of local violence. However, she cautions that high density may not operate in the way predicted by Malthus, but rather either by making mass mobilization by violence entrepreneurs easier, or by providing an incentive for violence if lootable resources tend to be more ubiquitous in densely populated areas. Addressing the first alternative explanation, for instance, Omar McDoom argues that participation in Rwanda's genocide at the individual level was significantly determined by the number of other participants located nearby, postulating mobilization by social network. However, the population-density-as-social-mobilizer argument tends to beg the question of why violence is occurring in the first place. And the much-reviled ethnic grievance hypothesis seems problematic here, too: It has been shown, in both Burundi and Rwanda, that outbreaks of violence featured the killing of wealthier possessors of land and livestock by dispossessed members of their own ethnic group.[12]

A model

We hypothesize that, while Burundian cooperatives reduce vertical inequality by definition, they introduce the specter of horizontal inequality between two artificially created groups: members and nonmembers. We speculate that the mechanism that would drive this differentiation is akin to the social psychological theory of cognitive dissonance, which has found expression in the economic literature. According to this theory, psychic discomfort is experienced when two beliefs or cognitions contradict one another. In this case, villagers may wish to believe in a fundamental equality that underpins community cohesion. However, they also periodically come into contact with those who own or have access to considerably more land than they do, undermining their sense of community cohesion. If this cognitive dissonance is triggered each time someone sees a land-privileged individual, paradoxically, the chances of experiencing cognitive dissonance associated with land inequality rise as land inequality declines. The reason for this is that whereas previously just a small handful of landowners may have owned much land, now a considerable minority of the village enjoys relative asset wealth.[13]

Figure 1 illustrates this idea with Lorenz curves, where the *x*-axis is the number of up to 20 hypothetical villagers arranged by increasing land wealth, and the *y*-axis is cumulative land ownership. A land-Gini coefficient or ratio can be calculated by dividing the area between the line of a given scenario and that designating perfect equality by the area under the perfect equality line. The smaller the ratio, the lower the inequality. Each scenario applies to a 20 person village with a total of 20 hectares. In scenario 1—a village in which no cooperative is operational—one privileged person owns over half the land in the village (10.5 of the 20 hectares), and the remaining 19 villagers own ½ hectare each (i.e., the remaining 9.5 hectares). In scenario 2—a village in which a cooperative is operational—half the villagers own ½ hectare each (5 hectares in total), and the other half have access to 1.5 hectares per person (the remaining 15 hectares). Villagers 1 through 10 therefore find themselves with identical resources in the two scenarios. The land-Gini coefficient is lower, and inequality smaller, in scenario 2 than in scenario 1. However, the random probability of a poor villager meeting a relatively rich villager in scenario 1 is just one in 19 (or P=0.05), while the probability of doing so in scenario 2 is 10 in 19 (P=0.53).

This intuition can be captured in a simple model. If we define the discomfort, D, of seeing a relatively rich person as a function of the relative inequality, i, and the share, p, of villagers, V, in the cooperative, then we might have something like:

Figure 1: Lorenz-curves for two scenarios of land-inequality.

$$(1)\quad D=\left(\frac{pV}{V-1}\right)i=\left(\frac{pV}{V-1}\right)\left(\frac{L_r}{L_p}\right)^{\alpha},\ 0<\alpha<1,$$

where L_r is the land access of each rich person, L_p is that of each poor person, and α is a coefficient of intolerance for inequality. For instance, in equation (1), the smaller is α (tending toward 0 in the extreme), the more land inequality is tolerated and there would be little discomfort. Assuming a static amount of total available land, L, then p and i must be related, and so we state that

$$(2)\quad L_r=\frac{L-L_p(V-pV)}{pV}=\frac{L-L_pV(1-p)}{pV}.$$

Substituting equation (2) into (1), we obtain each nonmember's level of discomfort as

$$(3)\quad D=\left(\frac{pV}{V-1}\right)\left(\frac{L-L_pV(1-p)}{pVL_p}\right)^{\alpha}.$$

If we then multiply the individual discomfort, D, by the number of nonmembers, $V-pV$, we obtain the total collective discomfort manifested by nonmembers. Figure 2 shows that this model predicts that total discomfort among nonmembers will initially rise with the number of villagers being admitted to the cooperative. And although this discomfort continues to rise with the size of the cooperative at the individual level, the *total* amount of discomfort begins to diminish after some point because a more inclusive cooperative implies fewer nonmembers. Indeed, the point of maximum total discomfort shifts to the left as $\alpha \rightarrow 1$, and shifts toward the middle (p=0.5) as $\alpha \rightarrow 0$. This model implies our central hypothesis, that the advent of a cooperative in a village will, even while reducing

vertical inequality, increase horizontal inequality, undermining community cohesion between members by nonmembers.

Empirical strategy

A small number of agricultural cooperatives were organized by a rural development NGO called Plant with Purpose. A one-shot evaluation of these efforts as requested and specified by the NGO afforded an opportunity to collect the survey data we are here analyzing. We wish to test whether the implementation of the cooperative model in villages in rural Burundi did in fact have the predicted effect of undermining community cohesion between members by nonmembers. The latter is measured using a suite of six proxies: (1) reported land conflicts; (2) perception of inequality; (3) acceptance of inequality; (4) reports of violence toward oneself or one's acquaintances in the past year; (5) self-reported levels of trust among neighbors; and (6) self-reported levels of trust among colleagues.

The empirical strategy we employ imperfectly mimics a difference-in-differences (DiD) analysis on a cross-sectional dataset of 95 community members in three different villages in which the cooperative has been, or is becoming, operational. As such, we term our analysis a pseudo-DiD. In two communities, cooperatives have been operational for 3 years; in the third, a cooperative membership had just formed, but no harvests had yet been made. We interact a binary cooperative membership variable, m, with a binary time variable, t. The time variable takes a value of 0 for a community upon the inception of the local cooperative, and 1 for a community 3 years later. The treatment variable takes a value of 0 for nonmembers of the cooperative and 1 for members. The model is written in a straightforward way as

$$(4)\ \Pr(y=1) = \lambda(\beta_0 + \beta_1 t + \delta_0 m + \delta_1 tm + \mu),$$

where λ is the logit function, y is the binary (or ordinal polychotomous) outcome variable, and μ the error term. In a standard DiD, t captures aggregate factors that would cause changes in y over the time period specified (3 years, in this case), and m captures the possible differences between control and treatment groups. While DiD is most effectively employed when control and treatment are randomly assigned to individuals, there is the possibility for inherent selection biases here: Those farmers who choose to join the cooperative may on average exhibit higher or lower levels of the outcome variable relative to nonjoiners. For instance, a farmer who is willing to join a cooperative may already be more trusting of his or her neighbors than those who are unwilling to join. The variable m will then play an important role in controlling for possible selection bias.

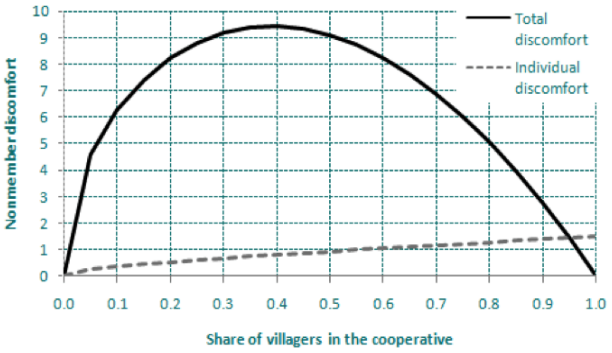

Figure 2: Individual and total nonmember discomfort as a function of rising cooperative membership as a share of village population. $V = 20$; $L = 20$; $L_p = 0.5$; $\alpha = 0.5$.

The DiD coefficient, δ_1, pertains just to the binary interaction term, tm, which takes on a value of 1 only for those observations that are simultaneously cooperative members, and have been so for 3 years. The DiD estimate is then given by

$$(5)\ \delta_1 = \left[\Pr\left(\bar{y}_{m=1,t=1}\right) - \Pr\left(\bar{y}_{m=1,t=0}\right)\right] - \left[\Pr\left(\bar{y}_{m=0,t=1}\right) - \Pr\left(\bar{y}_{m=0,t=0}\right)\right].$$

However, the dataset we have used has one serious shortcoming that prevents us from making causal claims. The nature of the one-shot evaluation precluded the possibility of a pretest and post-test in the same communities, hence the term pseudo-DiD. As mentioned, the two communities with three years' experience hosting a cooperative are different from the one community where a cooperative is just starting. Therefore, while all communities are located in rural, southern Burundi, the outcome differences attributed to the passage of time may be driven by these community-level differences. This is a fundamental problem, and while we attempted to control for this statistically by using binary variables for the communities themselves (the coefficients for which were not statistically significant), the survey was administered in so few communities that such a strategy is only a very partial remedy. (We also controlled for individual-level characteristics that might have varied across communities, but such controls did not change our results.)

There are positive and negative aspects of the data from the perspective of reducing selection bias at the village level. On the one hand, all communities elected to start a local chapter of the land cooperative. This fact implies that in all communities, there was local support for the idea, and that there was a local

landowner who was willing to donate land to the enterprise. On the other hand, two of the three communities were early adopters, and one elected to start a cooperative chapter only three years later. This may have been due solely to the organization's capacity to expand across villages, or it may reflect a difference in community preferences. In the spirit of transparency, we describe below each community and its idiosyncratic history and involvement in the cooperative, and we realize that such idiosyncrasies represent a serious caveat in the interpretation of our results.

Muzye, Rutana

Muzye represents the most dynamic community in which Almquist conducted research in the summer of 2011. Located less than a dozen kilometers from the Tanzanian border, Muzye is a patchwork of repatriated refugees, inhabitants who never left the country, demobilized former combatants, and those who fled to the bush during conflict but never left the country. Access to water is difficult during the dry season, and adequate healthcare is challenging to procure. Additionally, one-third of farmers' association members who reported fleeing their homes because of violence fled to Tanzania, while a larger proportion—one-half—of the nonmembers who reported fleeing from violence left the country. Unexpectedly, tensions between men and women were higher in this community than the other two, with accusations of polygamy and domestic violence surfacing in many interviews. While such a relational environment remained challenging for many women interviewed, Muzye's hosting of a substantial rural marketplace appeared to provide opportunities for many women that were not present in either Kiremba or Musongati (discussed below): In order to supplement their subsistence farming incomes, a number of women engaged in various small business enterprises. Often purchasing foodstuffs, such as beans or maize, on credit, women would then sell those goods in the market, bringing the profit home to their families. Although the explanation is unclear, some women reported successful business tenures, while others reported that their businesses soon went bankrupt.

The first association formed by Plant With Purpose in Burundi, the Muzye cooperative, had existed for three years at the time interviews were conducted. Twenty-five individuals constituted this association, with twenty present and available for interviews. Membership was originally opened to those able and willing to pay a 500-franc initial fee (roughly US$0.40); nonetheless, membership was capped at twenty-five individuals. The association leadership structure included a president, vice president, treasurer, secretary, two advisors and two operations officers. The association meets monthly to discuss association business and holds periodic democratic elections to select its leadership. In addition to farming their own land, members commit to working on the association's land three to four days per week. Cassava is the main crop under cultivation and is farmed on land donated free of charge by the provincial government of Rutana. An additional single hectare of bananas is farmed on private land contributed by one of the members of the association. In order to sustain the association, the cooperatively farmed cassava is sold at the market, with a portion of the proceeds re-invested into the association for the subsequent planting and harvest season. Each association member received an additional share of the proceeds, valued at 50,000 Burundian francs per member (roughly US$40) for the most recent cassava harvest (in early 2011), in addition to individual cassava cuttings both for individual and family consumption, as well as for planting and future harvest on the member's own land.

Musongati, Rutana

Located further away from the Tanzanian border, in northwest Rutana, the farmers' association in Musongati has forty-two members and works six hectares of land donated by a family, three of whom are members in the association. The association has partnered with Plant With Purpose for three years, and farms cassava and arrowroots. Leadership also consisted of a president (who was also a member of the land-owning family), vice president, treasurer, secretary and advisors. Members of the Musongati association had the least secure access to water of the three communities, with the vast majority of members walking more than one kilometer to retrieve water from a communal pipe stemming out of a mountain or retrieving their water from a stream, rather than a well or a faucet as in Kiremba and Muzye. Families of many members in Musongati were routinely ravaged by malaria, diarrhea, and other illnesses. Interviewees in Musongati reported the lowest level of land quality, the most prominent reporting of food insecurity, and the highest ratio of active land conflicts. Additionally, every single interviewee in Musongati reported having fled their home due to violence during their lifetime, with the vast majority remaining in the country. Due to lower than expected yields and high food insecurity, the Musongati association's harvest was not sold for a profit; however, the harvest was divided evenly between the members and the wider community in desperate need of food.

Kiremba, Bururi

The province of Bururi in southern Burundi has featured prominently in the country's post-independence history. Three consecutive Tutsi presidents arose from a single *commune*

within the province, Rutovu, to rule Burundi for nearly three consecutive, repressive decades, a period running from 1966 through Burundi's first democratic elections in 1993. After the outbreak of civil war at the end of 1993, the last of the three presidents, Pierre Buyoya, assumed the presidency in a coup d'état, ruling in the midst of the civil war from 1996 through 2003. Owing in large part to this legacy of military and political rulers stemming from the province, and the patronage links that stemmed from it, the population in Kiremba, while remaining poor by any international standard, was considerably more privileged and stable than the other communities surveyed. Government investment in infrastructure projects brought running water to virtually the entire *colline* (an administrative unit just below *commune*), with all but one interviewee having access to a water faucet in their own backyard or that of a neighbor. Efficient access to water made hygiene easier, and lessened the amount of time spent gathering water from other sources, thus freeing up more time for individuals to cultivate land or attend school. Additionally, distance to a healthcare facility was exceptionally close, roughly ten minutes away, and a cooler annual temperature and climate reduced, but did not eliminate, the reported malaria prevalence rate throughout the community.

The population of Kiremba had little extended exposure to the effects of the civil war, with the main exception being an attack on a nearby private secondary school for boys by the rebel CNDD-FDD forces in the fall of 1997. More than forty students and faculty were killed in the nighttime raid, compelling much of the surrounding population to flee to the bush or to the neighboring provincial capital for days or weeks at a time. Relatively few members of the Kiremba community had experience fleeing to Tanzania, and additionally had little exposure to returnees repatriating from outside the country.

The farmers' association in Kiremba was in its incipient phase at the time of the interviews. The association consists of eighteen members. However, five were unavailable for the interviews during the field research in the province. Association leadership consisted of an elected president, vice president, treasurer, and secretary, with an additional member serving in an advisory role. The association predominantly cultivates potatoes on a one-hectare plot of land rented for 50,000 francs per year (roughly US$40) from a member of the association. At the time of the interviews, none of the crop had as yet been harvested, and thus there was no income generated by the association.

Results

Table 1 gives results of uncontrolled logistic regressions for the six outcome variables of interest. Note that whether one is a member of the cooperative or not is not a significant predictor of any outcome. The fact of being a town that has hosted the cooperative for three years is statistically positively related to perception of land inequalities, and negatively related to the acceptance of those same inequalities. It also correlates negatively and statistically significantly with reported violence to oneself or one's acquaintances, and with levels of trust in one's colleagues. Finally, the fact of being a member of a cooperative in a town that has three years of experience hosting the cooperative is positively and statistically significantly correlated with a likelihood of reported violence against oneself or one's acquaintances, as well as the level of trust in one's colleagues.

Given the relatively small sample size, *N*—and more specifically, the small number of success cases as a subset of *N*—the acceptable number of control variables that may be included in any given regression hovers only at around 1. The land conflict variable, for instance, cannot, strictly speaking, support any further control variables at all without risking over-specification, while the violence against self or acquaintances variable can support one to two. Nevertheless, we included individual-level control variables on a singleton basis: Age, sex, land donor (i.e., whether the respondent was the original landowner who had donated his land to the collective), and cooperative leadership role (i.e., whether the respondent was a member of the cooperative leadership committee, which included posts for president, vice-president, secretary, and treasurer). We also ran fixed-effects regressions with a village-level dummy-variable distinguishing between the two treatment villages. In no case did the sign of the coefficients displayed in Table 1 change, coefficients that had been statistically significant at the 95% level universally remained so, and their magnitudes all stayed within 25 percent of the uncontrolled estimates. Moreover, the pseudo-R2 estimates decreased in all cases (see Table 2, which includes all controls). We therefore opted to perform our post-estimation analyses based solely on the uncontrolled models.

Figure 3(A) illustrates that residents of cooperative villages report generally higher perceptions of inequality than villages where cooperatives are nonoperational. Moreover, cooperative members and nonmembers were statistically indistinguishable from one another in the village where the cooperative was nonoperational, whereas the mean probability of reporting a high perception of inequality among noncooperative members exceeded the 95% confidence interval of the same statistic for nonmembers (the difference in slope is not statistically significant). Figure 3(B) illustrates that cooperative members and nonmembers are statistically indistinguishable in terms of their likelihood of having a high tolerance for inequality in the

Table 1: Logistic models of the six outcome variables

Variables	(1) Land conflict	(2) Perception of inequality	(3) Acceptance of inequality	(4) Violence toward self/acquaintances	(5) Trust of colleagues	(6) Trust of neighbors
Member	-0.272	-0.182	-0.405	-0.288	-0.944	-0.288
	(1.049)	(0.808)	(1.017)	(0.898)	(0.868)	(0.898)
Coop village	-0.182	**2.659****	**-1.705***	**-2.197*****	-0.405	0.348
	(0.849)	(1.180)	(0.889)	(0.843)	(0.812)	(0.868)
Member * coop village	0.834	-1.022	1.319	**2.019***	**2.672****	0.202
	(1.206)	(1.367)	(1.149)	(1.078)	(1.114)	(1.114)
Constant	-0.981	0.336	**1.609****	**1.099***	**1.099***	**1.099***
	(0.677)	(0.586)	(0.775)	(0.667)	(0.667)	(0.667)
Observations	89	95	95	94	95	95
Log likelihood	-53.94	-41.24	-57.14	-57.65	-42.94	-49.79
Chi2	1.360	12.60	5.705	12.28	11.90	0.781
Prob>Chi2	0.715	0.00559	0.127	0.00650	0.00773	0.854
Pseudo R-squared	0.0125	0.133	0.0475	0.0962	0.122	0.00779

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 2: Controlled mixed-effects logistic models of the six outcome variables

Variables	(1) Land conflict	(2) Perception of inequality	(3) Acceptance of inequality	(4) Violence toward self/acquaintances	(5) Trust of colleagues	(6) Trust of neighbors
Member	-0.123	0.480	-0.105	-0.412	-1.314	-0.243
	(1.102)	(0.987)	(1.102)	(0.937)	(0.967)	(0.980)
Coop village	1.018	**2.705****	**-2.073****	**-2.140****	-0.787	0.465
	(1.323)	(1.274)	(0.948)	(0.861)	(0.870)	(0.939)
Member * coop village	-0.0247	-1.583	1.342	**2.019***	**3.049****	-0.186
	(1.440)	(1.489)	(1.225)	(1.108)	(1.208)	(1.190)
Age	0.00767	**0.0588****	0.00914	-0.00331	0.00127	**0.0443***
	(0.0172)	(0.0275)	(0.0190)	(0.0162)	(0.0193)	(0.0227)
Female	-0.585	**1.227***	**1.100****	-0.410	**1.239****	0.323
	(0.534)	(0.634)	(0.544)	(0.500)	(0.597)	(0.580)
Landowner	0.000310	-0.598	17.01	0.00687	18.04	17.71
	(1.321)	(1.457)	(5,783)	(1.284)	(5,715)	(0)
Lead	-0.640	-1.219	**-1.259***	0.361	0.497	0.281
	(0.958)	(0.866)	(0.737)	(0.759)	(1.029)	(0.893)
Constant	-1.527	**-2.405****	0.830	1.453	0.528	-0.643
	(1.249)	(1.225)	(1.075)	(1.021)	(1.034)	(1.057)
Constant2	0.356	0	0	0	0	0
	(0.679)	(0)	(0)	(0)	(0)	(0)
Observations	88	93	93	92	93	93
Number of groups	2	2	2	2	2	2
Log likelihood	-51.14	-35.16	-50.51	-56.26	-39.67	-45.84
Chi2	3.393	17.06	11.31	10.98	12.52	.
Prob>Chi2	0.846	0.0170	0.126	0.139	0.0846	.
Pseudo R2	0.00737	-0	6.99e-09	0	9.37e-09	6.38e-09

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

village in which the cooperative is not yet operational. In those where it is, however, the likelihood of a high inequality tolerance drops among nonmembers (although the difference in slope is, again, not statistically significant). Figure 3(C) illustrates that members and nonmembers of the cooperative are statistically indistinguishable in terms of reported violence against self or acquaintances in the village in which the cooperative is not yet operational. However, the likelihood of

Figure 3(A): Adjusted predictions of the probabilities of high perception of inequality among cooperative members and nonmembers.

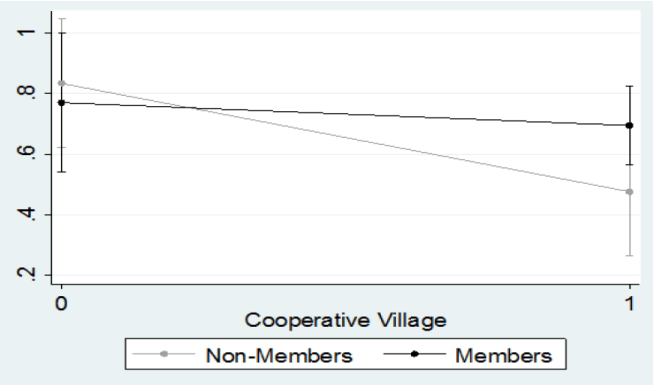

Figure 3(B): Adjusted predictions of the probabilities of high acceptance of inequality among cooperative members and nonmembers.

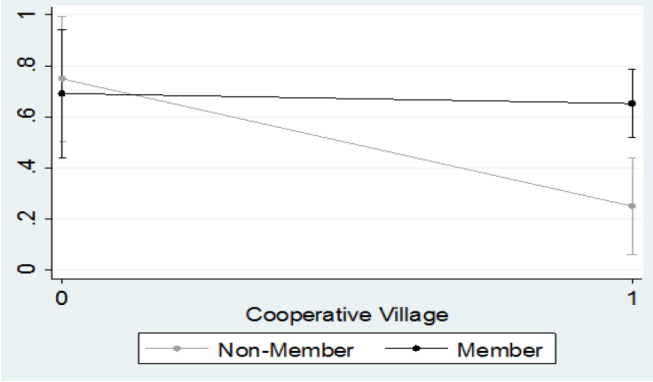

Figure 3(C): Adjusted predictions of violence reported against one's self or acquaintences.

Figure 3(D): Adjusted predictions of high trust in colleagues.

reported violence against nonmembers in the villages where the cooperative is operational drops dramatically from around 75 percent to around 25 percent. At the same time, the likelihood of reported violence against cooperative members' self or acquaintances remains at roughly the same level, making for a statistically significant difference in slope. Finally, Figure 3(D) illustrates that members and nonmembers of cooperatives are statistically indistinguishable with regard to trust in their colleagues in the village in which the cooperative is not yet operational. However, in the villages where the cooperative has been operational, members' probability of reporting great trust in their colleagues exceeds that of nonmembers (and that of members in the village with a nonoperational cooperative), and again the difference in slopes is statistically significant.

In sum, nonmembers of cooperatives are more likely (although not statistically significantly so) to perceive inequality, and less likely (although again not significantly so) to tolerate inequality than members. Moreover, members are significantly more likely to have experienced violence against self or acquaintances in the past year (even though violence is generally lower in cooperative-operational villages than in nonoperational ones), and more likely to develop trust in their colleagues than nonmembers.

Discussion

The general portrait painted above is, speculatively, one of group differentiation and divergence between members and nonmembers of the cooperative. While the incidence of land conflicts and the probability of high trust in one's neighbors seems to be unaffected by the operations of the cooperative, the other four outcomes may be. (And there is no reason that legal conflicts over land should necessarily increase in cooperative villages, as the cooperative does not imply land claims on properties not already owned by the original donating landowner or participating cooperative members.) Nonmembers of the cooperative may be growing more acutely aware of land inequality even as they grow less tolerant of it in the wake of a cooperative's operations. It may even be that

nonmembers are directing violence more explicitly toward members, and that cooperative members' trust is turning inward toward each other. For instance, just prior to the administration of this survey, a hand grenade had been rolled into the hut of a local landowner in one of the study villages, killing him and his family at a cost of less than US$1. So even while violence in the cooperative villages seems reduced, as compared to the controls, the distribution of violence seems increasingly concentrated on those privileged enough to be in the cooperative. Nor is it likely that nonmembers are indifferent to the gains of members: During the interviews, nonmembers almost without exception expressed a desire to join the cooperative.

Qualitative data from the interviews supports this reading of the data. Association membership seemed to be a status symbol, while members' gains from the cooperatives seemed to feed a growing sense of inequality. Cooperative members openly and overwhelmingly attributed recent livelihood improvements to association membership. Examples of narrative refrains that ran through each of the three cooperatives profiled include: "I am a member of the association and may not struggle to get money for school fees; I may have revenue to buy something of my own," and "When you are in such associations, you are able to produce more than by yourself, and it will improve your quality of life." Yet, many nonmembers, when asked to rate their quality of life with respect to that of their neighbors cited the gains of others as examples of their own lower quality of life. Nonmembers pointed to those who had upgraded the roofs of their houses from grass to tin and those who were able to purchase livestock as indicators that their own quality of life was below that of their asset-accumulating neighbors. Increased stockpiles of food and larger land-holdings were further cited as examples of inequality, as was a periodic lament that those with salaried, off-farm jobs had a perceived luxury of paying to join a cooperative as an auxiliary source of income, rather than as the only option for survival. Asked about their dreams for the future, nonmembers consistently expressed a desire to join a cooperative association so they could improve their own lives and that of their families. One woman bemoaned the recent selling of her land in order to pay for her own hospitalization after she simultaneously contracted malaria and typhoid. Reflecting on the drastic action she and her family had to undertake in order to save her life she remarked, "I was very, very sad to sell my land. Maybe if I was a member of an association, they would have helped me instead of me having been forced to sell my land." The outstanding debt for which she sacrificed her most precious asset, her land (which the majority of women are not privileged to own), proved to be 89,000 francs, roughly US$70.

The theory of intra-communal differentiation and the proposed mechanism of cognitive dissonance are speculative. It bears repeating that the one-shot evaluation model prevents this study from making causal claims, despite our efforts to mimic a difference-in-differences methodology. Future studies of the social effect of cooperatives might not just add a longitudinal element to their study design, but also consider examining violence as a function of group membership via dyadic and directional social networks.[14] While the ideas herein presented were supported by complementary qualitative methods (in-depth interviews and focus group discussions), those, too, suffer from the cross-sectional nature of the data. Future research might usefully employ ethnographic methods to obtain insights on interpersonal dynamics over time.

The typical criticism of the use of land cooperatives in Burundi to stave off a Malthusian trap and another possible genocide, is that they fail to dramatically increase productivity. They rarely involve mechanization, and what economies of scale they bring may be largely due to a greater division of labor. It has been suggested that, at best, cooperatives postpone a looming livelihoods crisis, buying the government a few more years to figure out a long-term solution that would relieve some of the pressure on rural lands. (The same criticism has also been leveled against the Burundi government's 2010 move to decentralize the state apparatus for land conflict arbitration to the local level.[15])

This study suggests yet another caveat of agricultural cooperatives. Most evaluations of cooperatives focus on the gains (in education, productivity, and collective bargaining) of members. They may not fully appreciate the ways in which such cooperatives may change social relations in villages where they are in operation. Such questions of who is "in" and who is "out" seem likely to take on greater salience in the context of Tanzania's President Jakata Kilwete ordering 35,000 "irregular migrants" from Burundi and Rwanda out of the country. With 15,000 Burundian nationals already on their way back to their country as of this writing (early 2014), many having lived years if not decades abroad, the pressure on the already-scarce commodity of land can only grow.[16]

How generalizable is this study to other countries or types of cooperatives? We urge caution when judging its external validity. Burundi's rather unique demographic and economic conditions mean that only a small proportion of the rapidly growing rural population is able to find urban work. With stagnant per capita incomes relative to the Sub-Saharan African and low-income countries generally, low-technology subsistence agriculture remains a mainstay of most rural livelihoods. The intra-communal differentiation we describe

between members and nonmembers of agricultural cooperatives may therefore be an outgrowth of a country-specific, zero-sum game mentality toward agricultural lands. Even in Rwanda, although similar to Burundi in ethnic composition, geography, and history of land-driven violent conflict, subsistence land cooperatives may not have the same effect on local villages: Rwanda has a much higher urbanization rate, a rate of GDP growth twice that of Burundi, and a government promoting the country's role in the global knowledge economy. Moreover, other types of cooperatives may not entail similar dynamics, either. Cooperatives based on the processing of agricultural products, for instance, tend to cater to export markets, and therefore bring with them the possibility of enlarging the proverbial economic pie at the local level. While they may boost village-level productivity somewhat, subsistence cooperatives likely boast fewer forward and backward linkages to nonmembers than export-oriented cooperatives.

Some tentative policy implications stemming from the research reported in this article may be drawn out. First, the possible negative side-effects of agricultural cooperatives discussed here may be reduced if the village is small enough to allow the cooperative to extend membership to all community farmers. Second, to the extent that some villages will necessarily exceed the size at which that idea is feasible, making the boundaries between members and nonmembers fluid could help to reduce the ossification of group identities. For instance, if the cooperative were to grow at some sustainable rate per year, offering new memberships to the remaining community members, resentment might be tempered with the hope of livelihood betterment. The cooperative might not just grow in scale, but also in scope, involving erstwhile nonmembers in upstream and downstream value-added processes. Recalcitrant or unwilling cooperative members might also be disinvited. Cooperatives might themselves embark on educational outreach programs, helping nonmembers to acquire the knowledge and skills that members are cultivating within the organization. Each of these suggestions might serve to dissolve somewhat the in-group / out-group distinction.

Notes

1. Population growth rate: World Bank (2013).

2. This was the case: Chrétien (2003). Lines blurred: Gourevitch (1998). Throughout, we have opted to use "ethnic," "ethnicity," or similar terms, although some might consider the structure of the Hutu-Tutsi relationship to resemble a caste system. Political scientist Donald Horowitz (2000, pp. 22-24) distinguishes between "ranked" (i.e., horizontally-cleaved) and "unranked (i.e., vertically-cleaved) ethnic systems. Ranked ethnic systems are those in which ethnicity coincides with socioeconomic status; unranked are those in which it does not. In India, for instance, the caste system constitutes a ranked ethnic system according to the Horowitz definition (at least in its stronger, rural manifestations). A priori, it would appear that ranked ethnic systems are more likely to exhibit high levels of horizontal (i.e., "inter-group") inequality, which can be a risk factor of violent conflict (Cramer, 2003, 2005; Østby, 2007; Tadjoeddin and Chowdhury, 2009). By using the term "ethnic," the authors in no way intend to conceal any real or perceived socioeconomic injustices under the cloak of ethnic differences.

3. Hardening of ethnic lines: Chrétien (2003). Perishing in droves: Easterly and Levine (2003). Were made to work the land: Chrétien (2003).

4. At all costs: Lemarchand, (2004). Quote: Lemarchand (2004, p. 321). On this paragraph, also see Chrétien (2003) and Greenland (1976).

5. Coup caught world attention: Chrétien (2003); Lemarchand (2004). Constitution/election 1992/1993: Dravis (2000, pp. 188-194).

6. Capturing 65 seats: Dravis (2000). Top-income earners: Easterly and Levine (2003).

7. Quote "war of massacres": Chrétien (2003, p. 346). 300,000 lives; one-sixth: Hoeffler (2008). Quote "... without peace": Nkurunziza and Ngaruko (2008). Per capita GDP: Basdevant (2009). Forty years earlier: Easterly and Levine (2003). Improved per capita GDP by 2012: World Bank (2013). Underperforming: Basdevant (2009); Nkurunziz and Ngaruko (2008). Lagged behind: Basdevant (2009).

8. Conflict trap: Collier, *et al*. (2003). The UN has pressed: UNSC (2010). Journalistic: Bonnard (2010).

9. More than one-in-six: Huggins (2009). Refugees from DR Congo: Hoeffler (2008). Malkki: Malkki (1995).

10. Land code (land abandoned for 30 years): Theron (2009).

11. Cramer: Cramer (2005). Linear: Muller, Selgison, Fu (1989); Nafziger and Auvinen (2002). U-shaped: Hirschman (1981). Inverted U-shaped: For instance, Nagel (1974). Cross-country panel evidence: Fort and Ruben (2006).

12. Empirically linked: Bundervoet (2009). Rainfall and rebel recruitment: Nillesen and Verwimp (2009). Inability to procure productive land: André and Platteau (1998). Population density and land access: Verpoorten (2012). McDoom: McDoom (2013). Killing of the wealthier: Bundervoet (2009); André and Platteau (1998).

13. Cognitive dissonance in social psychology: Festinger (1985) [1957]. In economics: Akerlof and Dickens (1982); Schlict (1984).

14. Arcand and Fafchamps (2012); Barr, Dekker, and Fafchamps (2010); Blumenstock, Eagle, and Fafchamps (2011); Fafchamps and Gubert (2007).

15. See Bonnard (2010).

16. Focus on gains: IFAD (2011). Tanzania's "irregular migrants": IRIN (2013).

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EXTERNAL ACTORS' ROLE IN SOLVING LOCAL COLLECTIVE ACTION PROBLEMS IN A POST-CONFLICT SETTING: A CASE STUDY OF TURKISH CYPRIOT BEEKEEPERS

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Abstract

In addition to legal constraints and social-psychological barriers, in a post-conflict setting mutually beneficial economic transactions might not occur due to the widening gap between the health, quality, and environmental standards of the parties. A lack of incentives during the years of conflict prevent the members of the weaker party, the one economically isolated from the rest of the world, from engaging in the collective learning necessary to upgrade the health and packaging standards of their commodities. In this study, we detail the technical, political, and legal challenges external actors must consider in order to successfully help small businesses in a post-conflict environment. Specifically, we explain how the EU helped Turkish Cypriot beekeepers by supplying funds to support training and educational programs, and upgrade the equipment used by the beekeepers. We demonstrate that third parties, like the EU, can provide the impetus for domestic institutions—such as producers associations, chambers of commerce, and cooperatives—to overcome their collective action problem.

Post-conflict societies face unique economic development challenges. In addition to objective obstacles, such as legal constraints that can reinforce lines of division and further hinder economic integration, subjective obstacles, such as social-psychological barriers erected by former animosities, often prevent mutually beneficial economic transactions from occurring between communities with a history of conflict. In this article we focus on a third constraint to post-conflict economic development, the collective action problem as associated with health, quality, and environmental standards.[1]

During conflict, members of the weaker community—e.g., the one economically isolated from the rest of the world—often lack the necessary incentives to maintain standards parity with the stronger community. In the post-conflict environment, the disparity between the two communities' industrial, agricultural, and manufacturing products merely widens. Although individual domestic actors within the isolated community might want to adopt higher standards, the technical, political, and legal challenges associated with standards adjustment are too great to be achieved using a single actor's resources.

Accordingly, in this study we claim that in addition to legal constraints and social-psychological barriers, economic transactions between the two communities might not occur due to the gap between their health, quality, and environmental standards. However, assistance by an external actor can help local actors collectivize and address their standards deficiencies. To provide evidence to support or refute this claim, we specifically focus on the case of Turkish Cypriot beekeepers and the trade of Turkish Cypriot honey across the so-called Green Line, which separates Turkish and Greek Cypriot communities on the island of Cyprus.[2] How the small-scale, Turkish Cypriot beekeepers organized, made their association functional, improved the standards by which their honey is produced, and ultimately became eligible for trade with the help of the EU is an important case for the study of external actors' role in solving post-conflict collective action problems.

In what follows, we first briefly discuss the collective action problem. Second, we introduce the post-conflict environment in Cyprus and EU legislation referred to as the Green Line regulation. Third, we provide basic statistics regarding Turkish Cypriot beekeeping. Fourth, we explain the activities the EU initiated in cooperation with the local actors. Finally, we provide some concluding remarks.

The collective action problem

Due to the limits of individual actors, society often relies upon groups to provide collective (or public) goods. However, various factors can waylay the provision of these common benefits. The nonexcludable nature of a collective good means

that once that good is produced, it cannot be denied to nonpayers. The inability to ensure that those accessing the good contribute to its provision encourages free-ridership. The likelihood of free-ridership increases the more complicated the problem, the smaller the size of the individual actors involved, and the larger the number of actors.[3]

The collective action problem is particularly acute when groups are large and the resources of individuals are small. The large size of the group encourages members to free-ride since their nonparticipation will likely be overlooked, while the small size of individual group members makes widespread participation necessary for the group's success. Although all members of the group may recognize the benefits of the public good, their limited resources prevent individuals from acting on their own. In some cases, the individual resources of the group members might be so limited that, even if the tendency toward free-ridership is mitigated, the group itself cannot solve the issue at hand. Post-conflict developing countries, like Cyprus, provide a good illustration of the classic collective action problem, since the financial and technical resources of local actors are often particularly constrained.

Cyprus and its Green Line regulation

In 1914, Cyprus was annexed by Britain after more than 300 years of Ottoman rule. Britain had occupied the island since 1878, although it remained nominally under Ottoman sovereignty until 1925, when it officially became a British crown colony.[4] In 1960, Cyprus gained independence after its Greek and Turkish communities reached an agreement regarding the country's constitution. Accordingly, the Republic of Cyprus was established under a "complex constitutional structure that was specifically designed to balance power between the Greek Cypriot community (78% of the population) and Turkish Cypriot community (18% of the population)."[5] As part of this agreement, the president was elected by the Greek Cypriot community and the vice president by the Turkish Cypriot community, government posts and public offices were allocated by ethnic quotas among the two communities, the Turkish Cypriot community was given a permanent veto and guaranteed 30 percent representation in the parliament and administration, and the three mother-states—Greece, Great Britain, and Turkey—were granted guarantor rights.

Within a few years, the mixed government of the Republic of Cyprus had collapsed. Turkish Cypriots ended their involvement in state institutions and, following intercommunal clashes, the UN Security Council passed a resolution to establish a peacekeeping force (UNFICYP).

On 20 July 1974, Turkey invaded Cyprus from the north in response to a military coup on the island that had been backed by Greece, and effectively partitioned the island. The northern third of Cyprus then became the Turkish Cypriots' internationally unrecognized territory, while the southern two-thirds was (and is) under the control of Greek Cypriots. In 1975, Turkish Cypriots established an independent administration in the north, and there was an agreement for population exchange. The UN peacekeeping forces estimate that 165,000 Greek Cypriots fled or were expelled from the north, and 45,000 Turkish Cypriots from the south. The UNFICYP currently patrols the UN Buffer Zone, commonly called the Green Line. For almost 40 years, the Green Line has divided the northern from the southern part of Cyprus and stood as an obstacle to interactions between the Greek and Turkish Cypriot communities.[6] Hence, the Greek and Turkish communities of Cyprus behave like *de facto* separate states even though they are part of the same island and—at least *de jure*—of the same country.

This article is a case study of Turkish Cypriot beekeepers who, with the assistance of a benevolent external actor—the European Union—were able to overcome product standards-related collective action problems. Ultimately, they were able to join their Greek Cypriot neighbors on the divided island of Cyprus to bring their honey to a transnational market.

Economic divergence

The division of the island also influenced the two communities' economic development trajectories: Following the partition, the differences between the two sides' per capita income and living standards were substantially magnified. As Figure 1 shows, in 1977, the ratio of the average Turkish Cypriot per capita income to Greek Cypriot per capita income was 67 percent. From this high point, the ratio deteriorated and, by 2003, had decreased to 39 percent.[7]

In 2004, less than ten days before the official date that Cyprus was to join the European Union, and following negotiations to unify the island, the two Cypriot communities voted at double referenda.[8] However, while Turkish Cypriots accepted the unification plan, Greek Cypriots did not, and the country remains divided. Despite the lack of a comprehensive peace agreement reunifying the country, the Republic of Cyprus became a member of the EU.

The Green Line regulation

In line with Protocol 10 of the EU Accession Treaty 2003 and to improve the economic wellbeing of the Turkish Cypriot community, which only had access to ties with Turkey between 1974 and 2004 and was otherwise isolated, the EU introduced in 2004 the so-called Green Line regulation. It promised

financial aid to facilitate trade and promote economic development. More specifically, the regulation (Council Regulation EC No. 866/2004) was conceived to develop "trade and other links" between the Republic of Cyprus and "those areas in which the Government of the Republic of Cyprus does not exercise effective control"—the north—until a settlement regarding a reunited Cyprus is (if ever) reached. The regulation covered the crossing of persons, goods, and services across the line. Accordingly, the regulation designated official crossing points for both goods and persons and stipulated provisions for the taxation of goods between the Republic of Cyprus and the north.

As Figure 2 shows, initially, the volume of Green Line trade grew steadily, but as from 2009, the global economic crisis thwarted its continued rise. At its advent, the composition of Green Line trade was dominated by wood products and furniture (18 percent in 2005) and building stones and articles (12 percent in 2005). In later years, while trade in wood products and furniture remained significant (12 percent in 2010), trade in fish (15 percent in 2010), vegetables, and fruits increased. So far, no established pattern of trade has emerged, and there has been wide fluctuation in each commodity category.

Even during the period of expansion between 2004 and 2009, however, there was a sizable gap between potential and actual volumes of trade. In a 2012 article, researchers found that actual trade reached only around 10 percent of its potential. Legal constraints account for 35 percent of the missing trade, extra transportation costs for about 5 percent, and unmeasurable and social-psychological barriers for a significant amount between 48 and 60 percent. Some of these unmeasurable barriers arose as a result of the Turkish Cypriot community's relative isolation and, due to the collective action problem often found within societies with limited resources, these barriers could not be remedied by the local actors themselves.[9]

Greek Cypriots were able to freely trade with the rest of the world via the internationally recognized Republic of Cyprus. They acquired access to international institutions, and began accession talks to become an EU member. Accordingly, they harmonized their laws and regulations in regard to EU health and environmental standards. In contrast, the Turkish Cypriot community was isolated from the international environment and excluded from full participation in local, regional, and global integration opportunities. Although it was theoretically possible for Turkish Cypriots to obtain access to external opportunities through Turkey's custom union with the EU—the Ankara Agreement—all too often this path contained hidden trade barriers.[10]

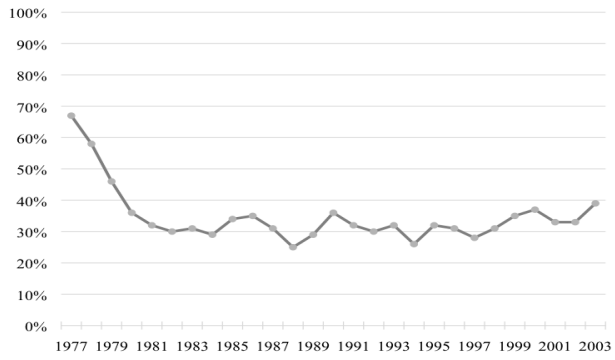

Figure 1: Ratio of Turkish-to-Greek Cypriot per capita income, 1977-2003. *Source*: Goksecus, 2008, p. 12.

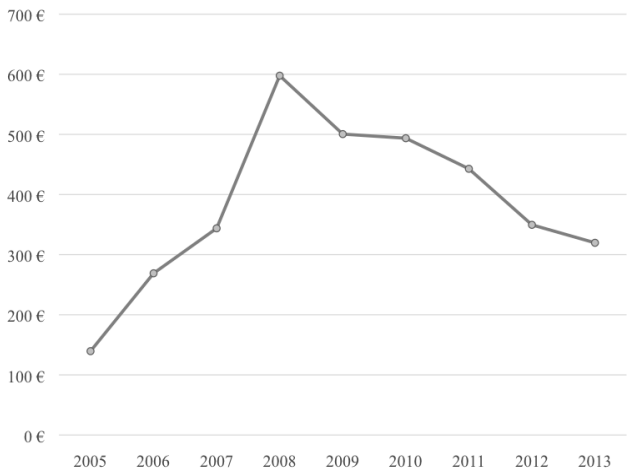

Figure 2: Green Line regulation trade (monthly averages, in 1,000s of euros). *Source*: Turkish Cypriot Chamber of Commerce, http://www.ktto.net/english/monthlyannualtotal2.htm.

All in all, the conflict-inspired divergences and the resulting disparity between north Cyprus' and the Republic of Cyprus' products are serious obstacles to conducting economic transactions across the Green Line.[11]

Standards concerns

The initial Green Line regulation expressly prohibited the movement of animal products across the Green Line due to health standards concerns (No. 866/2004, Article 4:9). Trade in plant products, such as potatoes and citrus fruits, was permitted, but such products were subject to EC phytosanitary checks before being allowed across the Line (No. 866/2004, Annex II). Turkish Cypriot potato farmers had little difficulty passing these checks: After two seasons of successful testing, potatoes were cleared for trade in 2006 (Annual Report, 2006). In 2006, the European Commission began working on lifting

the prohibition on trading animal products for two such products, namely honey and fish. By March of 2007, the Commission had formally adopted a decision to allow fish and honey from the Turkish Cypriot part of the island to be traded across the line, provided that Turkish Cypriot fishing vessels were able to meet certain hygiene standards and that samples of Turkish Cypriot honey successfully passed EU testing. Adhering to the hygiene standards proved relatively straightforward and trade in fish grew rapidly following this decision; however, trade in honey was stymied due to the discovery of various contaminants (pesticides and antibiotics) in the samples collected by the Commission's independent experts.

Turkish Cypriot beekeepers

The standards of beekeeping in the EU and those in north Cyprus diverged significantly. Beekeeping operations in the north tended to be quite small and often were side businesses. As such, many beekeepers used outdated instruction manuals, fought bee diseases with antibiotics prohibited by the EU, and engaged in questionable hygiene practices. Unaware of the EU standards and unorganized, Turkish Cypriot beekeepers lacked the capacity to establish the necessary guidelines and training facilities, and to institutionalize quality sampling, testing, and certifying. Although every single small-scale beekeeping operation would have benefitted from such capacities, the associated cost made it implausible that any one beekeeper could undertake the necessary changes alone. Simply put, Turkish Cypriot beekeepers were subject to a collective action problem. Moreover, uncertainty over whether beneficial transactions could actually occur in light of the historical animosities between the Turkish and Greek Cypriot communities made collective action—the conventional, rational solution to this issue—an unlikely option.

As is evident from the failure of the Turkish Cypriot honey samples to pass EU health and quality tests, the existing institutions alone—the Turkish-Cypriot Chamber of Commerce, the Beekeepers Association, and the Turkish Cypriot authorities responsible for agricultural affairs in the north—were unable to overcome the obstacle posed by the EU's standards. Clearly, they needed a push from a willing external actor (a technically and financially capable actor) to provide necessary and sufficient communication and coordination among the Turkish Cypriot beekeepers and enact change.

Council Regulation (EC) No. 389/2006 of 27 February 2006 established an instrument of financial support for encouraging the economic development of the Turkish Cypriot community. With the overall goal of facilitating reunification, Regulation 389/2006 provided that the funds that had been "earmarked [by the EC] for the northern part of Cyprus in the event of a settlement should be used to ... [encourage] the economic development of the Turkish Cypriot community." Under this aid program, the European Commission has implemented various assistance mechanisms to help Turkish Cypriot beekeepers meet EU standards (discussed below.) As of 14 February 2013, tests demonstrated that the standards of honey have improved, and honey from Turkish Cypriot beekeepers may now be traded across the Green Line.

Table 1: Size and geographical location of the beekeepers

Region	*No. of beekeepers*	*No. of beekeepers with ≥ 70 hives*
Kyrenia	93	10
Nicosia	91	8
Famagusta	102	20
İskele	102	17
Morphou	93	9
Unkown	4	—
Total	485	64

Source: Reybroeck (2012).

Table 1 shows fewer than 500 Turkish Cypriot beekeepers, relatively evenly distributed throughout the northern part of Cyprus. The small-scale of these beekeeping operations is noteworthy: 87 percent of the beekeepers have fewer than 70 hives, with an average hive number of 30. According to Turkish Cypriot Beekeepers Association officials, beekeepers in the north harvest approximately 35 kilograms of honey per hive. Thus, given the retail price of US$12 per kilogram of liquid honey, and the scale of production in the north, beekeeping is not the primary occupation of the majority of beekeepers. To wit: Even if all sales are at retail price, the total average annual revenue would amount to only US$7,500 (i.e., 30 hives times 35 kilograms of comb honey per hive times 0.6 kilogram liquid honey from 1 kilogram comb honey times US$12 per kilogram). If the profit margin is as high as 40 percent, then the net profit is US$3,000, or only 26 percent of the average per capita income of US$11,700 in the north. In fact, most of the beekeepers are not even farmers; instead, many are public officials who have various desk jobs as their chief occupation and attend to the hives either after work hours or (primarily) on the weekends.[12]

Years of economic isolation, the lack of incentives to be more efficient and competitive in foreign or domestic markets, and the ideal conditions for free-ridership—small potential

return for improving the public good and large numbers of small-scale operations—combined to result in the Turkish Cypriot beekeepers' failure to adopt modern honey production standards. That most of the beekeepers are not full-time honey-producing professionals only exacerbated the issue and made external actor intervention all the more necessary.[13]

EU-initiated activities

Regulation 389/2006 specified that EU funds could be used for "preliminary and comparative studies, training, activities linked to preparing, appraising, managing, implementing, monitoring, controlling and evaluation of assistance ..." (Article 4). To help solve the dilemma of the Turkish Cypriot beekeepers, the EU primarily employed its funds to (1) support training and educational programs, (2) upgrade the equipment used by the beekeepers, and (3) foster collectivization among them. To gauge the progress of such programs, the EU also implemented annual sampling of the honey produced at 10 (minimum) honey production sites.

Training and educational programs included sessions on the prevention, diagnosis, and proper treatment of several common honeybee diseases, such as the extremely damaging American foulbrood and varroatosis (a disease carried by the mite, *varroa destructor*). In the case of the American foulbrood, which is highly contagious, treatment can be quite complex. The disease is caused by spore-forming bacteria, and treatment—whether antibiotic or chemical—only eliminates the symptoms of the disease and does not kill the spores themselves. Spores of the bacteria may remain viable for over 40 years, and previously infected hives thus require perpetual treatment if they are to be reused. In some cases, burning the hives is the only option for effective containment of the disease. The presentations on diseases also included information on EU veterinary drug legislation since drug legislation and control in the EU was highly divergent from that used in the Turkish Cypriot part of the island. Many of the common Turkish Cypriot handbooks on beekeeping promoted the use of illegal (within the EU) veterinary drugs, such as antimicrobials—banned as they unnecessarily increase the resistance of bacteria to antibiotics—and fumagilin—prohibited due to its possible link with human birth defects. As would be expected considering the disparity in standards, the initial samples of Turkish Cypriot honey contained high levels of drugs outlawed within the EU.[14]

Beekeepers attending the educational sessions were additionally advised on the EU's regulations concerning pesticides and the maximum EU-acceptable levels of contaminants in honey. Of particular concern for the EU were the storage conditions of the collected honey, since the initial samples had contained high levels of heavy metals and hydroxymethylfurfural (HMF), both of which result from improper storage practices. The heavy metal contamination was due to the use of galvanized containers as long term storage vessels for the collected honey. Since honey is highly acidic, it quickly leeches the coat of zinc from the galvanized container and can become toxic. With EU financial support several of the Turkish Cypriot beekeepers were able to replace their galvanized containers with stainless steel containers. HMF, also a toxic contaminant, forms due to heat exposure. During the training, the beekeepers were advised on the ideal temperature for honey storage.[15]

The initial training sessions were funded by the EU, coordinated by "an institutive partner of the European Union Commission in the process of the Green Line Regulation" (the Turkish Cypriot Chamber of Commerce),[16] and conducted by a Belgian expert from the Institute for Agricultural and Fisheries Department of Food Safety. Once the EU provided a path for the Turkish Cypriot beekeepers to follow, local leaders emerged. Under a program in which the EU provided half of the funding and a beekeeper the other, local beekeeper Kırata Kasapoğlu was able to upgrade his equipment to include seven of the eight EU-recommended beekeeping technologies. Upon receipt of these state of the art machines for different stages of honey production such as harvesting, uncapping, extracting, filtering, storing, and bottling, Kırata Kasapoğlu, one of the few beekeepers with over 70 hives, held a training session attended by 119 local beekeepers at which he further reinforced best beekeeping practices. Those who attended the training received certificates. The yearly sampling conducted by the EU's independent experts demonstrated steady improvement, attributed largely to the aforementioned training sessions.

Furthermore, the EU stressed that additional funding would be forthcoming only if the beekeepers established a cooperative. Following this recommendation, the Turkish Cypriot Beekeepers Cooperative formed. Acting through this cooperative, Turkish Cypriot beekeepers significantly reduced their production costs, in part because they were now able to pursue alternative sources of supplies (previously beekeepers had been subjected to a *de facto* monopoly on beekeeping materials) and had substantially increased bargaining power.

In February of 2013, all samples complied with EU standards and the Commission expected the imminent onset of honey trade across the line.

Concluding remarks

The Green Line did more than physically divide Cyprus: It also changed the development course of both sides. Isolated from the EU in terms of its health and quality standards, Turkish

Cypriots needed the involvement of an external actor to overcome the cleavages initialized by conflict and solve the local collective action problem that arose from the entrenchment of those cleavages.

In less than seven years, Turkish Cypriot beekeepers managed to catch up with the EU's health, quality, and environmental standards. The previously existing gap was a result of the Turkish and Greek Cypriots' divergent paths in economic development and regional integration during the prolonged conflict. These divergences and the ensuing disparity in Turkish and Greek Cypriots' honey production were serious obstacles to realizing economically beneficial transactions in a post-conflict setting. Without intervention by an informed third party (the EU), Turkish Cypriot beekeepers would have remained unable to capitalize on Green Line trade. Navigating the EU's relatively complex health and safety standards was beyond the ability of Turkish Cypriot beekeepers: Not only had they been trained with handbooks that recommended prohibited medications and outdated storage practices, but the status of beekeeping as a side operation meant that they lacked the time, finances, and motivation to research and apply improvements on their own.

The characteristics of the Turkish Cypriot honey industry and the difficulty of solving the standards issue combined to create an ideal environment for the classic collective action problem. As we explained, the EU honey standards were complex and there were a large number of small-scale Turkish Cypriot beekeeping operations. The necessary conditions for free-ridership existed, and the problem was intensified by the limited means of the small-scale beekeepers. Therefore, it was not likely that the local actors would be able to solve the sector's collective action problem by themselves.

Even if trust issues still prevent Turkish and Greek Cypriots from fully realizing the potential of Green Line honey trade, Turkish Cypriots have gained from EU intervention. In our interviews, officials of the Turkish Cypriot Beekeepers Association shared with us their vision of creating a brand name for the honey produced in the north, emphasizing organic production and, under the umbrella of their cooperative, expanding their market beyond the borders of Cyprus. Since they managed to meet the European standards, they are now more confident, they say, in their ability to increase production of higher quality honey, and to export it in a consistent manner. Through the use of their cooperative, it is certainly possible that Turkish Cypriots will shortly be able to export to the rest of the EU. Moreover, Turkish Cypriots now consume healthier honey; thus, EU intervention had a direct improvement in their quality of life as well.

This case demonstrates how a benevolent third party can play a meaningful role in solving a collective action problem. In addition to providing funds to support training and educational programs and to upgrade the equipment used by the beekeepers, a third party such as the EU can provide the impetus for domestic institutions, such as producers associations, chambers of commerce, and cooperatives, to form, to coordinate the necessary activities for trade, like quality sampling, and to create a better environment through the use of collective learning. Doing so will help to sustain economic growth.

In addition to the EU, international organizations, the World Bank, UNDP, national international development agencies such as USAID, as well as international development NGOs can use the experience of the Turkish Cypriot beekeepers as a positive example for the design of their future development initiatives. Development challenges caused by inadequate health, quality, and environmental standards are not unique to Cyprus, but are found in most post-conflict and emerging economies. As mentioned, these challenges often remain unresolved due to the presence of a collective action problem. In this case, the small scale of most of the operations and the status of honey production as a supplemental occupation made standards adjustment infeasible for the local actors. When assessing how best to aid local actors in solving their development challenges, external actors need to be especially cognizant of the challenges presented by small-scale enterprises. Additionally, the experiences of the beekeepers demonstrate that such development programs can be sustainable if they encourage the local actors to assume ownership of the program. By providing initial technical and financial inputs, the external actor can inspire the creation of local collectives that share these resources among the greater community.

Notes

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1. Unique challenges: See, e.g., Collier, *et al*. (2008). Objective and subjective: Knack and Keefer (1997); Fisher (2001); Pearson (2001); Zak and Knack (2001); Gokcekus, *et al*. (2012).

2. Cyprus has been divided into a Turkish Cypriot northern region and a Greek Cypriot southern region since 1974. A UN mission called UNFICYP is responsible for the area that separates the two sides, the Buffer Zone. The zone—also referred to as the Green Line—extends approximately 180 kilometers across the island. (From the official web page of the UNFICYP, http://www.unficyp.org/.)

3. Various factors: Olsen (1965); Pecorino (1998); Kameda, *et al*. (2011).

4. Abbreviated history of Cyprus summarized from the BBC. http://news.bbc.co.uk/go/pr/fr/-/2/hi/europe/country_profiles/1021835.stm [accessed 9 May 2014].

5. Ker-Lindsay, 2011, p. 25.

6. Solsten (1993); Ker-Lindsay (2011).

7. Ratios: Gokcekus (2008, p. 15). It is important to note that, during the period of economic isolation, the share of agricultural products and processed agricultural goods in total exports steadily declined from 83 percent in the late 1970s (1977-1979) to 61 percent in the early 2000s (2000-2003). Moreover, the share of citrus and potatoes decreased from 68 percent and 7 percent to 31 percent and 1 percent, respectively.

8. For the entire text of the 2004 comprehensive solution, known as the Annan Plan, see http://www.hri.org/docs/annan/ [accessed 9 May 2014].

9. Article: Gokcekus, *et al*. (2012).

10. Among Turkish Cypriots there is a widely held view that Turkey, in order to better control the northern part of Cyprus, systematically erected barriers to impede Turkish Cypriots' economic progress and ensure their financial dependence on aid from Turkey. Difficulties at Turkish customs, in particular at the main commercial seaport, Mersin, are among the most prominently cited barriers (Gokcekus, 2014). During our interviews, one of the beekeepers said that in 2002 he was able to secure an export contract with a British company; however, the Turkish authorities refused to grant the beekeeper health certificates and the contract fell through.

11. Isolated: Gokcekus (2008).

12. Annual revenue: Malaa, *et. al* (2012). Average per capita income: BCMAFF (2001).

13. Years of isolation: Gokcekus (2008).

14. Treatment does not kill: Hamdan (2011). Possible link to birth defects and high levels of drugs: Reybroeck (2012).

15. Technical information in this paragraph from Reybroeck (2013). Can become toxic: FAO (1996).

16. Established in 1958, the Turkish Cypriot Chamber of Commerce was the first Turkish Cypriot organization to be internationally recognized, via membership at the International Chamber of Commerce (see http://www.ktto.net/english/history.html) [accessed 9 May 2014]. Only (1) goods that are wholly obtained in the north, or (2) have gone their last, substantial, economically justified processing or working in an undertaking equipped for the purpose in the north are allowed to cross the Green Line (EC 866/2004). The Chamber is authorized by the EU Commission to award certificates of origin, "The Accompanying Document," for the goods (other than live animals and animal products).

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IDENTIFYING CORRUPTION RISKS IN THE DEFENSE AND SECURITY SECTOR: EMPIRICAL EVIDENCE USING THE GOVERNMENT DEFENSE ANTI-CORRUPTION INDEX

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Abstract

This article contributes to the debate on conceptualizing corruption by suggesting that sector-specific typologies of corruption risks are useful heuristics that encourage understanding of corruption without attempting to define it in a way that is inherently contestable or inappropriately succinct. To develop this position, this article reflects on the difficulties in trying to define corruption in both general terms and within the context of the defense and security sector. It then details a corruption risk typology in use in the sector, explains how it was used to provide the theoretical backdrop for a global index, and then submits the typology's five main risk areas to empirical testing using that same index's results. The models that result show that this typology's risk areas display sufficient internal coherence for its key risk areas to be of use not only to practitioners, but also to the sector analyst and academic attentive to conceptual concerns.

Corruption remains a contested term. In the defense and security sector, better conceptualization of the term is possible when preferring a heuristic, sector-specific, and coherent typology over a catch-all definition. In this article a Transparency International typology of corruption risks in the defense and security sector is analyzed. Finding the internal coherence of the typology sound, it is suggested that the approach to measuring corruption can be exported to other sectors of interest.

Previous studies on corruption have tended to divide the issue into four schools of thought: moralist, legalist, market-centered, and public interest. All four exhibit flaws and biases. Moralists, dating back to Machiavelli, Montesquieu, and Rousseau, take the most censorious view, seeing all forms of corruption as wicked and contributory to unstitching society's social fabric. Not only is corruption considered the process by which the virtue of a citizen is destroyed, it is seen as the tool by which a properly functioning political system transcends into an evil one. Yet moralist definitions have been criticized for many years for their inclination to assume that Western standards of morality are universally applicable. As has been evidenced by the international engagement in Afghanistan in recent years, certain behaviors that Westerners may consider corrupt—for instance, nepotism and small bribes to facilitate access to decisionmakers—may not be considered corrupt by locals.[1]

The legalist view attempts to overcome inconsistencies in the moralist definition by combining formal duties of public office with the existing laws of the country in order to judge whether certain behavior is, or is not, corrupt. In essence, corruption occurs where a public official breaks the law for private gain. Yet when officials have not broken any law, or when no law exists to regulate potentially questionable conduct, corruption is not indicated and this may be counterintuitive. In the defense sector, for instance, many countries lack laws on off-budget spending and how this should regulated. If such off-budget spending is diverted for the purposes of influencing decisions behind closed doors, a consistent legalist would be forced to accept this as noncorrupt activity. A legalist definition of corruption tends to focus on political means to profit from private ends which are criminal or otherwise illegal. While such a definition excludes ambiguous moral standards, it nonetheless suffers from clear weaknesses. It overemphasizes the role of the individual at the expense of cadres and entrepreneurs that may similarly engage in corrupt behavior for collective rather than personal gain. Moreover, the law may itself be political, shaped by those who have the opportunity to be corrupt.[2]

Market-centered definitions discard moral and legal concerns and reduce corruption to interaction between the bureaucrat and the public, where a corrupt bureaucrat seeks to maximize income. This makes measurement of corruption problematic since the services governments provide may be difficult to price. Military motivations are, in principle, driven by professional concerns and not by economic incentives. If the primary aim of the armed forces is safeguarding a country's

borders and not engagement in the national economy, the conceptualization of the sector as a market for rent-seeking is incomplete. Exceptions may, however, exist in countries such as Pakistan, Bangladesh, and Indonesia, where the military has a substantial stake in the economic interests of the country through military-owned businesses.[3]

The public interest school defines corruption through a prism in which a corrupt act undermines systems of civil or public order and, thereby, adversely affects the public interest. But public interest may have different connotations depending on the circumstances. A facilitation payment to a defense official might be considered a corrupt act. Yet what if that payment ensures movement of troops to a specific geographic area requiring protection, and this promotes the safety of citizens? If citizen protection is in the public interest, it is necessary to conclude that this payment is noncorrupt.[4]

Perhaps the simplest and most widely used definition of corruption is offered by Transparency International: Corruption is "the abuse of entrusted power for private gain." Even this can be regarded as incomplete: What normative standards define "abuse"? As an alternative, definitions emphasizing corruption as public officials violating impartiality to attain illicit ends may hold resonance. Yet elected officials are almost always—and presumably should be—partial to their mandate. Therefore the concept of impartiality is problematic as well: Competitive politics requires partiality, and subdividing the concept into a narrower form of impartiality—of process, for example, or in opportunity offered to companies bidding for a contract, or candidates applying for a job—begs the question of precisely what the definition should include.[5]

More recently, corruption has been framed as a principal-agent problem: Agents engage in corrupt activity, freed from a potentially honest principal due to the costs associated with on-going control of agents. Whether one can truly identify an honest principal in a deeply corrupt system is uncertain, of course, and agents may have little incentive to refrain from corrupt practices if they feel that their superiors will not follow suit. Corruption might instead be seen as a social trap, its eradication requiring collective action. Corruption would be combated by changing the agent's calculus such that he or she believes that nonparticipation in corrupt activities will lead to similar, noncorrupt, practice by other actors. Yet economic sectors, and actors within the sectors, differ, which begs further questions. For example, incentives applicable to a high-ranking bureaucrat who oversees defense expenditure may differ from those applicable to low-ranking troops seeking rents from citizens; incentives to prevent company officers offering bribes may differ from those appropriate to prevent government officials receiving them.[6]

The article discusses moralist, legalist, market-centered, public-interest, and other considerations of corruption. It then presents and applies Transparency International's view and measurement of corruption to the defense and security sector. Using factor analysis, it finds that TI's index of corruption in this sector is sound, and suggests that the approach may be exported to other public sectors potentially affected by corruption.

Corruption in the defense and security sector

Rather than constructing a distinct definition for corruption in the defense and security sector (DSS), some authors highlight various ways in which the sector varies from civilian public offices. Military discipline relies on a properly functioning hierarchy and chain of command which instills order among the ranks. Corruption, however, promotes the antithesis of such discipline. The behavior of high-ranking officials has a disproportionately significant effect on the standards to which soldiers adhere.

The Defense and Security Program of the U.K. branch of Transparency International (TI-DSP) has developed a typology of corruption risks in the defense and security sector. It identifies five key corruption risks—political, financial, personnel, operations, and procurement—that act as pillars by which sub-risks may be grouped. The typology was developed after consultation with senior defense practitioners and government officials from across countries who have worked on anti-corruption. The typology has gone through several iterations, the most recent of which was in 2011. It is expected to continue to evolve, as new corruption risks—cyber-security, for example—come to prominence.

The typology is a guideline. Although the five key risk areas are likely to be in some way reflected in each country's corruption-risk profile, not all of the sub-risks will apply to each country in equal measure. Thus the typology is flexible, and the sub-risks' relevance may be considered individually when applied to a specific country.

The five key risk areas are:[7]

- *Political*: The risk of defense legislation and controls being compromised by corruption (23 variables).
- *Financial*: The risk of abuse of large, potentially secretive budgets and income (11 variables).
- *Personnel*: The risk of corruption among armed forces and defense ministry personnel (18 variables).
- *Operations*: The risk of corruption occurring during military operations at home or abroad (5 variables).
- *Procurement*: The risk of corruption in the process of purchasing defense equipment and arms (20 variables).

The typology, and the sub-risks, are presented in Table 1. (Full explanations of the sub-risk areas are publicly available.[8]) The typology does not offer a definition, or outline a catch-all concept, of corruption. Rather, as a heuristic—a device that guides learning—the typology reflects those areas in which corruption risk may occur. For example, in political risk, the sub-risk *defense budgets* reflects the potential for oversight of the budget to be compromised, and for these funds to be redirected illicitly or unlawfully. In financial risk, the sub-risk *military-owned businesses* reflects the possibility of illicit personal enrichment to occur as a result of the operations of profit-making enterprises owned by the military establishment. In procurement risk, the *offsets* sub-risk reflects the risk of unlawful or secretive payments made as part of countertrade contracts. At no time is lawfulness, public interest, or standards of public office, invoked as a necessary consideration. Thus the typology circumvents definitional or conceptual considerations. Instead, it offers a practical framework by which one may understand corruption.

Table 1: Corruption risk areas and sub-risks in the defense and security sector

Political	*Financial*	*Personnel*	*Operations*	*Procurement*
Defense and security policy	Asset disposals	Leadership behavior	Disregard of corruption in country	Technical req's and spec's
Defense budgets	Secret budgets	Payroll, HR, rewards	Country within mission	Single sourcing
Nexus of defense national assets	Military-owned businesses	Conscription	Contracting	Agents and brokers
Organized crime	Illegal private enterprise	Salary chain	Private security companies	Collusive bidders
Control of intelligence services		Values and standards		Financing package
Export controls		Small bribes		Offsets
				Contract, award, delivery
				Sub-contractors
				Seller influence

Feedback from TI-DSP training sessions for middle and senior-ranked defense officials that use the typology as a basis for understanding corruption in the sector has been positive, suggesting that it fits the reality of corruption incidence on the ground, is comprehendible, and cross-culturally applicable. Yet to an analyst of corruption or of the defense and security sector, or both, interested in a research framework, how might the five key risk areas, and the sub-risks associated with them, be put to use? A recently released index of levels of defense and security corruption risk provides an indication of the potential for such a typology to be used in a major study.

Using the typology

Transparency International's Government Defense Anti-Corruption Index 2013 (GI) was launched in January 2013 and generated considerable media and government attention. Two reports, one detailing the key findings worldwide and the other specific to the Middle East and North Africa (MENA) region, were published simultaneously. The theoretical backdrop to the GI rests on three attributes. First, the index, of course, is driven by the defense corruption risk typology. The five key risk areas and the sub-risks associated with them directed the focus of a detailed questionnaire. The questions were answered by an assessor with defense and anti-corruption expertise, and two independent reviewers then challenged or confirmed each assessor's scoring and qualitative justifications. TI national chapters and, where they responded, government points of contact, were also given the opportunity to comment.[9]

Second, the concept of corruption risk was integral to question development. Questions were designed to identify policies, institutions, and behaviors that might affect particular corruption risks, both in terms of their potential frequency and their potential severity. Dividing the concept of risk into these twin concepts is important: Procurement questions tend to focus on the severity issue, the capacity of oversight processes to prevent potentially highly costly arms scandals. Questions on personnel tend to relate to lower-level corruption that might occur in greater frequency, facilitation payments, for example, or nepotistic recruitment.

Third, the GI is a hybrid index. A hybrid index may be limited to whether it is input or output-based, that is, whether

it seeks to identify rules in place or the effectiveness of those rules. But in the case of GI, both aspects are captured: For the top scores to be awarded by an assessor in the GI, both *de jure* and *de facto* circumstances must indicate clear likelihood that corruption risk is curtailed. The GI is also hybrid in that it spans the dichotomy between numerical and descriptive indicators: All quantitative scores are backed by narrative justification. The GI is hybrid a third way: Where possible, it combines rigorous assessor-based analysis with government commentary.[10]

The GI results were stark in their indication of the high levels of corruption risk in the defense and security sector worldwide. Countries were banded according to overall score, and 69 percent of them were placed in Bands D, E, and F, which indicated the award of less than half of the total marks available, and high, very high, and critical risk of corruption in the sector, respectively. Table 3 outlines the banding schema and the countries attached to each band.

Results by key area of the risk typology are indicative of specific concerns. In terms of *political* risk, there are minimal formal mechanisms for scrutiny of defense policy in 45 percent of countries covered. Secrecy is considerable in *finance* risk, affecting asset disposals, military-owned businesses, and the defense budget. In terms of *personnel* risk, scores are generally higher across countries, with many militaries possessing robust payment structures and formal measures to tackle corrupt troops. In *operations*, few countries possess military doctrine, operational training, or monitoring that looks at anti-corruption. Finally, in *procurement* risk, transparency is limited across countries, and controls of some of the more complex areas of the process such as subcontractors, offsets contracts, and the use of agents, are often weak.

Table 2: GI results by band, 2013

Band	*Overall scores*	*Countries*
A: Very low risk	83.3 ≤ 100	Australia, Germany
B: Low risk	66.7 ≤ 83.2	Austria, Norway, South Korea, Sweden, Taiwan, United Kingdom, United States
C: Moderate risk	50.0 ≤ 66.6	Argentina, Brazil, Bulgaria, Chile, Colombia, Croatia, Czech Republic, France, Greece, Hungary, Italy, Japan, Latvia, Poland, Slovakia, Spain
D: High risk	33.3 ≤ 49.9	Bangladesh, Belarus, Bosnia and Herzegovina, China, Cyprus, Ethiopia, Georgia, Ghana, India, Israel, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Malaysia, Mexico, Nepal, Pakistan, Palestine, Russia, Rwanda, Serbia, Singapore, South Africa, Tanzania, Thailand, Turkey, UAE, Ukraine
E: Very high risk	16.7 ≤ 33.2	Afghanistan, Bahrain, Cote d'Ivoire, Indonesia, Iran, Iraq, Morocco, Nigeria, Oman, the Philippines, Qatar, Saudi Arabia, Sri Lanka, Tunisia, Uganda, Uzbekistan, Venezuela, Zimbabwe
F: Critical risk	0 ≤ 16.6	Algeria, Angola, Cameroon, DR Congo, Egypt, Eritrea, Libya, Syria, Yemen

Analyzing the risk areas with factor analysis

The availability of the index dataset enables more detailed analysis of the defense corruption risk typology and moves the focus from headline results to conceptual considerations. Does rigorous testing of GI data confirm or challenge the five key risk areas identified by the TI-DSP typology? Factor analysis, a statistical tool enabling a broad set of variables to be analyzed, cross-correlated, and implicit factors within these variables to be teased out, can help answer this question.

One way to approach the analysis is to include all 77 variables into a single factor analysis model and see if five factors corresponding to the risk areas emerge. Alternatively, one can take the five risk areas as given and load the variables into five separate models—one each for the political, financial, personnel, operations, and procurement corruption risk areas. If the TI-DSP typology is analytically sound, we should expect to find a single key factor drawn out from each set. For each set, the factors with eigenvalues over 1.0 were maintained.

Of course, an objection to this approach is that because the questionnaire is structured around the typology, any test of internal coherence is likely to be tautological. But this is not likely to be the case. The reason for this is that during the index methodology design, questions were made highly specific, and detailed model answers provided. The need for assessors to provide specific evidence to back each score reduces any assessor's bias to "cluster" answers by risk area or of introducing a thematic bias that would correspond to GI's risk areas. The factor analysis runs look to confirm that within each risk area, the questions do cluster coherently around that risk area.

The various panels in Table 3 shows the results for each set, summarizing the factors retained, their eigenvalues, and the variables relevant to each. Thus, Panel A, containing the

political risk variables, three factors exhibit eigenvalues over 1.0, the standard cutoff score. Factor 1 draws out many of the political risk variables, and explains much of the variance in the data. Factors 2 and 3 are rather weaker, with eigenvalues not far over 1.0, and with only limited contribution to the overall variance explained. Factor 2 seems to isolate public trust in the defense establishment to avoid corruption, which correlates well with the existence of institutions to prevent corruption risk and low levels of organized crime linked to the military. Public trust is likely to be affected by both things quite starkly. Factor 3 is driven almost solely by organized crime policing, perhaps reflecting a distinction between law enforcement and defense corruption risk. In sum, the political risk variables are largely coherent, with two additional factors contributing in only a limited way to increased variance explained.

Panel B shows the results for the financial risk variables. With the exception of a single variable, all others cluster onto a single factor. The exception, percentage of secret spending, was, indeed, the variable that countries across the world scored worst in and was one of the most demanding to measure and assess. It required that governments were open about levels of secret spending to the public, not just to the legislature. Openness would help reveal either anomalous fluctuations in levels of such spending or simply high levels of spending, both of which might indicate a potential for secrecy to be used as a corruption smokescreen. In practice, reluctance to make publicly available any detail on secret items is clear, and the variable thus forms a coherent factor in itself.

Panel C turns to personnel-related risk items. A strong first factor with a high eigenvalue appears to be a catch-all across personnel themes, embracing leadership commitment to anti-corruption efforts, robust whistle-blowing mechanisms, and addressing code of conduct breaches. Factors 2 and 3 are also retained, but explain only little additional variance. Factor 2 is driven strongly by variables tapping low-value but potentially frequent forms of corruption such as conscription-related bribery, ghost soldiers (nonexistent soldiers on the payroll), and facilitation payments. Factor 3 taps transparency in personnel issues and robust systems of personnel payment.

With regard to operations risk, Panel D shows a single factor, which thus captures every underlying variable. Finally, in terms of procurement-related risk items, Panel E, a more complex picture emerges. Four factors are retained (but only the first two seem worthy of discussion). Factors other than Factor 1 capture only a limited amount of additional overall variance, suggesting considerable coherence among the bulk of the variables within the risk area. Factor 1 displays positive factor loadings across the variables, and is driven by fundamental transparency requirements and anti-corruption mechanisms in arms purchases, e.g., disclosure of purchases made, anti-corruption provisions in procurement legislation, open competition and anti-collusion provisions, and quantification of planned purchases. Factor 2 isolates more technical controls, including items pertaining to offset contracts and procurement agents. Factors 3 and 4 cluster variables that are not intuitively reconciled (their eigenvalues are, respectively, 1.22 and 1.04). However, they capture only a very small proportion of the variance.

Table 3: Results of factor analyses

Factor	*Eigen-value*	*Variables with high loadings*
Panel A: Political risk (23 variables)		
1	13.48	Bulk of the political risk variables
2	1.36	Public trust in defense; existence of anti-corruption institutions
3	1.05	Organized crime policing
Panel B: Financial risk (11 variables)		
1	5.9	Every variable other than transparency over percentages of secret spending
2	1.1	Transparency over percentages of secret spending
Panel C: Personnel risk (18 variables)		
1	9.71	Nearly all personnel risk variables, especially items tapping leadership commitment to anti-corruption, whistle-blowing mechanisms, and address code of conduct breaches
2	1.71	Low-value/high-frequency corruption items
3	1.27	Transparency in personnel issues; robust payment systems
Panel D: Operations risk (5 variables)		
1	2.89	Every operations risk variable, which covers anti-corruption in military doctrine, training, monitoring, contracting, and controls on private military contractors
Panel E: Procurement risk (20 variables)		
1	9.81	Basic procurement controls
2	1.40	Technical procurement controls

The findings for all five risk areas may be summarized as follows:

- General political controls and oversight: **Strong**
  - Public trust and items affecting it: Weak
  - Organized crime policing: Weak
- General financial controls and oversight: **Strong**
  - Public disclosure of secret spending: Weak
- General personnel controls and oversight: **Strong**
  - Controls on low-value personnel corruption: Weak
  - Transparency in personnel: Weak
- General operations controls and oversight: **Strong**
- Basic procurement controls and oversight: **Strong**
  - Technical procurement controls: Weak

The five risk areas of the typology appear justified. Factor analysis identifies, in each case, a strong first factor that taps general controls in each of the five areas. Other factors contribute to capture part of the overall variance, but do not challenge the primary factor. Only in procurement-related risk is more of a two-factor division noticeable, between basic and more technical controls, but even here the second factor is not particularly strong.

We ran additional factor analyses in which we separated the 77 variables not into five corruption areas but into two groups, reflecting transparency and oversight. In both cases, however, more than one clear factor was retained, suggesting multiple concepts at play within transparency and within oversight. Thus, it appears that it is preferable to use TI's existing five risks typology as a means of conceptualizing corruption in the sector.

Discussion

Conceptualizing corruption is problematic but, clearly, of much importance in the defense and security sector, where power can be exercised in palpable forms, secrecy is rife, and budgets are hugely significant to national economies. The TI-DSP defense and security typology helps practitioners break down and assess corruption risk in the sector. A heuristic device useful in training and reform efforts, it has analytical potential as well and forms the backbone of a global index. This article finds that the typology captures conceptually coherent sets of variables, within each risk area. In only a few cases do index items deviate from a coherent main factor in each of the five risk areas analyzed. For us, this analysis suggests two things. First, sector-specific typologies, when developed by experts and subject to judicious revision, can usefully conceptualize corruption without being weighted down by arguments about definitions. Analysts can mount definitional, i.e., interpretative, lenses onto the typology later on. There is reason, then, to support the development of equivalent typologies in other fields relevant to defense and security, and indeed in nondefense and security industries and sectors as well. This need not require statistical analysis from the outset, even if it proves useful later. Theorists interested in conceptualizing corruption in a given sector might start out by considering specific risks and how they group together, keeping definitional concerns on the periphery of their thinking.

Second, TI's existing typology's five main risk areas are, with the caveats provided and using GI data, capable of being made into coherent scales through which further analysis can be undertaken. The data is publicly available, and further analysis is encouraged. The causal properties and determinants of scales relating to the five risk areas are of analytical use. For example, perhaps political corruption risk is explained by constitutional and institutional factors. Procurement corruption risk might be a consequence of openness to trade, the nature of weapons exported, or recency of arms scandals. Such analysis would speak not only to the literature on the determinants of corruption, but also explore how the reduction of the causal factors behind corruption in the defense and security sector may promote peace. Corruption in this sector may be detrimental to peace if the incentive to profit from corrupt arms deals leads to the purchase of unnecessary weapons and prompts reactive purchasing by other countries. The potential for arms races to develop as a consequence of corrupt motivation is yet to be tested but linking such analysis to the causal properties of the underlying corruption would be a salient topic for further work. Thus the typology and its risk areas provide not only a heuristic tool, but also—when used with reference to data provided by the GI—a potentially rich reference point for future research.

Notes

1. Flaws and biases: Mulvenon (2004). Social fabric: Farrales (2005). Evil one: Friedrich (1989). Universally applicable: Bayley (1966).

2. Otherwise illegal: Bryce (1921). Opportunity to be corrupt: Johnston (1982).

3. Seeks to maximize income: Klaveren (1989).

4. Affects the public interest: Rogow and Lasswell (1977).

5. Define "abuse": Rothstein (2011).

6. Principal-agent: Teorell (2007); Groenendijk (1997). Social trap: Rothstein (2011).

7. See TI-UK (2013a).

8. See TI-UK (2011).

9. Media and government attention: TI-UK (2013c). Published simultaneously: TI-UK (2013a; 2013b).

10. Hybrid index: UNDP and Global Integrity (2008). Dichotomy: Doig, *et al*. (2006).

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SOCIOECONOMIC CONDITIONS AND VIOLENCE IN CAPE TOWN, SOUTH AFRICA

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Abstract

There is considerable debate over the causes of violence around the world, one which goes beyond the analysis of conflict to consider the dynamics of community behavior and the importance of economic and behavioral factors. South Africa competes with Colombia, Venezuela, and a number of Central American countries for the unwelcome distinction of having among the world's highest homicide rates, and high prevalence of other forms of violence, including domestic and sexual violence, are also appallingly prevalent. This article presents an analysis of data from a panel of young men in Cape Town. It provides little support for the hypothesis that unemployment is a direct cause of violence against strangers. The impact of drinking (or taking drugs) by adults in the home or by the young men themselves, living in a bad neighborhood, and immediate poverty are associated with violence against strangers, but being unemployed is not. This suggests that few young people in South Africa in the early 2000s come from backgrounds that strongly predispose them against the use of violence.

There is considerable debate over the causes of violence around the world, one which goes beyond the analysis of conflict to consider the dynamics of community behavior and the importance of economic and behavioral factors. One of the more interesting countries to study is South Africa, which competes with Colombia, Venezuela, and a number of Central American countries for the unwelcome distinction of having among the world's highest homicide rates. Other forms of violence, including domestic and sexual violence, are also appallingly prevalent. Rising violence has been a major concern for privileged white South Africans, many of whom seem to view violence as a racialized reaction by young black men to the inequalities that have outlasted apartheid itself. But violence has been as much of a concern to black South Africans. Even though black South Africans, especially in urban areas, experienced high levels of violence in the past, the perception that personal security was better then has contributed to elements of nostalgia for the apartheid era.[1]

There are many possible causes of high and rising levels of everyday violence. Our understanding of the causes of trends in violence remains limited, however, by the paucity of good data. Ideally, we would be able to draw on two kinds of data. First, we would have data on the incidence of violence by neighborhood and over time, which would be matched to data on varying and changing socioeconomic conditions and to the efficacy of the criminal justice system. Variations over time and space would allow us to identify the conditions that drove or permitted varying and changing levels of violence. This approach has been adopted widely in the United States, and in some countries in the global South.[2]

The second kind of data that would ideally be available are data on individuals collected through a panel study designed from the outset to assess how and why some young people end up with violent careers. An example is the National Youth Survey (NYS) in the U.S., which began collecting data in the late 1970s on a cohort of young people, then aged 11-17. The study has continued into the 2000s, and the participants in the panel are now middle-aged. Such studies have resulted in important findings with regard to the ages at which young people first perpetrate violence, the sequence of forms of violent behavior, and the ages at which perpetrators cease to perpetrate violence. They have also pointed to the factors and pathways that lead to serious violence, including social class, specific conditions at home and school during childhood, and more proximal predictors such as norms and peer influences.[3]

This article goes beyond existing studies by using two new sources of data. First, we draw on semi-structured interviews conducted in 2008 with forty-five residents living in high-violence, African neighborhoods in Cape Town, to examine local knowledge about the causes of violence. Second, we draw on data from a panel study of young people in Cape Town (the Cape Area Panel Study) to model causal pathways to violence. [4]

Data sources

In the interview study, our goal was to tap into local knowledge about violence in selected neighborhoods on the eastern periphery of Cape Town (Delft and Khayelitsha). The sample comprised a random sample of residents of selected neighborhoods supplemented with additional interviews with a smaller convenience sample in the same or similar neighborhoods. The sample includes men and women, aged 21 to 54, some working, others not. We pay particular attention to interviewees' views on the involvement in violence of young men.

The second source of data is the Cape Area Panel Study (CAPS) of adolescents in Cape Town. The first wave of CAPS was conducted in 2002, when interviews were conducted with 2,140 young men (together with a slightly larger number of young women), then aged 14 to 22 years old, as well as older members of their households. The panel included many young people who had been born in rural areas and subsequently migrated to the city. In 2009, about 1,420 young men, by then aged between 20 and 29 years, were interviewed as part of the most recent, fifth, wave (together with about the same number of young women). One disadvantage of a panel study such as CAPS is that the panel shrinks over time through attrition. After five waves, CAPS has very detailed data on a panel that, due to attrition, is no longer representative of the general population of young people in Cape Town in their 20s.[5]

In the fifth wave, the measure of the dependent variable was participants' response to being asked whether, in the past three years, they had hit or physically assaulted each of (1) "a girlfriend, boyfriend, partner or any adult in your family," (2) a friend or neighbor, and (3) a "stranger or someone you do not know well." There was no measure of chronicity and the perpetration could have occurred at any time in the three-year period. To reduce the extent to which the perpetration of violence would be underreported, respondents completed the module about the perpetration of violence themselves without being questioned by the interviewer. In total, about one in four young men (and one in eight young women) said that they had hit someone (i.e., in any of these categories) in the previous three years. In each of the three categories, about one in eight men (and a smaller proportion of women) said that they had hit someone. These figures broadly accord with other data on the perpetration of everyday violence.

Economic factors: Poverty and unemployment

There are many possible reasons why poverty and unemployment might lead to violence. Poverty means that young men have an incentive to commit crime, especially when poverty coexists with inequality, and crime is likely often to entail violence (especially against strangers, outside of the home). Unemployment means that young men have lots of free time. Unemployment probably also undermines traditional bases of masculinity, resulting in young men resorting to violence, inside as well as outside the home, as an alternative marker of their masculinity. Moreover, the unemployed, and perhaps the poor generally, might either see themselves as outsiders in society or are actually outside of the social networks that sustain norms against violence.[6]

This article presents an analysis of data from a panel of young men in Cape Town. It provides little support for the hypothesis that unemployment is a direct cause of violence against strangers. The impact of drinking (or taking drugs) by adults in the home or by the young men themselves, living in a bad neighborhood, and immediate poverty are associated with violence against strangers, but being unemployed is not. This suggests that few young people in South Africa in the early 2000s come from backgrounds that strongly predispose them against the use of violence.

When we asked our respondents in wave 5 of CAPS about the causes of violence in South Africa, almost everyone (89 percent) agreed that poverty and unemployment were important causes. Similarly, in our semi-structured interviews, interviewees frequently pointed to these economic factors and reported that violent people themselves justify their actions in terms of poverty. Poverty is widely attributed to unemployment and difficulties in securing a job. Interviewees acknowledged that the government has sought to create jobs, but there is a widespread perception that employment opportunities have actually worsened since the end of apartheid, with permanent and formal employment ever scarcer: With their prospects for employment diminished, young people are said to turn to crime as an alternative source of income. Our interviewees emphasized that while employment does reduce violence, the lack of employment does not inevitably lead to crime or violence.[7]

Among the CAPS panel, we find modest bivariate correlations between some measures of economic conditions and the perpetration of violence against strangers. Young men who report that their household had not had enough to eat sometime in the past month, or who had been living in poor or very poor households in 2006, were about one and a half times more likely to have hit a stranger than young men without these characteristics. But various measures of unemployment did not predict violence against strangers. Nor was there any statistically significant relationship between whether a young man had lived in a poor neighborhood in 2002 and the subsequent perpetration of violence against strangers. Even together, these conditions have little effect. A young man who

reported not having enough to eat in the past month and who had been unemployed at the time of the 4th interview (in 2006) and who had lived in 2002 in a poor or very poor neighborhood was no more likely to have hit a stranger than a young man with none of these characteristics.

These findings mean that young employed men are almost as likely as their unemployed counterparts to have assaulted a stranger. Similarly, young men who have graduated from high school are almost as likely to have hit a stranger as those who dropped out of school. They also mean that other factors are causing considerable variance within each of these categories in terms of the perpetration of violence. Evidently some forms of violence are widespread in South African society, rather than being heavily concentrated in particular economic contexts.

Economic variables explain only a small part of the variance in violence among the young men in our panel. Our best multivariate regression model, regressing violence against economic and educational variables, has an R-squared value of only 1 percent for violence against strangers (much less than the 4 percent for domestic or intimate partner violence). As many of the interviewees in our in-depth study noted, young men from economically disadvantaged backgrounds make choices: some choose to use violence; many do not.

Our findings are broadly consistent with others. For example, Patrick Burton, Lezanne Leoschut, and Angela Bonora, compared young offenders and nonoffenders. They found that offenders could not be distinguished on the basis of the poverty of their households, the education levels of their household heads, or unemployment rates in their households. They did find that offenders were less likely to have completed school than nonoffenders, which was not replicated in our comparison of perpetrators of violence against strangers compared to nonperpetrators. But their finding might be, at least in part, a consequence of arrest and conviction.[8]

Overall, contrary to the local knowledge of residents of high-violence neighborhoods, unemployment does not seem to be a direct cause of violence, economic conditions appear to have weak effects, and education does not deter young men from violence.

Social factors: Disintegration and indiscipline

The choices that young men make about the use of violence are likely to be shaped by their social experiences. Exposure to violence or other forms of social adversity during childhood often has a lasting effect into adulthood. In the original interviews (in 2002) with young men and women in Cape Town, just under one in ten reported that they had occasionally, sometimes, or often been hit hard when they were growing up, and one in three said that they had been pushed around. Almost one in four respondents told us that they had grown up in a household with an adult who had either a drinking problem or took street drugs. Almost one in ten reported that, when they were children, some of their kin were in jail.

In most poor and many medium-income neighborhoods, only about one-third of children live with their fathers. While some absent fathers make great efforts to play a role in their children's lives, and in some cases stepfathers or other men assume the role of a father, in many cases separation from a father results in an important gap in the life of a young person. This is in part because of the shrinkage of the extended family. At the same time as the proportion of young people growing up in nuclear-family households has declined, non-nuclear kin seem to recognize fewer obligations to each other than in the past.[9]

Three out of four of our CAPS respondents agreed that a lack of respect and discipline was an important cause of violence. We have no measures for "discipline" or "respect," but we have asked young people about aspects of their home environment during childhood (see above). We find a weak statistical relationship between reported exposure to violence during childhood (as reported in 2002) and the perpetration of violence in early adulthood against strangers (as reported in wave 5, in 2009).

Paternal absence during childhood clearly matters. A young man who spent little of his childhood living with his biological father was one and a half times as likely to perpetrate violence as a young man than someone who had mostly or always lived, as a child, with his father. The time that a boy spent living with his mother had no such effect.

Exposure during childhood to drinking and drug-taking also correlated with violence during early adulthood. A young man who had reported (in 2002) that he had grown up in a household with someone who "was a problem drinker or alcoholic" or "used street drugs" was almost twice as likely to say (in 2009) that he had hit a stranger in the previous three years, compared to someone who had not grown up amidst drinking and drug-taking. The effect of exposure to violence during childhood was slightly weaker.

We also investigated whether marital status, parental status, or household headship affected the perpetration of violence. In bivariate analysis, neither being a household head nor being married (in 2006) had a statistically significant relationship with the perpetration of violence, and the odds ratios were close to 1.

Our findings are consistent with those of Burton, *et al*. They found, using once-off rather than panel data, that some

social factors do distinguish young offenders from nonoffenders. Young offenders were less likely to have good relationships with their fathers or mothers than nonoffenders. They were also more likely to come from households where violence was common, where parents disciplined them violently, or other household members engaged in crime, than nonoffenders. Data from the fifth wave of CAPS also show a strong relationship between whether a young man has kin who are in jail, take drugs or steal, and the perpetration of violence against strangers, but because these data are all from the fifth wave there is some uncertainty over whether the direction of causation runs solely from kin to violence. It is possible that perpetrators of violence corrupt their kin as much as vice versa.

Behavioral factors: Drinking and drugs

Drinking and using drugs are widely seen as behaviors that are associated with violence, in South Africa and elsewhere. Seventy percent of CAPS respondents agreed that excessive drinking by men was an important cause of violence, lower than poverty and unemployment, and disrespect and ill-discipline, but a substantial majority. Women, and men who reported not consuming alcohol in the past month, were significantly more likely to agree that male drinking was a cause of violence. African people were more likely to agree, while white people were more likely to disagree. This racial difference may be attributable to differences in either drinking cultures or locations. White people are more likely to drink alcohol in licensed establishments with security personnel presesnt, while African people are more likely to drink in unlicensed shebeens. Interviewees concurred that shebeens are sites of frequent violence.[10]

South Africa has one of the highest rates of alcohol consumption per drinker in the world, as well as some of the highest rates of hazardous drinking. When the country is broken down by province, the Western Cape emerges as having the highest rates of lifetime and previous year alcohol use and risky drinking among both males and females, although with higher rates for males for both variables.[11]

According to our interviewees, alcohol may increase aggression, prompting violent behavior. At shebeens, the high levels of intoxication among customers frequently lead to violence, often over small matters. Drug use was closely associated by interviewees with alcohol abuse and violence. Robbery is believed to be a means to pay for alcohol and drug habits. Like drunkenness in shebeens, the influence of drugs is also seen as leading to violence independent of other motivations. Drug and alcohol abuse is clearly a social ill associated with increased levels of violence and is an especially great problem in Cape Town, where one study found 47 percent of arrestees for violent offenses to have been under the influence of at least one drug.[12]

Within the CAPS panel, when interviewed in 2009, we find a strikingly bipolar distribution of alcohol consumption. Almost half of the panel (45 percent) say that they have never drunk alcohol, and another 10 percent say they last had a drink more than twelve months earlier. In contrast, more than one half of young men and more than one quarter of young women reported having consumed some alcohol in the past month. One in ten young men say they drink at least 2-3 times per week, and another 30 percent say they drink about once per week. When asked how many drinks they typically consumed on one of these drinking days, hardly any young men said "one or two." The median consumption was 5 or 6 drinks, and as many as one-third of the young men (who said they had drunk in the past month) said that they typically drink ten or more drinks. Our panel of young men thus includes a large number of nondrinkers, some moderate drinkers, and a significant minority of heavy, binge drinkers. CAPS respondents were asked about drinking in previous interviews also, allowing us to build up a picture of our respondents' drinking histories.

Young men who drink are approximately twice as likely to report perpetrating violence against strangers (and the odds ratios are similar for violence against girlfriends, family, friends, and neighbors). Men who drink heavily are more likely to report violence than men who drink moderately. Men who have reported drinking through successive interviews, and men who say they grew up in households where someone had a drinking problem, are more likely to report perpetrating violence. All of these measures of drinking have sizeable and statistically significant effects on violence even when included in a multivariate model. A young man who had reported drinking in successive interviews and who had been exposed to excessive drinking at home, as a child, was over five times more likely to report perpetrating violence than a young man who never reported drinking or exposure to drinking problems.

Taking drugs, or exposure to drug-taking, also correlates with violent behavior. Young men who admitted to taking drugs in the 4th wave of CAPS (in 2007) were almost twice as likely as others to report (in the 5th wave) that they had perpetrated violence during the intervening years. Being exposed to drug-taking in childhood, or having kin who take drugs now, also correlate with the perpetration of violence.

Almost all studies that probe the effects of drinking and drugs on violence in South Africa find that they matter. In Burton, *et al*.'s study, offenders reported much higher levels of alcohol and drug abuse than nonoffenders. Jewkes, et al. found that problem drinking correlated positively and significantly with both intimate partner rape and nonpartner rape. Abrahams,

et al. found that drinking (and drug use) correlated positively with intimate partner violence among working men in Cape Town. Data from urban hospitals and mortuaries show that one half of the victims of fatal injuries and three-quarters of the victims of nonfatal injuries tested positive for alcohol. These proportions were highest in Cape Town, where alcohol-related deaths and injuries peak distinctively over weekends.[13]

The precise relationship between drinking and violence has not been demonstrated empirically, but the accounts given by our in-depth interviewees above are likely to be accurate. A high proportion of non-domestic violence is situational in that it occurs in and around bars and shebeens. Returning drunk from bars or shebeens also exposes people to violence. Drunk men also seem more likely to be violent in or around the home.

The relative importance of different factors in the perpetration of violence by young men

CAPS data allow us to run a multivariate analysis to examine how different factors are related to the perpetration of different forms of violence. Following the analysis used in some South African studies of rape and intimate partner violence, Table 1 reports logistic regression results for the dependent variable taking the value one when violence against strangers by young men is reported in CAPS, and zero otherwise. The first model only considers four economic and educational variables: Whether the respondent said (in 2009) that any household member had gone without food in the past month, whether the respondent had been unemployed in 2006, whether the respondent had lived in a poor neighborhood in 2002 (i.e., at the time of the first wave of interviews for CAPS), and whether the respondent had passed matric by 2006. (To reduce uncertainty about the direction of causality, we use data for 2006 or earlier whenever possible.)[14]

Table 1: Predictors of violence against strangers, young men aged 20-29

	(1)	(2)	(3)	(4)
Gone without food (2009)	1.8***	1.7***	1.6***	1.7***
	(0.3)	(0.3)	(0.3)	(0.3)
Unemployed in 2006	1.1	1.0	1.0	1.0
	(0.2)	(0.2)	(0.2)	(0.2)
Poor neighborhood background (2002)	0.7*	0.7*	0.7	0.8
	(0.1)	(0.1)	(0.1)	(0.2)
Passed matric by 2006	0.8	0.9	0.9	1.1
	(0.1)	(0.1)	(0.2)	(0.2)
Absent father during childhood		1.3*	1.3	1.3
		(0.2)	(0.2)	(0.2)
Childhood home drinks or drugs		1.8***	1.7***	1.6***
		(0.3)	(0.3)	(0.3)
Takes drugs (2006)			1.4*	1.2
			(0.4)	(0.3)
Drink moderately (various waves)			1.4	1.3*
			(0.3)	(0.3)
Drink heavily (various waves)			1.7***	1.6**
			(0.3)	(0.3)
Short-tempered or impulsive				1.8***
				(0.3)
Bad kin (2009)				1.0
				(0.1
Bad neighborhood (2009)				1.4***
				(0.1)
Pseudo-R-squared	0.01	0.03	0.03	0.08
Sample size (*n*)	1,420	1,420	1,264	1,264

Note: Logistic regressions, reporting odds ratios (standard errors in brackets). All variables are dummy variables. Significance: * p<0.1; **p <0.05; *** p<0.01.

The model shows that going without food in 2009 is highly significant in this multivariate model, with an odds ratio of 1.8. Neither unemployment nor educational attainment are significant, and coming from a bad neighborhood actually has a negative effect (an odds ratio of less than 1) when controlling for the other economic and educational variables. At only 1 percent, the R-squared value for this model is low. (An equivalent model, for domestic violence, shows somewhat larger coefficients, higher significance, and a larger R-squared.)

Adding variables for the home environment during childhood—model (2)—improves slightly on the R-squared value. Paternal absence during childhood predicts violence against strangers, even controlling for the economic and educational variables already considered. The presence of someone with a drinking or drugs problem at home during childhood was a stronger predictor of violence against strangers in later life. The economic and educational variables remain significant with the addition of these childhood environment variables. Model (3) adds variables for drinking and drug-taking in early adulthood, showing that they also predict violence against strangers. The economic variables

continue to have weak effects with respect to violence against strangers; the presence of a drinker or drug-taker during childhood continues to be significant, even controlling for similar behavior on the young man's own part later in life.

Finally, model (4) shows the conditional correlations when we add in variables for whether the young man is (self-reportedly) impulsive or short-tempered, has "bad" kin (i.e., kin who take drugs, do things that could get them into trouble with the police, or are actually in jail) and lives in a "bad" neighborhood (i.e., one in which the respondent knows personally people who sell drugs, steal, or are in jail). All of these are variables from wave 5, not from previous waves. Bad kin is not significant, but temper or impulsivity and bad neighborhood are statistically significant. The one economic variable ("gone without food"), the presence of a drinker or drug-taker in the childhood home, and heavy drinking remain significant. The R-squared for model (4) is higher, at 8 percent. Although not shown, adding dummy variables for race does not improve the models, and the relationships between race and violence are not significant.

In summary, this preliminary multivariate analysis corroborates the picture from bivariate analyses: Past poverty and unemployment are not strong predictors of the perpetration of violence by young men against strangers. Drinking, both by others in the childhood home and by the young man in adolescence and early adulthood, is a predictor, and factors linked to the immediate context ("gone without food" and the neighborhood) also correlate significantly and conditionally with violence against strangers. None of these models include any variables measuring the perceived efficacy of the criminal justice system, discipline or respect, or norms and beliefs.

One problem with this kind of multivariate analysis is that the correlations are conditional on the other variables included in each model. If there are important relationships between independent variables, then the model might serve to disguise both direct and indirect effects between any independent variable and the dependent variable. While there is no overall problem of multicollinearity with the regression models reported in Table 1, an alternative approach can more fully set out the causal pathway leading to the outcome of perpetrating violence against strangers. Table 2 shows the correlations among the variables. For most pairs, the correlation coefficients are less than 0.1.

Table 2: Correlation matrix for independent variables

	V	*BG*	*CDD*	*U*	*M*	*DH*	*FD*	*BN*	*STT*
V	1.00								
BG	-0.03	1.00							
CDD	0.09	-0.05	1.00						
U	0.03	0.01	0.08	1.00					
M	-0.01	0.09	-0.06	-0.06	1.00				
DH	0.10	0.14	0.10	0.03	0.02	1.00			
FD	0.05	0.31	0.03	0.10	-0.10	-0.02	1.00		
BN	0.19	0.06	0.07	0.07	-0.16	0.01	-0.01	1.00	
STT	0.12	0.04	0.04	0.02	-0.09	0.03	-0.03	0.12	1.00

Notes: V=Violence against strangers; BG=Background in poor neighborhood (2006); CDD=Childhood home drink or drugs (2002); U=Unemployed in 2006; M=Passed matric in 2006; DH=Drink heavily (various waves); FD=Gone without food (2009); BN=Bad neighborhood (2009); STT=Short-tempered or impulsive (2009).

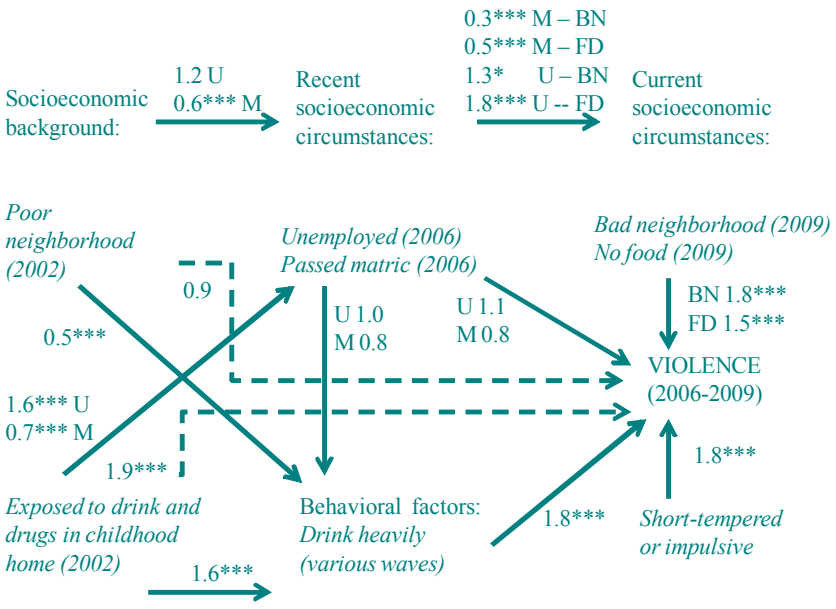

Figure 1: Modeling the correlates of the perpetration of violence against strangers.
Note: For variable abbreviations, see Table 2.

To investigate the causal pathways involved, a series of regressions were undertaken to identify the manner in which the individual variables affect the final outcome of violence. Figure 1 reports the result of a path analysis. Odds ratios and statistical significance are reported for the relationship between each pair of independent and dependent variables, controlling for all of the previous variables in that pathway. For example: Controlling for the influence of (1) exposure to drink and drugs in the childhood home, (2) living in a poor neighborhood in 2002, (3) being unemployed in 2006, and (4) passing matric (i.e., completing secondary school) by or in 2006, drinking heavily in various waves increases the odds of perpetrating violence by 1.8 units of measurement (and is statistically significant at the 1 percent level). Codes are explained in Table 2.[15]

It appears that socioeconomic background has no direct effect on violence, and if there is an indirect positive effect, it is very indirect indeed, while background affects educational attainment but not unemployment. Neither educational attainment nor unemployment have direct effects on violence, but they do affect whether the young man lived (in 2009) in a bad neighborhood or in a household where someone has gone without food. Only indirectly, through the latter factors, might socioeconomic background, unemployment status in 2006, or educational attainment in 2006 have any effect on subsequent violence against strangers. Socioeconomic background does have an indirect negative effect, however. Drinking predicts violence, and socioeconomic background has a significant but negative effect on drinking. We do not know the reason for this relationship, but it is likely to be in part because heavy drinking is not easily afforded by young men in poor neighborhoods. Exposure to drinking and drug-taking in the childhood home does have strong direct effects on the perpetration of violence in later life, might have indirect effects through the young men's own drinking histories, and might also have indirect effects through recent and current socioeconomic circumstances.[16]

Our results do not necessarily corroborate the finding by Demombynes and Özler, using district-level data from 1996, that the relationship between income and violence in South Africa has the shape of an inverted U. Their data are national, and at the level of districts, whereas ours are limited to Cape Town, and are at the level of individual young men. But it is striking, nonetheless, that neither study finds that deep poverty is associated with most violence against strangers.[17]

Conclusion

South African provides a valuable case study for the effect of economic and behavioral factors on violence. In this study of areas around Cape Town, panel data provide little support for the hypothesis that a poor background or unemployment are direct causes of violence by young men against strangers, although immediate poverty might be. Experiencing violence during childhood does not predict perpetrating violence later in life, but growing up in a home where someone drank heavily or took drugs does predict subsequent violence. A history of drinking or taking drugs oneself also predicts violence, as does living in a bad neighborhood. Our multivariate analysis suggests that the evident effects of immediate poverty and neighborhood are unlikely to reflect the indirect effects of past economic conditions. Overall, deep-rooted social and economic factors are less important, directly or indirectly, than is commonly imagined. We are struck by the importance of behavioral factors (notably drinking and drug-taking) and the immediate context.

Our findings do not mean, however, that socioeconomic background has no importance. It might be the case that the inter-individual differences in background simply pale into insignificance in the current context of high levels of everyday violence. Almost everybody in Cape Town is growing up in an environment that is both violent and, to some extent, is normatively tolerant of violence. Good longitudinal data at the district-level would make it easier to identify the macro-determinants of violence. There is neither evidence nor reason to suspect that increased levels of violence in the 1990s can be linked to increased drinking. Rather, it is heavy drinking which explains why some people have been more violent than others in circumstances that seem to have been generally conducive to rising violence. What the micro-level data suggests is that few young people in South Africa in the early 2000s come from backgrounds that strongly predispose them against the use of violence. Across society, therefore, young men from diverse backgrounds are making similar choices about the use of violence.

These findings are constrained by the limits of our data and our sample. While the detailed longitudinal data on the lives of individual young people allow us to identify the antecedents of violence for some perpetrators, compared to non-perpetrators, we need to exercise some caution in inferring more general conclusions about the overall population. Thus our findings, while contributing to a better understanding of the drivers of violence in Cape Town, also highlight the need for further research.

Notes

1. Appallingly prevalent: See the Conflict Crime and Violence (CCV) datasets compiled by the Department of Social Development, World Bank Group. Nostalia for apartheid:

Kynoch (2003).

2. United States: See, e.g., Glaeser, Sacerdote, and Scheinkman (1996). Global South: For example, for Indonesia see Tadjoeddin and Murshed (2007); Tadjoeddin, Chowdhury, and Murshed (2012).

3. National Youth Survey: See http://www.colorado.edu/ibs/NYSFS/. Factors and pathways: Elliott (1983; 1994); Heimer (1997); Brezina, *et al*. (2004).

4. African neighborhoods: Under apartheid, individuals were classified as white, African, colored, or Indian. Even fifteen years after the end of apartheid, most neighborhoods remain racially segregated.

5. The wave 5 data used here are still subject to various quality checks. Results reported in this article are not weighted. No longer representative: Lam, *et al.* (2011).

6. Alternative marker of masculinity: Campbell (1992).

7. Poverty and unemployment: Agreement that poverty and unemployment lead to violence was stronger among respondents who said that they were poor, sometimes went without food, and faced poor opportunities. Young people who were working at the time of the interview were significantly less likely to agree with the statement, while those young people who were unemployed at the time of the interview were neither more nor less likely to agree. Not inevitably: There is no doubting the scale of the employment crisis in South Africa. Unemployment rates are particularly high among young men and women, at least in part due to their low levels of qualification. Many young people leave school, either without sitting the public examination at the end of the 12th grade or with a poor pass, and spend long periods in unemployment. In September 2007, for example, the official Labour Force Survey found that the unemployment rate (using the broad definition favored by everyone except the government) was 74 percent among 15-19 year-olds, 60 percent among 20-24 year-olds, and 43 percent among 25-29 year-olds (our calculations).

8. See Burton, *et al*. (2009).

9. Important gap: Bray, *et al*. (2010). Recognize fewer obligations: Harper and Seekings (2010).

10. Behaviors widely associated with violence: See, e.g., Elliott (1994, pp. 11-12); Otero-Lopez, *et al*. (1994); Parry, *et al*. (2004).

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12. One study: Parry, *et al*. (2004, p. 178).

13. Jewkes: Jewkes, *et al*. (2006). Abrahams: Abrahams, *et al*. (2006). Weekend peaks: Matzopoulos, Mathews, Bowman, and Myers (2007).

14. South African studies: Abrahams, *et al*. (2004; 2006); Jewkes, *et al*. (2006).

15. For further detail, see Seekings and Thaler (2010).

16. Figure 1: Detailed results are available from the authors on request.

17. Demombynes and Özler (2005).

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HEARTS AND MINDS CANNOT BE BOUGHT: INEFFECTIVE RECONSTRUCTION IN AFGHANISTAN

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Abstract

Recent work has suggested the foreign-led reconstruction effort carried out in Afghanistan and Iraq can mitigate violence because it helps win the "hearts and minds" of local people. For the case of Afghanistan, we show there is no evidence behind such an assertion. Analyzing unique data on Commander's Emergency Response Program (CERP) spending across the country from 2005 to 2009, we find no discernible effect of the reconstruction effort on violence. In light of the absence of empirical evidence for the success of the CERP, we suggest the hearts and minds credo currently guiding U.S. policy be reconsidered.

In the wake of the April 2014 Afghan presidential election, it was unclear whether the highly anticipated U.S.-Afghanistan Bilateral Security Agreement (BSA) would be signed by the incoming Afghan president and, if so, what form it would take.[1] In the absence of such an agreement, NATO combat troops continue their complete withdrawal scheduled by the end of 2014. As international security forces draw down, reconstruction and aid programs follow suit. Internationally funded development projects have constituted a considerable share of total Afghan economic activity in recent years, so many people fear their recession will have unwanted security ramifications. Importantly, though, it is debatable whether reconstruction work was ever helpful to stability in the first place.

At face value, attacks on coalition forces have risen along with the volume of reconstruction work carried out in Afghanistan and Iraq, and yet foreign-led reconstruction programming has proceeded steadfast. Since the beginning of the invasions, the U.S. government alone has spent over USD100 billion and over USD80 billion, respectively, in Afghanistan and Iraq. Reconstruction funds have been doled out under the hearts and minds credo, which maintains that economic development improves community cooperation in the fight against rebels and provides alternative economic opportunities for would-be insurgents. In fact, the U.S. Army Marine Corps Counterinsurgency Field Manual explicitly incorporates reconstruction work as a mainstay of counterinsurgency (COIN) strategy. But empirical evidence for the effectiveness of reconstruction spending in reducing violence is extremely limited.[2]

This article puts the hearts and minds perspective of counterinsurgency to the test by measuring the impact of U.S. military-administered reconstruction spending on violence in Afghanistan. In light of improved access to Commander's Emergency Response Program (CERP) data, the article revisits previous work in this journal (Chou, 2012) by using a much longer time frame of study (57 months instead of 4) and broader geographical coverage (227 districts as opposed to 202). We study whether the estimates previously obtained are imprecise due to sample size limits, or because CERP truly has failed to generate stability in Afghanistan. We show the effect of CERP spending on violence in Afghanistan is statistically indistinguishable from zero. In fact, the spending coefficient is actually positive, casting further doubt on the effectiveness of CERP. Distinguishing between small and large projects still does not yield statistically precise estimates, but the coefficient values do suggest large projects may be responsible for any potential adverse effects of CERP programming.

The following section elaborates the empirical challenges faced by the hearts and minds perspective. Our data on reconstruction and violence across Afghanistan is then detailed. Thereafter, the hearts and minds theory is put to test by measuring the impact of CERP spending on violence in Afghanistan. We conclude with a discussion of the results and their implications.

Tribulations of "hearts and minds" research

The hearts and minds perspective guiding U.S. counterinsurgency efforts maintains that reconstruction and development work is pacifying. Broadly, the channels are twofold: (1) the hearts of the people are won through the provision of public goods and (2) their minds are conquered with economic opportunity. This latter premise forms the basis of opportunity cost models of conflict. That theoretical camp

portrays conflict as an economic activity with opportunity cost. The more attractive are employment options in the licit sector, the more likely are the insurgents to defect from paid rebellion. Reconstruction and development projects increase the payoff and prevalence of formal sector work and thus are expected to increase stability. While this theoretical characterization of violent political resistance is readily embraced by economists, the empirical evidence for economic drivers of conflict is highly contested. One early landmark paper presented cross-sectional country level evidence that violent conflict correlates with economic aggregates. This result was overturned by later work, however, introducing country fixed effects, thereby accounting for the possibility that both economic growth and conflict are determined by underlying political and institutional factors. Some micro-level evidence has supported opportunity cost models of rebellion, but other work has cast doubt on their validity. Taken together, there is scant evidence for conquering minds with economic growth in conflict areas.[3]

Another prong of the hearts and minds theory (enumerated above) was recently formalized with a theoretical innovation by Berman, Shapiro, and Felter (BSF, 2011). In appreciation of public goods brought through development, the population shares information with the (acting) government in the fight against insurgents. In this framework, "aid conditionality is an essential ... prerequisite for stability-enhancing development." Public goods are provided *conditional* on community support (i.e., information about insurgents). If the benefits derived from reconstruction spending sufficiently offset the negative repercussions of opposing rebel forces, then the community cooperates with the government, thereby enabling it to more effectively quell insurgency. Empirical tests of the information-sharing theory above have focused on projects in the Commander's Emergency Response Program (CERP). Funding under this program is doled out by U.S. commanders on the ground and is therefore thought to fulfill the conditionality requirement critical to this theory. Small projects are expected to be most effective at leveraging community support because their financing is less constrained by bureaucratic oversight. BSF (2011) provide evidence that CERP spending does mitigate violence in *Iraq*, but only during a period of increased troop strength (while spending is ineffective in the remaining majority of sample years). However, the authors do not test whether community-provided information is more forthcoming in the face of increased reconstruction spending, or whether information tempers the effectiveness of counterinsurgency.[4]

In a previous issue of this journal, Chou (2012) replicates the BSF (2011) analysis for the case of *Afghanistan*, arguing in support of the information-sharing theory. Although no statistically significant violence-reducing effects of CERP are revealed, the relevant coefficient is negative in sign, which is used to suggest CERP projects may reduce violence. The issue of statistical insignificance is put down to the relatively short sample period (4 months in 2009-2010), which can inflate standard errors.

Using Commander's Emergency Response Program (CERP) data covering 57 months and 227 geographic districts, the article shows that the effect of CERP spending on violence in Afghanistan is statistically indistinguishable from zero. Distinguishing between small and large projects still does not yield statistically precise estimates.

According to the information-sharing theory, the channel through which reconstruction is expected to translate into stability is community support. It has been shown, however, that development projects have (if anything) a negative effect on Afghan attitudes toward foreigners. Although projects increase perceptions of state capacity, they also increase perceived violence. Interestingly, other evidence suggests that National Solidarity Program (NSP) spending improves community perceptions of government in Afghanistan and may translate into reduced violence. Importantly, NSP is of an altogether different nature than CERP. Since NSP projects are selected by locally elected community development councils, with funding commitments predetermined, making projects *unconditional*, NSP constitutes exactly the type of programming that should have no effect on violence according to the information-sharing theory. These findings cast doubt on the causal mechanism linking reconstruction to stability from the hearts and minds perspective. Our own findings exacerbate this doubt since even the reduced form relationship between reconstruction spending and violence breaks down when using our expanded data on CERP spending in Afghanistan.[5]

Data on violence and reconstruction spending

Throughout the analysis our dependent variable is violence, which we measure using the Worldwide Incidents Tracking System (WITS). This is a U.S. government database assembled by National Counterterrorism Center analysts. Data are gleaned manually from open media sources, including local media where linguistic capabilities permit. WITS catalogues all publicly known, premeditated, politically motivated violence directed at police, military, government, and civilians "outside of war-like settings," but includes ambushes, suicide attacks, and use of improvised explosive devices (IEDs). The data cover incidents in Afghanistan from 2005 until August 2009 and has been geocoded by the Empirical Studies of Conflict

Project at Princeton University. Using the ESRI World Gazetteer and digital mapping software, we are able to district-locate 3,599 incidents included in WITS.[6]

In line with related research, our measure of violence does not capture actions initiated by the state such as police raids or counterinsurgency operations. Moreover, in keeping with the previous focus on government-targeted attacks, the vast majority of incidents in WITS involve noncivilian casualties (often exclusively). Because the U.S. military's Combined Information Data Network Exchange (CIDNE) database used by Chou (2012) is not publicly available, and because our sample period merely borders but does not overlap with that of Chou (2012), replication of previous work is not possible. It is worth noting that WITS holds much fewer incidents than does CIDNE. The latter includes all incidents in which government or foreign troops are targeted by enemy combatants; the former includes only those cases which occur "outside of war-like settings." Thus, WITS should comprise a subset of CIDNE events, supplemented with attacks on softer targets such as politicians, contractors, and security guards. The practical implication of this distinction is not immediately clear, but the technical implication is one of classification, leading CIDNE to more comprehensively cover attacks on hard targets.

CERP spending data comes from NATO C3 Agency's Afghanistan Country Stability Picture (ACSP). ACSP is a comprehensive database on reconstruction and development projects across Afghanistan from 2002 to 2009. It was developed for use by NATO, the Government of the Islamic Republic of Afghanistan, and civilian actors. The database contains detailed project information, including cost, timing, and location. While ACSP falls short of providing complete coverage of all reconstruction programs, CERP data is particularly well documented. From 2002 to 2009, ACSP contains data on 8,533 CERP projects worth USD2.2 billion.

Our data coverage is consistent with the USD2.64 billion officially appropriated to CERP between 2004 and 2010. Previous work was based on data covering an alarmingly small subset of true project outlays, at most accounting for USD1.65 million/month in CERP spending. Over the same period, our own data cover projects amounting to USD35.8 million/month, more than a twenty-fold increase in data coverage. On this basis, previous findings suffer from attenuation bias in the best case and ambiguous directional bias in the worst. Our own results are comparatively free of such concerns.[7]

Following Chou (2012), our unit of observation is the district-month. We follow the 2005 Afghan Ministry of the Interior administrative designation of 398 districts spanning 34 provinces. Districts in which CERP was not active during any time of the sample period are omitted from the analysis, leaving 227 districts in a balanced panel of 57 periods. Hence, our sample contains a total of 12,939 observations. Reconstruction spending volumes for a district-month are calculated by summing all daily totals which, in turn, are obtained as the sum of mean daily expenditure over existing projects. Violence levels are obtained by summing all incidents over the respective period. Violence is computed as incidents per 1,000,000 inhabitants. CERP spending is expressed on a per capita basis. District population data is for 2011/12, and is obtained from the Central Statistics Organization (CSO) of the Islamic Republic of Afghanistan. Summary statistics are shown in Table 1.

Table 1: Summary statistics

	Obs.	*Mean*	*St.dev.*
Violent incidents (per million inhabitants)	12,939	3.24	14.8
CERP spending (USD/capita)	12,939	1.61	7.84
Small project spending (USD/capita)	12,939	0.0688	0.477
Large project spending (USD/capita)	12,939	1.54	7.66

Notes: Data cover 227 districts over 57 months and are gleaned from the WITS and ACSP databases. Unit of observation is the district-month. Small and large spending categories are subdivisions of total CERP spending. Small projects are less than USD50,000 total cost; large projects exceed that amount. Means are weighted by CSO district population.

Ineffectiveness of CERP spending

In what follows, we carry out a number of econometric tests to measure the effect of CERP reconstruction work on violence. From the hearts and minds perspective, reconstruction spending leads to a decline in violence. According to the information-sharing theory in particular, this causal relationship is strongest when project provision can be made conditional on community cooperation. If the hearts and minds theory has merit in practice, then one should observe a negative coefficient for CERP spending (more spending, less violence). If, instead, there is no connection between reconstruction work and violence, or if the effect of programming on violence is ambiguous, then one should obtain no statistically significant point estimate for CERP spending.

Table 2, Column 1 reports the OLS estimate on the cross-sectional relationship between violence and CERP spending. The coefficient shows a weak, but statistically significant positive relation (more spending, more violence).

Proponents of the hearts and minds theory suggest the incidence of greater violence in areas heavily concentrated with CERP spending may reflect targeting of reconstruction by the military. Since reconstruction spending is viewed as a tool for peace, projects are naturally set where their benefits are most needed—in volatile regions. To account for this potential endogeneity, Column 2 reports the coefficient using a first-difference approach. This evaluates the within-district *change* in violence stemming from a within-district *change* in CERP outlays. For the purpose of comparison with Chou (2012), the estimation allows the time trend to vary by season and by year. Since we use a much longer time frame and broader geographical coverage than Chou (2012), sample size is no longer a statistical concern. The coefficient measuring the impact of CERP spending on violence is not statistically distinguishable from zero. Spending does not appear to affect violence. This finding (or lack thereof) suggests one of two possibilities: (1) the true effect of CERP on violence is nil (the null hypothesis is true), or (2) the true effect of CERP on violence is ambiguous, contingent on factors unaccounted for by the hearts and minds theory and, consequently, the empirical approach adopted here. Since the point estimate on CERP spending is actually positive, further doubt is cast on the program's general effectiveness at reducing violence.

To approach BSF (2011), column 3 allows the time trend of violence to vary by district, and also conditions results on recent instability. The effect of CERP spending on violence appears even more positive than before, and still statistically insignificant. Lastly, to completely align our estimation strategy with the work done on *Iraq*, data are aggregated up to the half-year level, and seasonal and annual trends are replaced with period-specific trends.[8] Column 4 allows for slower consolidation of potential effects, yet the results still do not support a violence-reducing role for CERP. At this point, in defense of the information-sharing theory, one might wonder whether CERP outlays are sufficiently conditional on community-provided intelligence such that we can expect to observe peace dividends. To this question we now turn.

Previous research suggests that "small" CERP projects, amounting to less than USD50,000 each, are subject to little bureaucratic oversight and therefore more likely tailored to community needs. Such projects are argued to fulfill the conditionality requirement for reconstruction spending to be violence-reducing under the information-sharing framework. So following previous authors, we decompose CERP spending

Table 2: Violent incidents and CERP spending

y=incidents per million population	*(1) OLS*	*(2) FD*	*(3) FD*	*(4) FD*
CERP	0.131*	0.000689	0.0207	0.00534
	(1.932)	(0.536)	(1.274)	(0.168)
Year FE		X	X	
Quarter FE		X	X	
Period FE				X
District-specific trend			X	X
Preexisting trend			X	X
Constant	3.026***	–0.0366	–0.0839	8.010***
	(6.621)	(–0.307)	(–0.488)	(3.757)
R-squared	0.005	0.001	0.270	0.292
Observations	12,939	12,712	12,485	1,582
Districts	227	227	227	226

Notes: *** p<0.01, ** p<0.05, * p<0.1. Data are gleaned from the WITS and ACSP databases. Unit of observation is the district-month for columns 1-3, and district-half year for column 4. Dependent variable is violent incidents per million inhabitants. Standard errors are clustered by district, and robust t-statistics are in parentheses. All regressions are weighted by CSO district population.

Figure 1: Data cover 227 districts over 57 months and are gleaned from the WITS and ACSP databases. Unit of observation is the district-month. Graphs depict the net relation between violence and CERP spending. Along the *y*-axes is the unexplained change in violent incidents per million inhabitants; along the *x*-axes is the unexplained change in CERP spending per capita. Both variables are expressed as the difference between the observed value and that which is expected, conditional on the full set of remaining covariates. Small and large spending categories are subdivisions of total CERP spending. The left and right added-variable plots are based on regressions reported in columns 1 and 2 of Table 3, respectively.

into small and large projects. Figure 1 plots changes in violence against changes in CERP outlays for both types of projects, conditional on all covariates. Spending on small projects does not appear to affect violence differently than spending on large projects (in fact, neither have a discernable effect). Columns 1 and 2 of Table 3 present the numerical analogue to Figure 1, first-difference regression results by project size, allowing for annual, seasonal, and district-specific trends, and controlling for recent instability. The first column reports the coefficient on spending for small projects (<USD50,000), while the second column tests the impact of large-project spending (>USD50,000). Column 3 includes spending under both size classes simultaneously. Distinguishing between small and large projects in Table 3 does not add explanatory power to the model. The coefficients on all types of spending remain statistically insignificant, again suggesting either validity of the null hypotheses, or ambiguous effects contingent on factors unaccounted for from the hearts and minds perspective.[9] Due to the divergent coefficient signs across project size classes, it could be that large projects are responsible for any detrimental effect of CERP and that small projects are more likely to be pacifying. However, an F-test does not rule out equality between small and large-project spending coefficients (p-value: 0.39). The estimates in Column 4 again consider aggregation to the six-month interval and do not change the substantive finding.

Table 3: Violent incidents and CERP spending by project size

y=incidents per million population	*(1)*	*(2)*	*(3)*	*(4)*
CERP (small)	–0.431 (–0.765)		–0.458 (–0.817)	–1.108 (–1.399)
CEPR (large)		0.0224 (1.313)	0.0242 (1.339)	0.000666 (0.0213)
Year FE	X	X	X	
Quarter FE	X	X	X	
Period FE				X
District-specific trend	X	X	X	X
Preexisting trend	X	X	X	X
Constant	–0.0812 (–0.474)	–0.0838 (–0.487)	–0.0808 (–0.472)	8.163*** (3.834)
R-squared	0.270	0.270	0.271	0.295
p-value for β(small)=β(large)	—	—	0.3908	0.1635
Observations	12,485	12,485	12,485	1,582
Districts	227	227	227	226

Notes: *** p<0.01, ** p<0.05, * p<0.1. Data are gleaned from the WITS and ACSP databases. Unit of observation is the district-month for columns 1-3, and district-half year for column 4. All specifications are first-differenced. Dependent variable is violent incidents per million inhabitants. Small and large spending categories are subdivisions of total CERP spending. Standard errors are clustered by district, and robust t-statistics are in parentheses. All regressions are weighted by CSO district population.

Conclusion

Using an econometric method drawn from current literature, this article evaluates the impact of CERP spending on violence across 227 districts in Afghanistan over 57 months from 2005 to 2009. No discernible effect is found. To date there is no empirical evidence that reconstruction spending reduces violence in *Afghanistan* in accordance with the hearts and minds perspective currently guiding military doctrine, government policy, and public discourse.[10] Meanwhile, evidence for the effectiveness of CERP in *Iraq* is tenuous.[11] Importantly, the literature has so far examined the average effect of CERP, with some distinction made according to project size. Our study suggests either that reconstruction work is unrelated to violence or that programming bears on the insurgency in ways unaccounted for by the hearts and minds perspective, such that an ambiguous average effect masks underlying opposing causal forces. In either case, there is scant empirical support for the information-sharing theory which espouses aid conditionality as a guiding principle for recent counterinsurgency efforts.

Given that the United States government has spent over USD180 billion in Afghanistan and Iraq under the hearts and minds credo, we suggest this perspective be reconsidered. New theory is required to identify additional channels through which reconstruction and development work may affect insurgency, in either direction. Only then can we begin to understand which programming characteristics are most likely to generate stability, aside from conditionality which so far seems mostly ineffectual. We push this research agenda with the ultimate aim of keeping military officials and policymakers abreast of empirical knowledge when making important decisions regarding the strategic allocation of reconstruction funds. The benefit of concrete knowledge in this area could be measured in human lives.

Notes

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1. Confusion emanates from when the outgoing president, Hamid Karzai, shocked the country and international community through his surprise refusal to sign the Loya Jirga-sanctioned BSA in November 2013.

2. Funding and attacks have risen: U.S. government outlays for reconstruction projects in both countries were increasing from 2003 to 2007 as evidenced by data obtained from the Federal Procurement Data System in 2007. Similarly, data obtained from NATO C3 Agency's Afghanistan Country Stability Picture indicates a consistent increase in outlays to Afghanistan over the period for which data is available (approximately 2002 to 2009). Data from the Global Terrorism Database (GTD) of the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland indicate a consistent upward trend in violence from the beginning of each respective operation until 2010 (the final year for which GTD data are available). U.S. government outlay figures: SIGAR (2014); SIGIR (2013). Field manual: Civil Security, Civil Control, *Essential Services, Governance, and Economic and Infrastructure Development* comprise the Stability pillar of COIN strategy (see Figure 1-1, U.S. Army, emphasis added).

3. Opportunity cost models of conflict: Blattman and Miguel (2010) survey such models. Landmark paper: Collier and Hoeffler (2004). Underlying political and institutional factors: Djankov and Reynal-Querol (2010). Some micro-level evidence: Iyengar, Monten, and Hanson (2011); Dube and Vargas (2013). Doubt about validity: Krueger and Malecková (2003); Berrebi (2007); Berman, Callen, Felter, and Shapiro (2011); Nunn and Qian (forthcoming).

4. Quote: Chou (2012). Empirical evidence for Iraq: Berman, Felter, Shapiro, and Troland (2013) provide evidence for complementarity between military control and service provision in reducing violence. Still, no test of the theoretical mechanism in BSF (2011) is offered as information plays no role in the empirical analysis.

5. Negative attitude: Böhnke and Zürcher (2013). NSP spending and reduced violence: Beath, Christia, and Enikolopov (2011).

6. WITS: See Wigle (2010) for a full introduction of the WITS database. WITS data have previously been used, e.g., by Krueger and Malecková (2009).

7. Officially appropriated: SIGAR (2011). Previous work: The USD1.65 million/month figure is calculated by multiplying Chou's (2012) mean per capita monthly expenditure by the maximum population potentially covered by that sample. The latter is taken as the aggregate population of the largest 202 districts in Afghanistan (the number of districts covered by Chou, 2012), amounting to 20,352,400 inhabitants.

8. By aggregating up to the half-year interval, the first three months of the sample are discarded. As a result, we lose one district in which the CERP was only active during those initial months. Hence, we are left with 226 districts over 9 time periods.

9. If despite the statistical insignificance, one nevertheless accepts the point estimates for each spending category in Table 3, then an increase of one standard deviation in small project spending would reduce violence by 8 percent on average (2 percent of a standard deviation) and a standard deviation increase in large project spending would increase violence by 5 percent on average (1 percent of a standard deviation).

10. Nevertheless, it remains possible that CERP produced other benefits for Afghans, such as improved access to health services or to public infrastructure.

11. See BSF (2011).

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