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“Does Nation Building Spur Economic Growth?”

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Does Nation Building Spur Economic Growth? *

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Abstract

Nation building, the simultaneous allocation of economic and military aid in conflict environments, has cost the world trillions of dollars over the last half century. Yet few attempts have been made to quantify the potential growth effects for the recipient country from the provision of this aid. Using a forty-five year panel dataset, we construct a measure of nation building using a three-way interaction term between military assistance, economic aid, and conflict regime. We find that spending on nation building has a positive effect on economic growth. Once conflict ceases, however, continued military operations coupled with economic aid *harms* growth.

JEL Codes:F3,F4,O4

Key Words: Nation Building, Economic Growth, Foreign Aid

*The views expressed in this paper are solely those of the authors and should not be interpreted as reflecting the views of the U.S. Department of Defense.

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1 Introduction

Nation building has been an important element of foreign policy for at least a century. Historians date the first nation building operation conducted by the United States back to 1901, when the *USS Thomas* brought five hundred teachers to Manila Bay with naval escorts to “rebuild” the Philippines.¹ While nation building operations have varied with time, they have been a continual part of global affairs over the last half century, as Figure 1 indicates. Further, the United States has not been the sole initiator of nation building excursions. European nations have actively engaged in nation building operations throughout the Balkans, Sub-Saharan Africa, and the Middle East.² As seen in Figure 1, episodes peaked after two key historic events. The first coincided with the end of the Cold War around 1992. Many hoped that worldwide peace would emerge from the ruins of the Soviet Empire. But as complex disputes broke out in Somalia, Haiti, and the Balkans, the United Nations and individual countries were ready to step in with both force and civilian aid to mitigate these emergent humanitarian crises (Dobbins et al. (2008)). By the late 1990’s, many countries started to tire of nation building forays. In the U.S. during this time, many politicians actually built their campaigns around an anti-nation building platform. After the events of 9/11, perspectives swung back, and nation building became a prominent tool in the Global War on Terror.

The resurgence of nation building after the terrorist attacks of September 11, 2001 stimulated record levels of government spending on nation building initiatives.³ According to US Green Book Overseas Loans and Grants, in 2005 the United States alone spent \$20 billion in aid to help train foreign troops, provide counter narcotics/terrorism assistance, and other similar activities.⁴ This figure does not take into account the added costs of troops and support forces, which include personnel to provide communications, contracting, engineering, intelligence, medical, and other services for troops deployed in theater Orszag (2007). The Congressional Budget Office (CBO) estimates that an additional 20,000 combat troops to Iraq requires around 28,000 support troops. Further, the CBO predicts that a deployment of 20,000 troops to Iraq for one year costs \$27 billion. The direct costs of combat troops accounts for \$11 billion. So each additional combat troop deployed for a year costs about

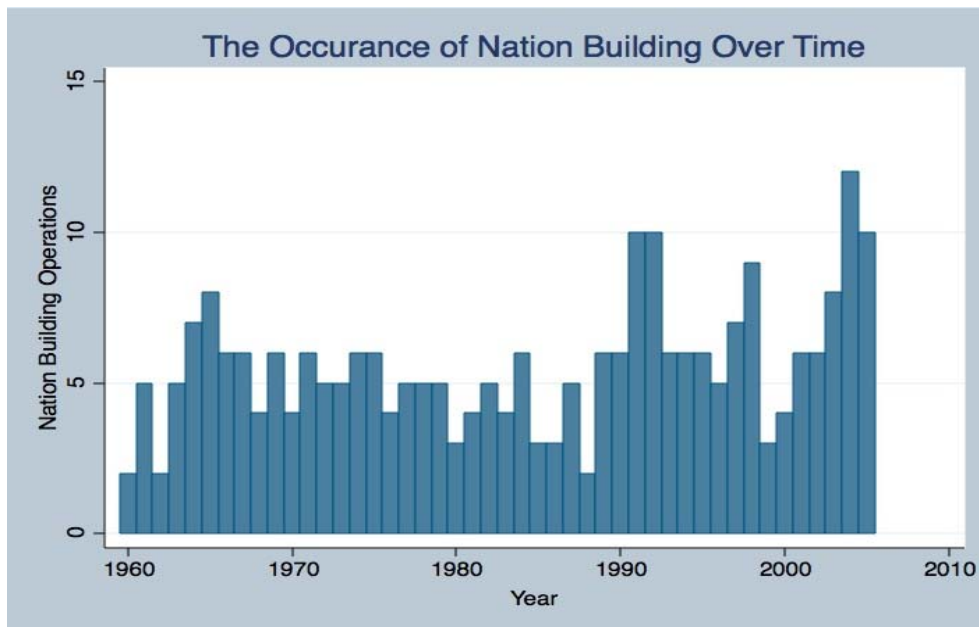
¹Traub, James. "Surge Incapacity: Let’s face it: America just isn’t every good at nation-building." Foreign Policy. 8 March 2010

²For a full list of nation building operations see appendix C.

³The conflict related costs in Afghanistan and Iraq since 2001, have totaled to roughly 1.3 trillion dollars for the U.S. alone - “The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11,” Amy Belasco, Congressional Research Service Report for Congress, RL33110, p. CRS 9.

⁴See appendix A for a full description of military financial assistance.

Figure 1: Nation Building over time



Source: OECD Creditor Reporting System, International Military Intervention Data Set, UCDP-PRIO Armed Conflict Data

\$550 billion. One can use this statistic to roughly estimate the total troop costs incurred by the United States during its nation building operations - including troop costs, the U.S. spent roughly \$100 billion in nation building costs just in 2005.

Despite the huge costs involved, the growth effects of nation building remain under-explored. This paper attempts to empirically measure the direct benefits for the recipient country's development from nation building operations. Foreign aid of any sort has the potential to spur economic growth by increasing capital and/or productivity. During times of conflict, however, growth can be severely impeded by violence and uncertainty. On the one hand, nation building (the *joint* provision of economic and military aid in conflict or post-conflict areas) may raise the effectiveness of aid by complementing economic assistance with military security. If military aid reduces uncertainty, a boost to capital or productivity from the simultaneous provision of economic aid may encourage private investment. On the other hand such robust foreign involvements may potentially crowd out private provisions or generate a crippling dependency which hinders growth prospects. The net growth effect of nation building efforts is thus an empirical question, one that surprisingly has not been addressed in prior literature.

Studies have analyzed the growth effects of economic aid, military aid, or conflict in isolation, but have yet to explore the confluence of all three.⁵ Yamarik et al. (2010) shows that conflict negatively affects economic growth and the negative impact increases as a function of conflict intensity. Imai and Weinstein (2000) delineates the specific ways in which civil war negatively affects growth. Caplan (2002) adds that conflict harms less developed nations more than highly developed ones. Additionally, the magnitude of damage depends on the type of war being fought. Caplan (2002) finds that internal conflicts, typically between a government and a rebel faction, cause greater damage than interstate conflicts. Considering the negative impacts of conflict on economic development, several economists have considered the potential benefits of introducing foreign aid in post-conflict environments. Collier and Hoeffler (2002) create a model for analyzing foreign aid in post civil war situations. Building upon the classic foreign aid model first described by Burnside and Dollar (1997), they show that aid impacts growth by the greatest amount during the four to seven year period following an internal war. Kang and Meernik (2004) show that a donor nation tends to provide long-lasting post conflict economic assistance to nations to whom they previously provided military assistance.

⁵See the recent meta-analysis of Mekasha and Tarp (2011) that suggests aid has generally been good for growth.

These studies underscore the need to look at economic aid, military aid, conflict and post-conflict environments simultaneously. Specifically, it remains unclear if joint economic and military assistance helps countries grow, either during war or directly afterwards. Of course the likelihood that economic and military aid are themselves endogenous to growth complicates inference. But the implications from a careful study of nation building should be of interest to both policy makers and academics.

In this paper we estimate the growth effects of nation building using a forty-five year cross-country dataset. We measure nation building using a three-way interaction term of economic aid, military support and conflict regime. The estimation of these potential complementarities requires instrumentation because slow growing countries tend to suffer more violence and thereby require more aid. This reverse causality is corrected by a two stage estimation process. We first estimate aid flows, and then use those estimated values to measure the impact of nation building on growth. What we find is that spending on nation building does have a slightly positive effect on economic growth. Once conflict ends, however, we predict that continued military operations coupled with economic aid *harms* the economy. The results hold whether a single country or a multilateral group performs the nation building operation. Thus while there appear to be complementarities between money and military assistance during the thick of conflict, joint assistance harms economic development once conflicts are resolved.

2 Conflict, Economic Aid, and Military Assistance in the Context of Solow Growth

To tackle the question of potential complementarities between military and economic aid during or after war, we explore the impacts of nation building within the context of the neoclassical growth model. In Solow (1956), output per capita growth is a function of the current stock of capital per effective labor, savings rate, population growth rate, capital depreciation, and labor productivity. In each period, the economy invests a portion of its output towards new capital. Simultaneously, per capita capital shrinks due to depreciation and population growth. The model's dynamics imply that that each country converges to its own steady-state according to its unique long-term fundamentals.

In the context of this framework, conflict can potentially affect growth in several different ways. First, conflict can outright destroy the current capital stock as evidenced by Imai and Weinstein (2000). Additionally, the instability of conflict can dissuade private invest-

ment, lowering new capital formation. The destructive nature of conflict may also raise the depreciation of physical and/or human capital. Finally, conflict can foster mismanagement and inefficiency, cutting into the productivity of the economy. For these reasons, conflict in general is likely to have a negative effect on economic growth.

Neoclassical theory further suggests that conflict should be *temporarily* disruptive to growth (see Easterly et al. (1993)). That is, wars waged domestically can disrupt production and depress investments. Once the conflict ends however, the fundamentals of the economy are restored, and the recovery phase should bolster growth as productive activities recommence and infrastructure is rebuilt. We thus consider conflict and post-conflict treatments as variables that influence the speed of convergence of an economy to its steady-state, but not the steady state itself.

We wish to explore the interactions between different conflict scenarios and different types of aid. These interactions can either speed up or slow down a nation's convergence to its own steady state. As in Mankiw et al. (1992) and Islam (1995), one can log-linearize and first difference the steady state equation from the Solow model in order to empirically construct a panel growth regression. In addition to including the fundamental variables of growth, one may include other auxiliary explanatory factors (Durlauf and Quah (1998)). Our empirical strategy is to include measures of conflict and post-conflict periods, economic aid and military assistance along with the fundamental variables that are standard in neoclassical growth theory.

Military intervention alone can help foster a secure environment, potentially encouraging higher savings rates and lowering both physical and human capital depreciation (Jones and Kane (2007)). Such intervention could however cause further disruption to the local economy and thus slow down growth. Similarly, different types of aid during conflict or post-conflict may help or hinder a country's transitory dynamics. This aid may help replenish a war-torn nation's stock of capital, or it may crowd out local private investments. Finally, economic aid and military assistance together may act as compliments that provide both funding for local projects and security to allow those projects to succeed. On the other hand, joint assistance may simply crowd out each type of aid or other forms of investments, or foster a dependency that further stagnates the economy. In summary, the net effects of joint aid projects during or after conflict is an empirical question, to which we now turn.

3 Empirical Estimation

To gauge the growth effects of nation building, we augment the neoclassical growth model to incorporate conflict, military assistance, and economic aid variables.

Following Durlauf and Quah (1998), a standard Solow model augmented with human capital can be estimated with panel data using the following equation:

$$\ln y_j(t+T) - \ln(y_j(t)) = b_0 + b_1 \ln y_j(t) + b_2 \ln(s_{k_{j,t}}) + b_3 \ln(s_{h_{j,t}}) + b_4 \ln(n_{j,t}) + \epsilon_{j,t}. \quad (3.1)$$

where $b_0 = \mu_j + \kappa_t$ represents country and time specific effects in country j during time period t .⁶

Consistent with the Solow model, we include initial GDP levels ($\ln y_j$) to capture the idea that growth depends on a country's distance from its steady state. Considering that each country may have a unique steady state, we include the determinants of steady state: savings rates for physical capital (s_k), savings rates for human capital (s_h), and population growth rates (n). The growth span, T , is set to 3 year increments in order to isolate the long run growth effects versus annual business cycle effects, suggested by Islam (1995) and Collier and Dollar (2002).

The impacts of nation building are captured in the following framework:

$$\Delta y_{j,t} = \mu_j + \kappa_t + \alpha * \ln y_j(t) + \sum_{i=1}^3 \phi_i x_{j,t,i} + \sum_{i=1}^{11} \theta_i z_{j,t,i} + \epsilon_{j,t} \quad (3.2)$$

where:

$$\Delta y_{j,t} = \ln y_j(t+T) - \ln(y_j(t))$$

$$x_{j,t,1} = \ln\left(\frac{\text{investment}_{j,t}}{\text{GDP}_{j,t}}\right)$$

$$x_{j,t,2} = \ln\left(\frac{\text{education}_{j,t}}{\text{GDP}_{j,t}}\right)$$

$$x_{j,t,3} = \ln\left(\frac{\text{population}_{j,t+T} - \text{population}_{j,t}}{\text{population}_{j,t}}\right)$$

$$z_{j,t,1} = \text{conflict indicator}_{j,t}$$

$$z_{j,t,2} = \text{post conflict indicator}_{j,t}$$

$$z_{j,t,3} = \ln(\text{economic aid}_{j,t})$$

$$z_{j,t,4} = \ln(\text{economic aid}_{j,t} * \text{conflict indicator}_{j,t})$$

$$z_{j,t,5} = \ln(\text{economic aid}_{j,t} * \text{post conflict indicator}_{j,t})$$

⁶Here we are assuming capital depreciation and total factor productivity are similar across nations and therefore absorbed into the time specific effects, κ_t .

$$\begin{aligned}
z_{j,t,6} &= \text{military aid indicator}_{j,t} \\
z_{j,t,7} &= \text{military aid indicator}_{j,t} * \text{conflict indicator}_{j,t} \\
z_{j,t,8} &= \text{military aid indicator}_{j,t} * \text{post conflict indicator}_{j,t} \\
z_{j,t,9} &= \ln(\text{aid}_{j,t}) * \text{military aid indicator}_{j,t} \\
z_{j,t,10} &= \ln(\text{aid}_{j,t}) * \text{military aid indicator}_{j,t} * \text{conflict indicator}_{j,t} \\
z_{j,t,11} &= \ln(\text{aid}_{j,t}) * \text{military aid indicator}_{j,t} * \text{post conflict indicator}_{j,t}.
\end{aligned}$$

The x variables are those that proxy for standard variables in the Solow model represented in (3.1). The z variables are those which we use to augment the canonical growth model. While the inclusion of variables for economic aid, conflict, and military assistance shows their individual impacts on output per capita growth, to understand the effects of nation building, the model must include variables which capture the conditional effects of conflict and post-conflict *with* economic aid and/or military assistance. Interaction terms are therefore added to the model to capture the conditional effects that conflict, post-conflict, military assistance, and foreign aid have on growth. Use of interaction terms imply that independent variables have a non-additive effect on the dependent variable. Thus we suggest that the effects of both economic aid and military assistance change conditioned on the presence of conflict, the presence of post conflict, and the presence of other forms of aid. Nation building represents the interaction between economic aid, military assistance, and conflict regime. Specifically, we interpret the marginal growth influence from nation building as the growth effect of an extra dollar of economic aid when the country receives military assistance during a conflict period. Similarly, we also wish to gauge the influence of *post*-conflict nation-building endeavors. That is, we also wish to measure the growth effect of an extra dollar of economic aid when the country receives military assistance directly after a conflict period.⁷

3.1 Data

The project uses a panel consisting of 176 countries over the time period of 1960 to 2005. Because an economy does not immediately react to conflict, we use the three-year growth rate of GDP per capita. Following the convention of the conflict-growth literature (see Collier and Hoeffler (2002)), all growth variables including GDP growth are calculated as 3-year growth rates. This is because yearly time spans are too short to be appropriate to analyze the effects

⁷We also included a measure of conflict intensity (captured by number of battle deaths), which not surprisingly tends to be negatively related to growth. Inclusion of this variable does not alter our findings in any meaningful way (results not reported).

of conflict on growth, or to study growth convergence in general (Islam (1995)). Further, any variable that has a level-value is calculated as a three-year average. Finally, dummy variables take on a value of one if the event occurs within any time within the three-year period. The regression is constructed as a 3-year rolling model.

The amount of total investment as a fraction of GDP represents the savings rate. Likewise, the fraction of GDP allocated towards educational expenditure acts as a proxy for human capital investments. GDP and investment data come from the Penn World Tables (2009). Education expenditure shares of GDP and population growth rates come from the World Bank Development Indicators (2009).

The joint Uppsala Conflict Data Program and International Peace Research Institute (UCDP-PRIO) Armed Conflict Dataset (2009) provides all conflict-related data including the presence of conflict, the number of battle deaths in a conflict, and the duration of a conflict. In the model, the variable $conflict_{j,t}$ codes as a 1 if the conflict occurs within nation j and incurs at least 25 battle related deaths within year t . This definition of conflict originates from the UCDP-PRIO Armed Conflict Dataset. The post conflict variable $post_{j,t}$ codes as a 1 if a conflict took place in country j anywhere from one to seven years after time t .⁸

Economic aid data come from the Organization for Economic Cooperation and Development's Creditor Reporting System (OECD CRS, 2007). These data record all grants by the Donor Assistance Countries. The twenty-two DAC nations are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. We also use data on multilateral foreign aid from the World Bank Projects Database (2008). This data set records every World Bank grant and its recipient country. Because some major powers, like China and Russia, do not publicly release their foreign aid data, we can not include these countries. Therefore, the analysis has a somewhat western bias.

The military assistance data come from the International Military Intervention Dataset (2008). This data set records all instances of military interventions over international boundaries by regular armed forces of independent states. The military assistance variable, an indicator variable, records any instance when one or more of the twenty-two OECD nations acts as a third party intervener. This includes military interventions to assist a nation during a domestic dispute, to protect a socio-ethnic minority or faction, to help combat terrorists

⁸This is a convention used by Collier and Hoeffler (2002).

or rebels, to protect economic interests during a conflict, to provide humanitarian aid, to further an ideological issue, or to promote diplomatic goals. Therefore this variable encompasses a broad spectrum of types of military aid. Essentially it captures any military action performed by one country within another country's territorial borders for reasons other than waging war. This definition indicates that the host nation does not necessarily have to request or accept the military assistance. An intervention that involves multiple OECD nations codes as a single intervention. Additionally and separately, we also record instances when the United Nations acts as a third party intervener.

A data set including every nation building operation from 1960 to 2005 does not exist. Here we combine data from the sources mentioned above to construct measures of nation building activities for a wide range of country participants.⁹ For our measures three criteria determine the incidence of nation building. First, nation building can only occur during a conflict or post-conflict period as we have defined. Second, the country must receive economic aid from a foreign public source. Finally, some external military assistance must simultaneously be provided. The specificity of this definition causes the omission of certain observations that some may consider to be *de facto* nation building. For example, from 1952 to 1977 the United States provided most of Brazil's military training and weaponry as discussed in Tollefson (1995). This military alliance coincided with the economic "Alliance for Progress," which increased U.S. aid to South American nations in order to strengthen ties between the two continents. Yet these years of joint U.S. military assistance and economic aid to Brazil do not involve nation building because Brazil was not in conflict. Rather we consider this an example of a politico-military alliance with the U.S. Such alliances were indeed common throughout much of South America. While many nations have received economic aid with military assistance, if at least 25 battle related deaths do not occur within a year, the episode is not a nation building episode.

Similarly, a nation in conflict that receives only economic aid does not join the group of nation building observations. For example, during the Sudanese Civil War severe droughts caused food shortages throughout the country. This prompted the United Nations and other donor countries to conduct Operation Lifeline Sudan, which brought 100,000 tons of food into Sudan (United Nations, 1990). But since UN peacekeeping forces were not involved in

⁹Due to data restrictions, the nation building includes only observations in which the Organization for Economic Cooperation and Development's (OECD) twenty-two Donor Assistance Countries (DAC), the United Nations, the Organization for African Unity (OAU), the North-Atlantic Treaty Organization, or the Organization of American States(OAS) execute the construction. For a full list of nation building operations see appendix C.

the operation, this scenario does not fit our definition of nation building.

Finally, there are many instances when a country sends troops to a conflict-torn nation to mediate a war or to protect their interests abroad. For example, the multinational force in Lebanon, consisting of U.S. Marines and Navy SEALs, French paratroopers, Italian soldiers and British soldiers, entered Lebanon in 1982 to oversee the withdrawal of the Palestine Liberation Organization and facilitate the restoration of the Lebanese government. While this operation resembles an attempt at nation building, the countries involved did not provide economic aid to Lebanon, so this episode is also not considered a nation building initiative. While this definition of nation building is fairly strict, our data document over 200 separate episodes during conflict periods. Figure 2 identifies the locations of initiatives that satisfy our definition of nation building.

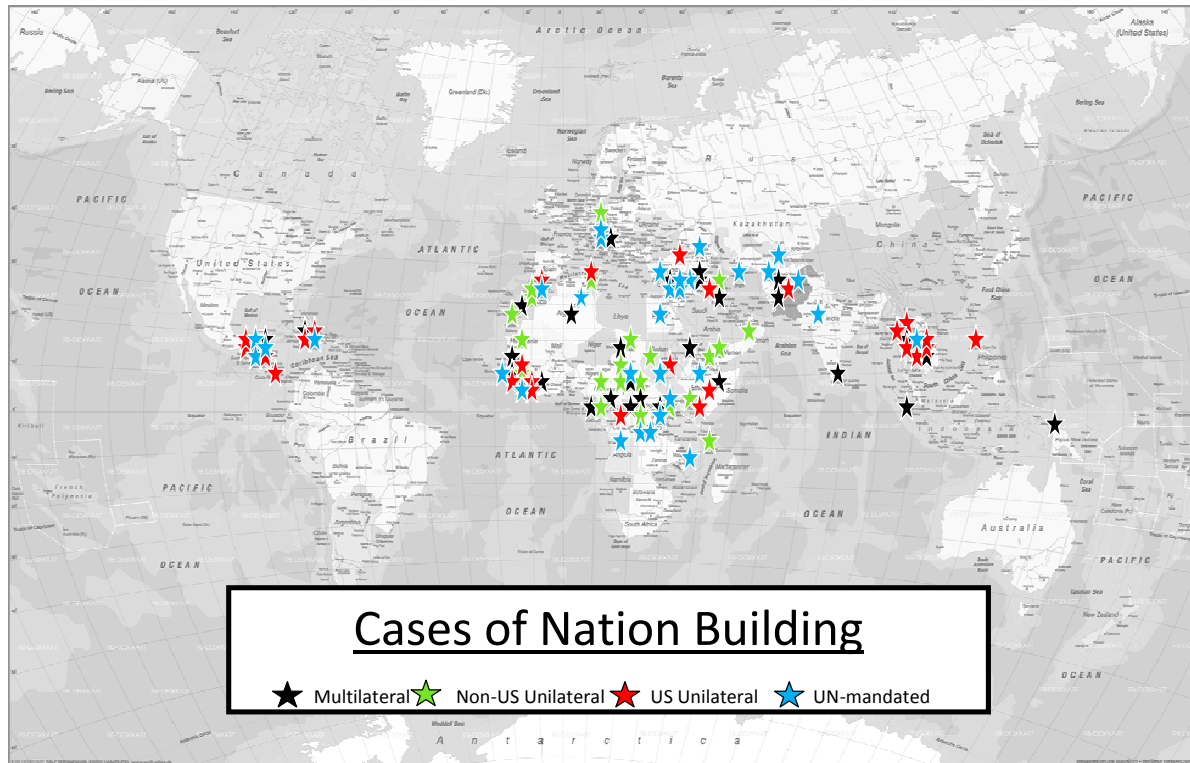
3.2 Estimating aid flows

Inherently, economic aid data has a potential selection bias that is likely to cause an endogeneity issue. That is, countries that experience major economic difficulties, and therefore anemic growth, are more or less likely to receive economic aid in the first place. An instrumental variables approach can help solve this endogeneity problem, where bilateral aid flows are first estimated and then used as instruments in the main regression. Following Alesina and Dollar (2000), we regress the total aid given by a donor country to a recipient country in a particular year on both political affinity and colonial ties. Political affinity captures the notion that countries are more likely to donate to countries that are like-minded¹⁰. This political ally variable is proxied using UN voting-similarity in a given year between the donor and potential aid recipient (Voeten and Merdzanovic 2008)¹¹. For the colonial linkages, an indicator variable is used to capture current and passed colonies and the number of years of this colonization history. We extract this colonial history from the CIA Factbook. Predicted aid amounts are then aggregated and logged to produce a measure of predicted aid, which is then used as an instrument in the growth regressions.

¹⁰Also see Barro and Lee (2005) for discussion of IMF loan provision.

¹¹Erik Voeten and Adis Merdzanovic, "United Nations General Assembly Voting Data", <http://hdl.handle.net/1902.1/12379> UNF:3:Hpf6qOkDzzvXF9m66yLTg== V1 [Version]

Figure 2: Cases of Worldwide Nation Building



4 Results

4.1 Baseline Model

Table 1 reports three different estimations of the baseline model. The first column represents estimation of the neoclassical growth model using a pooled cross section. In the second column we control for random effects. And in the final column we control for fixed effects. Consistent with Mankiw et al. (1992), investment and education relative to GDP are strongly associated with per capital growth, while initial GDP levels and population measures appear to have negligible effects. While our estimates do not change dramatically across the three different estimations, Hausman tests suggest the fixed effects model is preferred to the random effects model. This makes sense as this parsimonious model leaves many country-specific characteristics unobserved that may affect the growth rate of GDP per capita. We thus include country-fixed and year effects in all subsequent growth regressions.

Table 1: Panel Estimation of the Textbook Solow Growth Model
Dependent variable is $\ln y_j(t+T) - \ln(y_j(t))$

	Pooled	Random Effects	Fixed Effects
$\ln(y_j(t))$	0.02 (0.2)	-0.1 (0.22)	-0.59 (0.52)
$\ln(\frac{investment}{GDP})$	3.02*** (0.31)	3.64*** (0.33)	4.75*** (0.47)
$\ln(\frac{education}{GDP})$	1.15*** (0.30)	1.41*** (0.30)	1.68*** (0.34)
$\ln(population)$	-0.11 (0.12)	-0.03 (0.05)	0.05 (0.06)
No. of Obs.	6566	6566	6566
Groups	177	177	177
R^2	0.08	0.08	0.07

Notes: Standard errors in parenthesis. Significant at 1% ***, significant at 5% **, and significant at 10%*. $T =$ three-year span data. Year effects not reported.

4.2 Conflict, Aid, and the Effects of Nation Building

We augment the baseline models with measures of conflict and post-conflict periods, economic aid, military assistance, and their interactions. The results are reported in Table 2 in columns

Table 2: Fixed Effects Estimation with Aid and Conflict Measures
 Dependent variable is $\ln y_j(t+T) - \ln(y_j(t))$

	(1)	(2)	(3)	(4)
$\ln(y_j(t))$	-0.76 (0.53)	-0.54 (0.53)	-0.78 (0.53)	-0.65 (0.53)
$\ln(\frac{investment}{GDP})$	4.72*** (0.47)	4.59*** (0.47)	4.70*** (0.47)	4.52*** (0.47)
$\ln(\frac{education}{GDP})$	1.77*** (0.34)	1.93*** (0.34)	1.75*** (0.34)	1.92*** (0.34)
$\ln(pop.growth)$	0.04 (0.06)	0.04 (0.06)	0.002 (0.06)	-0.03 (0.06)
<i>conflict</i>	-2.27*** (0.47)	-4.16*** (1.14)	-1.73*** (0.50)	-3.34*** (1.19)
<i>post - conflict</i>	1.34*** (0.43)	1.25 (1.10)	0.56 (0.45)	-0.51 (1.13)
$\ln(econ)$	-	0.53*** (0.16)	-	0.55*** (0.16)
$\ln(econ) * conflict$	-	0.40* (0.21)	-	0.39* (0.22)
$\ln(econ) * post$	-	0.02 (0.21)	-	0.22 (0.21)
<i>military</i>	-	-	-1.55* (0.90)	-4.70** (2.18)
<i>military * conflict</i>	-	-	-3.76*** (1.21)	-9.75*** (3.78)
<i>military * post</i>	-	-	7.96*** (1.44)	25.61*** (4.34)
<i>econ * military</i>	-	-	-	0.62 (0.45)
<i>econ * military * conflict</i>	-	-	-	0.95 (0.70)
<i>econ * military * post</i>	-	-	-	-3.63*** (0.87)
No. of Obs.	6566	6566	6566	6566
Groups	177	177	177	177
R^2	0.07	0.08	0.08	0.08

Notes: Figures in parentheses are standard errors. Significant at 1%***, significant at 5%** , and significant at 10%*. $T =$ three-year span data. Year effects not reported.

2-4. First note that as expected, conflict acts as a detriment to economic growth. Countries which experience conflict are associated with anywhere between 2% and 4% lower per capita growth. Of course it is impossible to tell here whether conflicts disrupt economic activities, or whether lower growth rates spur fighting. Also, not accounting for economic or military aid, post-conflict periods are associated with robust growth. Again this makes sense, as stability returns to a country, allowing it to rebuild its war-damaged economy.

Given that conflict tends to impede growth, we are interested in the effects of giving foreign aid to these nations embroiled in conflict. Outside nations many choose to do nothing, or provide just military support in the form of troops, training, or weaponry, or provide just economic aid, or provide a combination of things. Including economic and military aid variables yield some interesting results. First, not surprisingly, economic aid is *ceteris paribus* associated with stronger growth. Military assistance on the other hand appears to be *ceteris paribus* negatively associated with growth. The endogeneity of these variables however need to be addressed, and we do so below. The interactions between military assistance and conflict regimes also yield some interesting insights. Periods when the country is in conflict and is receiving military assistance appear to be particularly low growth periods. On the other hand, the presence of military assistance during those times just following the conflict are strongly associated with more rapid growth.

We are also interested in combinations of these interaction terms. Specifically, we wish to gauge the marginal growth effects of *nation building*. That is, what is the marginal impact of an extra dollar of economic aid ($economic\ aid_{jt}$) when there is also military assistance ($military\ aid_{jt} = 1$) and the presence of conflict ($conflict_{jt} = 1$)? Going back to the notation from equation (3.2), this requires testing the simple linear restriction $\theta_3 + \theta_4 + \theta_9 + \theta_{10} = 0$. Using parallel logic, assessing the marginal impact of *post-conflict* nation building, we test the linear restriction $\theta_3 + \theta_5 + \theta_9 + \theta_{11} = 0$.

Results of interaction tests are reported in Table 5. We can confidently reject the null on both counts. More specifically, using our estimated nation-building measure during conflict, a 1% increase in economic aid during times of conflict and military assistance translates into a roughly 2.5% increase in growth. On the other hand, using our estimated nation-building measure during post-conflict, a 1% increase in economic aid with military assistance after conflict translates into a roughly 2.2% *decrease* in growth. This suggests that nation building endeavors do help with economic growth, but that once the conflict is over persisting in nation building activity harms growth.

The analysis above raises a number of questions. The primary issue of course is endo-

geneity. All the variables used to construct our nation building measures are potentially endogenous with economic growth. Perhaps the thorniest relationship is that between economic aid and growth, as many studies suggest that aid tends not to be doled out in low growth environments, and these are perhaps more prone to conflicts. Are nation building activities primarily conducted in high-growth countries or regimes, or conducted mainly in those regions already most likely to succeed? If so, we are potentially giving too much credit to economic and military aid in bolstering growth during times of conflict. Similarly, do these types of assistance measures tend to persist in more troubled countries or regimes once the conflict is over? If so, we are potentially not giving *enough* credit to nation building endeavors in post-conflict scenarios. Our use of country fixed-effects can help address some but not all of these concerns.

4.2.1 Instrumenting Economic Aid

To address the endogeneity of economic aid, we perform a two step procedure. Since aid may be provided in part for geopolitical considerations (as opposed to strictly economic considerations) one might use such geopolitical factors as instruments for aid flows. Instrumenting aid flows using cultural or political variables was first developed by Alesina and Dollar (2000), who use colonial histories and political alliances to determine foreign aid.

In a similar spirit, we estimate bilateral aid flows using two types of geopolitical variables. The first measures the extent to which two countries are politically alligned. The data captures roll-call votes in the United Nations General Assembly from 1946-2008 (Voeten and Merdzanovic 2008)¹². From this Gartzke 2010¹³ creates an “affinity” index which provides a metric reflecting the similarity on voting positions of pairs of countries. We use this index as an explanatory variable in estimating aid flows. This is intended to capture the idea that aid donors may generally prefer to contribute resources to like-minded regimes, or that aid may be used to punish or reward regimes for voting in particular ways (Carter and Stone (2010)).

The second type of variable measures the colonial relationships between country pairs, capturing the number of years the aid giver has or had been a colonizer of the aid receiver. Alesina and Dollar (2000) and others suggest that past colonial relations can be a strong motivator for current aid giving. We construct this colonial history using data from the CIA World Factbook.

¹²Erik Voeten and Adis Merdzanovic, "United Nations General Assembly Voting Data", <http://hdl.handle.net/1902.1/12379> UNF:3:Hpf6qOkDzzvXF9m66yLTg== V1 [Version]

¹³Erik Gartzke, "The Affinity of Nations: Similarity of State Voting Positions in the UNGA"

Note that this approach will produce many observations with a zero observed for the dependent variable (most country-pair year observations will not have any aid flows). Consequently we estimate a Tobit model to address the censored nature of aid measures.

4.2.2 An IV approach to Nation Building

Given the discussion above, our first step is to estimate the following:

$$\ln(aid_{hjt})^* = \beta_h + \sum_{i=1}^5 \beta_i x_{i,hjt} + \varepsilon_{hjt} \quad (4.1)$$

$$\ln(aid_{hjt}) = \begin{cases} \ln(aid_{hjt})^* & \text{if } aid_{hjt}^* > 1, \\ 0 & \text{if } aid_{hjt}^* \leq 1 \end{cases} \quad (4.2)$$

where:

aid_{hjt} = aid amount from OECD member h to recipient country j .

$x_{1,hjt}$ = political affinity measure between countries h and j .

$x_{2,hjt}$ = former colonizer indicator between aid giver h and receiver j .

$x_{3,hjt}$ = current colonizer indicator between aid giver h and receiver j .

$x_{4,hjt}$ = number of years former colonizer h had colonized j (since 1900).

$x_{5,hjt}$ = number of years current colonizer h has colonized j (since 1900).

Note that we include β_h to show our control for OECD-donor fixed effects.

Results from this estimation are presented in Table 3. Echoing the findings of Alesina and Dollar (2000), the similarity of voting behavior between two nations is a positive prediction of aid giving and/or receiving. Colonial legacy also can help predict aid patterns, although this relationship appears to slightly deteriorate over time.

Using the results from regression (4) in Table 3, we sum the estimated aid flows across potential OECD donors for each recipient nation. We can then replace our original aid measures with the sum of our estimated measures.

A comparison of results when we instrument for aid flows and when we do not is presented in Table 4. First note that the coefficient on our instrumented aid variable dramatically falls to insignificance, validating the concerns of some researchers that aid may flow to already relatively successful regions. However, note that during periods of conflict, our instrumented measure of aid is positively associated with growth. This gives us *a fortiori* evidence that

Table 3: First Stage Tobit Estimation of Economic Aid flows with Donor Fixed Effects
 Dependent variable is total aid given to a recipient country in a particular year

	(1)	(2)	(3)	(4)
UN Voting similarity	4.18 (1.78)**	6.25 (1.77)***	6.49 (1.77)***	6.77 (1.78)***
Former Colonizer Indicator		120.62 (2.62)***	122.30 (2.62)***	144.29 (3.83)***
Current Colonizer Indicator			193.82 (15.43)***	742.56 (146.38)***
Former Years of Colonization				-0.76 (0.10)***
Current Years of Colonization				-8.08 (2.15)***
No. of Obs.	141962	141962	141962	141962
Donor Countries		21	21	21
<i>PseudoR</i> ²	0.026	0.028	0.028	0.029

Notes: Figures in parentheses are standard errors. Significant at 1% ***, significant at 5% **, and significant at 10%*.

Table 4: Fixed Effects Estimation of Aid and Conflict Measures with Instruments
 Dependent variable is $\ln y_j(t+T) - \ln(y_j(t))$

	Non-instrumented	Instrumented
$\ln(y_j(t))$	-0.65 (0.53)	-0.38 (0.66)
$\ln(\frac{investment}{GDP})$	4.52*** (0.47)	5.07*** (0.57)
$\ln(\frac{education}{GDP})$	1.92*** (0.34)	2.00*** (0.40)
$\ln(pop.growth)$	-0.03 (0.06)	0.02 (0.07)
<i>conflict</i>	-3.34*** (1.19)	-5.82*** (2.15)
<i>post - conflict</i>	-0.51 (1.13)	3.34 (2.01)
$\ln(econ)$	0.55*** (0.16)	-0.02 (0.22)
$\ln(econ) * conflict$	0.39* (0.22)	0.73** (0.37)
$\ln(econ) * post$	0.22 (0.21)	-0.47 (0.36)
<i>military</i>	-4.70** (2.18)	-3.18 (2.72)
<i>military * conflict</i>	-9.75*** (3.78)	-5.74 (4.36)
<i>military * post</i>	25.61*** (4.34)	29.38*** (5.32)
$econ * military$	0.62 (0.45)	0.29 (0.53)
$econ * military * conflict$	0.95 (0.70)	0.39 (0.79)
$econ * military * post$	-3.63*** (0.87)	-4.36*** (1.03)
No. of Obs.	6566	4913
R^2	0.08	0.08

Notes: Figures in parentheses are standard errors. Significant at 1%***, significant at 5%***, and significant at 10%*. T = three-year span data.

Table 5: Interpreting the Interactions between Economic Aid and Military Aid

	Non-Instrumented	Instrumented
Marginal Effects of Economic Aid on Growth ($\frac{\partial \Delta y}{\partial \ln(econ)}$) conditional on		
No Military Aid ($\widehat{\theta}_3$)	0.55*** (0.001)	-0.02 (0.934)
No Military Aid and Conflict ($\widehat{\theta}_3 + \widehat{\theta}_4$)	0.94*** (0.000)	0.71* (0.053)
No Military Aid and Post-Conflict ($\widehat{\theta}_3 + \widehat{\theta}_5$)	0.78*** (0.001)	-0.49 (0.202)
Military Aid and Conflict ($\widehat{\theta}_3 + \widehat{\theta}_4 + \widehat{\theta}_9 + \widehat{\theta}_{10}$)	2.52*** (0.000)	1.39** (0.013)
Military Aid and Post-Conflict ($\widehat{\theta}_3 + \widehat{\theta}_5 + \widehat{\theta}_9 + \widehat{\theta}_{11}$)	-2.23*** (0.008)	-4.56*** (0.000)
Complements or Substitutes ($\frac{\partial^2 \Delta y}{\partial military \partial \ln(econ)}$) conditional on		
Peacetime ($\widehat{\theta}_9$)	0.62 (0.16)	0.29 (0.58)
Conflict ($\widehat{\theta}_9 + \widehat{\theta}_{10}$)	1.59*** (0.008)	0.68 (0.290)
Post-Conflict ($\widehat{\theta}_9 + \widehat{\theta}_{11}$)	-3.01*** (0.000)	-4.07*** (0.000)

Notes: Figures in parentheses are p-values. Significant at 1% ***, significant at 5% **, and significant at 10%*. θ 's refer back to the notation from equation (3.2).

economic assistance has indeed helped war torn regions grow faster than they otherwise would.

Again, we are interested in the potential growth effects of nation building both during periods of conflict (testing if $\theta_3 + \theta_4 + \theta_9 + \theta_{10} = 0$ from (3.2)) and during periods after conflict (testing if $\theta_3 + \theta_5 + \theta_9 + \theta_{11} = 0$ also from (3.2)). Results from these exercises are provided in Table 5. Qualitatively, they echo the results from the non-instrumented version. Specifically, using our instrumented measure of aid, a 1% increase in aid during times of conflict and military assistance is associated with a 1.39% increase in growth. This is a weaker but arguably a more accurate measure of the positive effects of nation-building aid compared to our non-instrumented results. On the other hand, a 1% increase in aid with military assistance after conflict translates into roughly a 4.6% decrease in per capita income growth. This negative result is in fact much stronger than in the non-instrumented case. Our conclusions thus remain consistent. Joint assistance during times of conflict helps economies grow; the same kind of assistance when the conflict is over hinders recovery.

Given that we do not instrument for conflict regimes and military assistance, can we hang our hats on these results? We argue yes. First, as noted above, conflict itself is strongly *negatively* related to growth; if anything this potentially biases our estimated effect of nation building during conflict periods downward. As for military assistance, it is possible that such help only comes to countries already with strong growth potential. However, our results in Table 2 suggest that this is unlikely - military assistance during conflict periods also is strongly negatively related to growth. Thus we would argue that our estimated positive growth effects of nation building funds during conflict periods are fairly conservative.

We can use similar logic to argue over the negative influence of nation building funds in post-conflict regimes. Both post-conflict periods and military assistance during these periods are associated with faster growth. Going back to Table 4, we observe strong positive growth effects. The fact that economic aid (instrumented or not) coupled with these factors seems to produce *lower* growth would suggest that nation-building funds themselves thwart growth.

An interesting question is whether economic and military aid tend to complement each other, or if they tend to crowd each other out. In the context of this study, this is tantamount to inquiring over the sign of $\frac{\partial^2 \Delta y}{\partial \ln(\text{econ}) \partial \text{military}_t}$. During times of peace ($\text{conflict}_{jt} = 0$ and $\text{post} - \text{conflict}_{jt} = 0$), there seems to be no relationship between combined economic and military aid and per capita growth ($\hat{\theta}_9$ is insignificant). However, the conflict environment does seem to matter here. F-tests of $\hat{\theta}_9 + \hat{\theta}_{10}$ suggest that the simultaneous allocation of economic and military assistance during conflict has positive effects on growth (although this

result is insignificant in the instrumented case). This may indicate some complementarities in assistance - economic aid works better in conflict environments when it is buttressed with military assistance that can provide security. On the other hand, tests of $\widehat{\theta}_9 + \widehat{\theta}_{11}$ imply that such joint assistance after conflicts harms economic growth. This may indicate a type of crowding out - economic support may thwart the natural forces of post-conflict growth.

There are important normative implications in this. Naturally there are many reasons why one nation may wish to provide assistance of some form to another nation. In matters of per capita growth, however, the argument seems to be that a conflict-riddled nation is best served by a combination of military and economic support. After the conflict, a persisting military presence helps growth further; economic aid however should pull out and allow private growth forces to reemerge on their own.

4.3 Unilateral v. Multilateral Nation Building

Finally, we wish to explore a bit further the effects of different *types* of military interventions. As we suggested earlier, different groups conduct nation building for different reasons, and these differences may translate into different effects on economic development. Are there different growth effects from military aid provided by a single player compared with joint assistance from a multitude of countries?

Dobbins et al. (2008) argue that multilateral organizations, especially the United Nations, may have a different approach to nation building than single country actors, and consequently may have different growth effects. On the one hand, interventions by individual countries may be quite weak, particularly since domestic pressures may preclude anything but a tiny military force to be sent abroad. As such the growth effects of nation building considering these interventions may appear quite modest. On the other hand, risk averse countries may wish to execute multilateral military excursions in particularly difficult environments, where the probability of success is already low. In this case multilateral nation building operations would likely have worse growth effects than unilateral operations.

So far we have considered military aid provided by either a single country or a multitude of countries as the same. Now we separately consider military interventions by only one of the twenty-two DAC nations ('unilateral') and joint interventions by two or more nations ('multilateral'). We will also consider UN mandated peacekeeping operations, which are altogether separate cases and may definitionally be considered an alternative measure of multilateral intervention. Treating different kinds of military interventions separately also allows us to further explore endogeneity issues, as each type of military force may be motivated

by different considerations.

Table 6 displays the results of estimating (3.2) when we treat the military aid indicator separately for unilateral interventions, multilateral interventions and U.N. peacekeeping interventions. Table 7 shows results from the same exercise when we also use the instrumented economic aid measures described in section 4.2.2. Results generally echo those produced in the baseline case. Specifically, military interventions during times of conflict tend to have a negative association with growth ($\widehat{\theta}_7$), while military interventions during post-conflict periods tend to have a positive association with growth ($\widehat{\theta}_8$). And the interaction term between economic aid, military intervention, and post conflict scenarios ($\widehat{\theta}_{11}$) is negatively associated with growth, no matter how military intervention is measured.

Finally, we can consider the conditional marginal effects of economic and military aid using these different measures of military interventions the same way we do in Table 5. Results of these exercises using the estimates displayed in Table 7 are shown in Table 8. Again considering our measures of the effects of *nation building*, we see that economic aid in the presence of military aid and conflict ($\widehat{\theta}_3 + \widehat{\theta}_4 + \widehat{\theta}_9 + \widehat{\theta}_{10}$) suggests higher economic growth (although the results are fairly weak). On the other hand, economic aid in the presence of military aid *after* conflict ($\widehat{\theta}_3 + \widehat{\theta}_5 + \widehat{\theta}_9 + \widehat{\theta}_{11}$) unambiguously suggests lower growth. In fact *multilateral* post-conflict nation building appears worse for growth, and economic aid during U.N. intervention seems particularly bad for growth in post-conflict scenarios. Yet the marginal growth effect of military involvement when economic aid is present in post-conflict environments ($\widehat{\theta}_6 + \widehat{\theta}_8 + \widehat{\theta}_9 + \widehat{\theta}_{11}$) is positive, and these results are stronger for multilateral interventions.

What to make of these estimates? We submit that these results echo our earlier suggestions. Nation building operations during conflict can bolster economic growth. Following conflict however, such robust foreign intervention can be damaging to recovery. A strong multilateral peacekeeping force should maintain security to allow growth to recover. At the same time economic aid should be curtailed to allow domestic investment to reemerge. This is particularly true in the presence of a multilateral peacekeeping force, as such military aid may substitute for economic aid.

5 Conclusions

Nation building operations occur for many varied reasons, including attempting to promote security and stability of strategic regions, thwarting the spread of terrorism or nu-

Table 6: Multilateral vs. Unilateral Effects of Aid and Conflict
 Dependent variable is $\ln y_j(t+T) - \ln(y_j(t))$

	Unilateral	Multilateral	United Nations
$\ln(y_j(t))$	-0.60 (0.53)	-0.71 (0.53)	-0.70 (0.54)
$\ln(\frac{investment}{GDP})$	4.50*** (0.47)	4.51*** (0.47)	4.53*** (0.47)
$\ln(\frac{education}{GDP})$	1.94*** (0.34)	1.96*** (0.34)	2.03*** (0.34)
$\ln(pop.growth)$	0.010 (0.06)	-0.005 (0.06)	0.042 (0.06)
<i>conflict</i>	-3.56*** (1.17)	-4.18*** (1.16)	-2.97*** (1.16)
<i>post - conflict</i>	0.34 (1.18)	0.42 (1.10)	-0.08 (1.12)
$\ln(econ)$	0.55*** (0.16)	0.55*** (0.16)	0.58*** (0.16)
$\ln(econ) * conflict$	0.38* (0.21)	0.49** (0.22)	0.28 (0.22)
$\ln(econ) * post$	0.10 (0.21)	0.14 (0.21)	0.14 (0.22)
<i>military</i>	-4.30* (2.27)	-7.90 (7.33)	4.95 (3.40)
<i>military * conflict</i>	-7.45* (4.27)	-5.81 (8.03)	-20.44*** (4.66)
<i>military * post</i>	17.91*** (4.83)	35.23*** (8.40)	31.65*** (5.04)
<i>econ * military</i>	0.58 (0.47)	1.73 (1.41)	-1.32** (0.61)
<i>econ * military * conflict</i>	0.69 (0.79)	-0.78 (1.53)	3.09*** (0.82)
<i>econ * military * post</i>	-2.28*** (0.95)	-5.01*** (1.73)	-4.41*** (0.87)
No. of Obs.	6559	6559	6559
R^2	0.07	0.07	0.08

Notes: Figures in parentheses are standard errors. Significant at 1%***, significant at 5%** , and significant at 10%*. T = three-year span data.

Table 7: Multilateral vs. Unilateral Effects of Aid and Conflict
(Instrumenting for Economic Aid)
Dependent variable is $\ln y_j(t+T) - \ln(y_j(t))$

	Unilateral	Multilateral	United Nations
$\ln(y_j(t))$	-0.33 (0.66)	-0.48 (0.66)	-0.38 (0.66)
$\ln(\frac{investment}{GDP})$	5.12*** (0.57)	5.04*** (0.57)	5.17*** (0.56)
$\ln(\frac{education}{GDP})$	2.02*** (0.40)	2.07*** (0.40)	2.13*** (0.40)
$\ln(pop.growth)$	0.05 (0.07)	0.04 (0.07)	0.09 (0.07)
<i>conflict</i>	-5.68*** (2.02)	-7.28*** (1.96)	-5.01*** (1.95)
<i>post - conflict</i>	5.72*** (1.95)	5.53*** (1.92)	5.26*** (1.97)
$\ln(econ)$	-0.017 (0.22)	-0.011 (0.22)	0.10 (0.22)
$\ln(econ) * conflict$	0.65* (0.35)	0.95*** (0.34)	0.57* (0.34)
$\ln(econ) * post$	-0.86** (0.35)	-0.76** (0.034)	-0.82** (0.36)
<i>military</i>	-2.28 (2.87)	-6.42 (7.57)	8.92** (4.48)
<i>military * conflict</i>	-5.29 (4.74)	-1.71 (8.67)	-16.60*** (5.80)
<i>military * post</i>	20.87*** (6.32)	38.85*** (9.17)	27.74*** (5.96)
$econ * military$	0.12 (0.56)	1.56 (1.44)	-2.08*** (0.79)
$econ * military * conflict$	0.50 (0.87)	-1.48 (1.61)	2.45** (1.0)
$econ * military * post$	-2.81** (1.21)	-5.90*** (1.83)	-3.59*** (1.01)
No. of Obs.	4908	4908	4908
R^2	0.07	0.08	0.08

Notes: Figures in parentheses are standard errors. Significant at 1% ***, significant at 5% **, and significant at 10%*. $T =$ three-year span data.

Table 8: Marginal Effects From Unilateral vs. Multilateral Military Operation

	Unilateral	Multilateral	United Nations
Marginal Effects of Economic Aid on Growth ($\frac{\partial \Delta y}{\partial \ln(\text{econ})}$) conditional on			
No Military Aid ($\widehat{\theta}_3$)	-0.02 (0.941)	-0.01 (0.960)	0.096 (0.670)
No Military Aid and Conflict ($\widehat{\theta}_3 + \widehat{\theta}_4$)	0.63* (0.071)	0.94*** (0.006)	0.66* (0.051)
No Military Aid and Post-Conflict ($\widehat{\theta}_3 + \widehat{\theta}_5$)	-0.87** (0.020)	-0.78** (0.037)	-0.72* (0.061)
Military Aid and Conflict ($\widehat{\theta}_3 + \widehat{\theta}_4 + \widehat{\theta}_9 + \widehat{\theta}_{10}$)	1.25* (0.060)	1.02 (0.317)	1.03 (0.202)
Military Aid and Post-Conflict ($\widehat{\theta}_3 + \widehat{\theta}_5 + \widehat{\theta}_9 + \widehat{\theta}_{11}$)	-3.56*** (0.003)	-5.12*** (0.005)	-6.40*** (0.000)
Complements or Substitutes ($\frac{\partial^2 \Delta y}{\partial \text{military} \partial \ln(\text{econ})}$) conditional on			
Peacetime ($\widehat{\theta}_9$)	0.12 (0.826)	1.56 (0.280)	-2.08*** (0.009)
Conflict ($\widehat{\theta}_9 + \widehat{\theta}_{10}$)	0.62 (0.379)	0.079 (0.941)	0.37 (0.663)
Post-Conflict ($\widehat{\theta}_9 + \widehat{\theta}_{11}$)	-2.69** (0.026)	-4.34** (0.019)	-5.67*** (0.000)

Notes: Figures in parentheses are p-values. θ 's refer back to the notation from equation (3.2). Estimates from Table 6 are used.

clear weapons or abhorrent ideologies, protecting natural resource stockpiles, and promoting democracy. This paper suggests that policy makers should consider the influence on economic growth and development as an important by-product of these endeavors.

Overall this analysis has shown that during conflict nation building can help to increase the economic growth rate of a host nation. The effects are not terribly strong, and not statistically significant in all specifications. Still, they suggest that a robust intervention of economic and military support may help an economy in the grips of war. Once the conflict concludes, the analysis suggests that growth prospects are strongest with continued military support and receding economic aid. Excessive aid can in fact hinder the natural rebuilding phase of a post-conflict nation. Studies which find no evidence that aid helps countries grow suggest that policy makers need to rethink the entire apparatus of aid (Rajan and Subramanian (2008)). We suggest that an approach that simultaneously considers conflict and military aid is a fruitful part of such a rethink.

6 References

- Alesina, Alberto, and David Dollar. 2000. "Who Gives Aid To Whom And Why?" *Journal of Economic Growth* 5(1), pp. 33–63.
- Barro, Robert, and Jong-Wha Lee. 2005. "IMF Programs: Who is Chosen and What Are the Effects?" *Journal of Monetary Economics* 52(7), pp. 1245–1269.
- Burnside, Craig A., and David Dollar. 1997. "Aid, Policies, and Growth." Working Paper 569252, World Bank Policy Research Working Paper.
- Caplan, B. 2002. "How does war shock the economy?" *Journal of International Money and Finance* 21(2).
- Carter, David B., and Randall W. Stone. 2010. "Sincere or Strategic? U.S. Aid Disbursements and Voting in the United Nations General Assembly." wp.
- Collier, P., and D. Dollar. 2002. "Aid Allocation and Poverty Reduction." *European Economic Review* 46(8).
- Collier, Paul, and Anke Hoeffler. 2002. "Aid, Policy, and Growth in Post Conflict Societies." Working Paper 2927, The World Bank.
- Dobbins, James, Seth G. Jones, Keith Crane, Christopher S. Chivvis, Andrew Radin, F. Stephen Larrabee, Nora Bensahel, Brooke K. Stearns, and Benjamin W. Goldsmith. 2008. *Europe's Role in Nation Building: From the Balkans to the Congo*. Santa Monica: RAND.
- Durlauf, Steven, and Danny T. Quah. 1998. "The New Empirics of Economic Growth." Working paper, National Bureau of Economic Research.
- Easterly, William, Lant Pritchett Michael Kremer, and Lawrence Summers. 1993. "Good Policy or Good Luck? Country Growth Performance and Temporary Shocks." *Journal of Monetary Economics* 32.
- Imai, Kosuke, and Jeremy Weinstein. 2000. "Measuring the Economic Impact of Civil War." Working paper, Center for International Development.
- Islam, Nazrul. 1995. "Growth Empirics: A Panel Data Approach." *The Quarterly Journal of Economics* 110(4).

- Jones, Garrett, and Tim Kane. 2007. "US Troops and Economic Growth." Working paper, Social Science Research Network.
- Kang, Seonjou, and James Meernik. 2004. "Determinants of Post-Conflict Economic Assistance." *Journal of Peace Research* 41(2).
- Mankiw, N. Gregory, David Romer, and David N. Weil. 1992. "A Contribution to the Empirics of Economic Growth." *The Quarterly Journal of Economics* 107(2).
- Mekasha, Tseday Jemaneh, and Finn Tarp. 2011. "Aid and Growth What Meta-Analysis Reveals." Working paper, World Institute for Development Economic Research.
- Orszag, Peter. 2007. "Estimated Costs of US Operations in Iraq and Afghanistan and of Other Activities Related to the War on Terrorism." Statement before the committee on the budget, United States House of Representatives.
- Rajan, Raghuram G., and Arvind Subramanian. 2008. "Aid and Growth: What Does the Cross-Country Evidence Really Show?" *The Review of Economics and Statistics* 90(4).
- Solow, Robert M. 1956. "A Contribution to Theory of Economic Growth." *The Quarterly Journal of Economics* 70.
- Tollefson, Scott D. 1995. "Civil-Military Relations in Brazil: The Myth of Tutelary Democracy." Speech, 1995 Latin American Studies Association.
- Yamarik, Steven J., Noel D. Johnson, and Ryan A. Compton. 2010. "War! What Is It Good For? A Deep Determinants Analysis of the Cost of Interstate Conflict." *Peace Economics, Peace Science and Public Policy* 16(1).

A Data Sources

This project included a huge data collection effort. While most of the variables have been modified from their original form, all of the data comes from publicly available sources

1. Penn World Tables: provides data on GDP per capita and investment share of GDP for 188 countries from 1950 to 2005
2. World Bank World Development Indicators: provides data on population growth and education expenditure for 210 regions from 1960 to present

3. Organization for Economic Co-operation and Development Creditor Reporting System: provides aid data for all 22 Donor Assistance countries which include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States

4. Uppsala Conflict Data Program-Institute for Peace Research (UCDP-PRIO) Armed Conflicts Data set: includes presence of conflict within a country's territorial borders and number of battle deaths in a year during a certain conflict. The data set defines a conflict as an armed dispute between at least two parties that results in at least 25 battle related deaths in a year. One of the parties must be a government.

5. World Bank Project's Database: provides all grants by the World Bank, their recipient and their target sector from 1948 to present. The dataset includes 10 sectors which were aggregated into 7 sectors.

6. United Nations Peacekeeping Operations Database: records every location and year of a United Nations peacekeeping operation since 1948

7. International Military Intervention Dataset: records every instance when one nation intervenes over the international borders of another nation from 1946 to 2005. Categorizes the interventions by level of military involvement and purpose for military operation.

8. US Overseas Loans and Grants: provides data on US foreign military assistance and economic assistance from 1946 to 2005

B Nations in Sample

Country	Years
Afghanistan	1960-2005
Albania	1960-2005
Algeria	1962-2005
Andorra	1993-2005
Angola	1982-2005
Antigua and Barbuda	1981-2005
Argentina	1960-2005
Armenia	1991-2005
Australia	1960-2005
Azerbaijan	1991-2005

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Table 9 – Continued

Country	Years
Bahamas	1973-2005
Bahrain	1971-2005
Bangladesh	1971-2005
Barbados	1966-2005
Belarus	1991-2005
Belgium	1960-2005
Belize	1981-2005
Benin	1960-2005
Bhutan	1971-2005
Bolivia	1960-2005
Botswana	1966-2005
Brazil	1960-2005
Brunei	1984-2005
Bulgaria	1972-2005
Burkina Faso	1960-2005
Burundi	1962-2005
Cambodia	1960-2005
Cameroon	1960-2005
Canada	1960-2005
Cape Verde	1975-2005
Central African Republic	1960-2005
Chad	1960-2005
Chile	1960-2005
China	1960-2005
Colombia	1960-2005
Comoros	1975-2005
Republic of the Congo	1960-2005
Costa Rica	1960-2005
Cote d'Ivoire	1960-2005
Croatia	1992-2005
Cuba	1960-2005
Cyprus	1960-2005
Czechoslovakia	1960-1993
Czech Republic	1993-2005
Democratic Republic of Congo	1963-2005
Denmark	1960-2005
Djibouti	1977-2005

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Table 9 – Continued

Country	Years
Dominica	1978-2005
Dominican Republic	1960-2005
Ecuador	1987-2005
Egypt	1960-2005
El Salvador	1960-2005
Equatorial Guinea	1968-2005
Eritrea	1993-2005
Estonia	1991-2005
Ethiopia	1968-2005
Federated States of Micronesia	1991-2005
Fiji	1970-2005
Finland	1960-2005
France	1960-2005
Gabon	1960-2005
Gambia	1965-2005
Georgia	1991-2005
Germany	1960-2005
Ghana	1960-2005
Greece	1960-2005
Grenada	1974-2005
Guatemala	1960-2005
Guinea-Bissau	1980-2005
Guinea	1960-2005
Guyana	1966-2005
Haiti	1960-2005
Honduras	1960-2005
Hungary	1960-2005
Iceland	1960-2005
India	1960-2005
Indonesia	1960-2005
Iran	1960-2005
Iraq	1960-2005
Ireland	1960-2005
Israel	1960-2005
Italy	1960-2005
Jamaica	1962-2005
Japan	1960-2005

Continued on Next Page. . .

Table 9 – Continued

Country	Years
Jordan	1960-2005
Kazakhstan	1991-2005
Kenya	1963-2005
Kiribati	1999-2005
Kuwait	1961-2005
Kyrgyzstan	1991-2005
Laos	1981-2005
Latvia	1991-2005
Lebanon	1986-2005
Lesotho	1963-2005
Liberia	1960-2005
Libya	1960-2005
Lithuania	1991-2005
Luxembourg	1960-2005
Macedonia	1993-2005
Madagascar	1967-2005
Malawi	1964-2005
Malaysia	1960-2005
Maldives	1973-2005
Mali	1960-2005
Malta	1963-2005
Marshall Islands	1991-2005
Mauritania	1960-2005
Mauritius	1968-2005
Mexico	1960-2005
Moldova	1991-2005
Mongolia	1960-2005
Morocco	1960-2005
Mozambique	1975-2005
Myanmar (Burma)	1960-2005
Namibia	1990-2005
Nepal	1965-2005
Netherlands	1960-2005
New Zealand	1960-2005
Nicaragua	1960-2005
Niger	1964-2005
Nigeria	1960-2005

Continued on Next Page . . .

Table 9 – Continued

Country	Years
Norway	1960-2005
Oman	1963-2005
Pakistan	1960-2005
Palau	1994-2005
Panama	1960-2005
Papua Ne Guinea	1963-2005
Paraguay	1960-2005
Peru	1960-2005
Philippines	1960-2005
Poland	1960-2005
Portugal	1965-2005
Qatar	1971-2005
Romania	1960-2005
Russia	1981-2005
Rwanda	1962-2005
Samoa	1976-2005
Sao Tome and Principe	1975-2005
Saudi Arabia	1966-2005
Senegal	1960-2005
Seychelles	1976-2005
Sierra Leone	1961-2005
Singapore	1965-2005
Slovakia	1993-2005
Slovenia	1992-2005
Solomon Islands	1963-2005
Somalia	1963-2005
South Africa	1960-2005
South Korea	1960-2005
Spain	1960-2005
Sri Lanka	1960-2005
St Kitts and Nevis	1983-2005
St Lucia	1979-2005
St Vincent and the Grenadines	1979-2005
Sudan	1960-2005
Suriname	1975-1994
Swaziland	1968-2005
Sweden	1960-2005

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Table 9 – Continued

Country	Years
Switzerland	1960-2005
Syria	1961-2005
Taiwan	1963-2005
Tajikistan	1991-2005
Tanzania	1961-2005
Thailand	1960-2005
Togo	1960-2005
Tonga	1999-2005
Trinidad and Tobago	1962-2005
Tunisia	1960-2005
Turkey	1960-2005
Uganda	1962-2005
Ukraine	1991-2005
United Arab Emirates	1971-2005
United Kingdom	1960-2005
United States of America	1960-2005
Uruguay	1960-2005
Uzbekistan	1991-2005
Vanatua	1981-2005
Venezuela	1960-2005
Vietnam	1960-2005
Yemen	1960-2005
Yugoslavia	1963-2005
Zambia	1964-2005
Zimbabwe	1965-2005

C Cases of Nation Building

Table 10: Cases of Nation Building with Multilateral Forces

Country	Year	Conflict	Nations Involved
Afghanistan	2001-2005	Afghanistan War as part of Global War on Terrorism	Australia, Canada, France, United Kingdom, United States
Algeria	1963-64	Algerian-Morocco War	Ethiopia and Mali under the auspices of the Organization of African Unity
Bosnia and Herzegovina	1993-1996	Bosnian Civil War- Serbian led genocide during breakup from Yugoslavia	France, Germany, United States under the auspices of NATO
Central African Republic	1996	Army mutiny leading to ethnic violence	France, United States
Chad	1980-1982	Chad Civil War , Chad-Libyan conflict over the Azouza strip	Organization of African Unity
Republic of Congo	1997	First Congolese Civil War between Congolese military and paramilitary group	France, United States
Cote d'Ivoire	2002-2005	Cote d'Ivoire Civil War between the Forces Nouvelles in North and the government in the South	France, Germany, United Kingdom, United States
Democratic Republic of the Congo (Zaire)	1978-1979	Shabba II- The Congolese National Liberation Front invasion of Shaba region	Belgium, France, United Kingdom, United States
Democratic Republic of the Congo	1993-1994	Border spill over s from Rwandan genocide	Belgium, France, United States

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Table 10 – Continued

Country	Year	Conflict	Nations Involved
El Salvador	1969-1974	Soccer War between Honduras and El Salvador	Organization of American States
El Salvador	1979-1980	Civil Conflict	Organization of American States
Eritrea	1998	Eritrean-Ethiopian War	France, Germany, Italy, Netherlands, United Kingdom
Gabon	1964	Internal coup	France, United States
Guinea-Bissau	1998	Guinea-Bissau Civil War	France, Portugal
Haiti	2004	Rebels against Aristide's government provoke Civil War	Canada, France, United States
Honduras	1969-1974	Soccer War with El Salvador concerning territorial border	Organization of American States
Indonesia	2004-2005	Ethnic Conflict	Austria, Japan, Spain, United States
Iraq	1991	Gulf War	France, United Kingdom, United States
Iraq	2003-2005	War in conjunction with the Global War on Terrorism	Australia, Denmark, Italy, Japan, Netherlands, Norway, Portugal, Spain, United Kingdom, United States
Kuwait	1990-1991, 1994	Iraq Kuwait Conflict	France, Netherlands, United Kingdom, United States
Lebanon	1989	Lebanese Civil War	France, United States
Liberia	2003	Second Liberian Civil War	France, United States
Morocco	1963-1964	Algerian-Morocco War	Organization for African Unity
Pakistan	2005	India-Pakistan Conflict	Australia, United States
Papua New Guinea	1998	Bougainville Revolt by rebel forces	Australia, United States

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Table 10 – Continued

Country	Year	Conflict	Nations Involved
Rwanda	1990, 1994	Rwandan Genocide	Belgium, Canada, France, United States
Sierra Leone	1997	Sierra Leone Civil War	France, United Kingdom, United States
Somalia	1992-1993	Somali Civil War	Canada, France, Italy, United States
Sri Lanka	2005	Sri Lankan Civil War	United Kingdom, United States
Thailand	1962	Thai/Burmese border conflicts	Australia, United Kingdom, United States
Vietnam	1965-1972	Vietnam War	Australia, United States

Note: All conflict data and descriptions come from: Uppsala Conflict Program, Encyclopedia of Conflicts since World War II, and the Armed Conflicts Database. All Military intervention data comes from: International Military Intervention Dataset.

Table 11: Unilateral Cases of Nation Building

Nation	Year	Conflict	Country
Australia	Cambodia	1997	Coup staged by Khmer Rouge rebels
Belgium	Democratic Republic of the Congo	1991	Civil War, Mutiny
France	Cameroon	1960	Rebel uprisings (UPC)
France	Central African Republic	1997	Military coup led by Cyriac Souke
France	Central African Republic	2003-2005	Rebel Uprisings led by UFDR
France	Chad	1968-1992	Rebel forces
France	Chad	2004-2005	Civil War against the FUCD
France	Comoros	1989	Coup staged by presidential guard
France	Djibouti	1992	Civil War between government and FRUD
France	Gabon	1965	Military coup led by Leon M'Ba
France	Mauritania	1977-1980	Civil war between government and POLISARIO
France	Morocco	1960-1962	Reconstruction after independence
France	Morocco	1965-1976	Algerian-Moroccan War and Border Clash
France	Rwanda	1993	Rwandan Civil War and Genocide led by FPR
France	Tunisia	1961-1962	Civil War started by National Liberation Army
Germany	Czechoslovakia	1968-1969	Cold War

Continued on Next Page...

Table 11 – Continued

Nation Providing Aid	Country	Year	Conflict
Germany	Iran	1991	Civil War staged by People's Mujahedin of Iran (MEK)
Germany	Sudan	2004	Civil War rebel factions include JEM, SLM/A, NDA
Spain	Morocco	2002	Territorial Dispute over island of Ceuta
United Kingdom	Kenya	1982	Civil War started by Mau Mau
United Kingdom	Oman	1972-1977	Civil War between government and PFLO with help from People's Republic of Yemen
United Kingdom	Sierra Leone	1998-2002	Civil War, rebel factions include AFRC, Kamajros, and RUF
40 United Kingdom	Yemen	1965-66	Civil War over Southern Areas by FLOSSY
United States	Cambodia	1975	Civil War Khmer Rouge, Cold War
United States	Cambodia	1997	Civil War rebel factions include FUNCINPEC and Khmer Rouge
United States	Democratic Republic of Congo	1965,1967	
United States	Dominican Republic	1961, 1965-1966	Civil War after 1962 elections negated by civilian junta
United States	El Salvador	1983-1988	Civil War between government and CNL
United States	Guatemala	1987	Rebel Factions URNG
United States	Haiti	1994-1995	Operation Uphold Democracy

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Table 11 – Continued

Nation Providing Aid	Country	Year	Conflict
United States	Haiti	2005	Urban warfare between Haitian Police, former Hatian military, urban gangs, and armed political groups
United States	Kenya	1982	Military coup led by Hezekiah Ochuka
United States	Kuwait	1996	Iraq-Kuqait Conflict
United States	Laos	1961-1970	Civil War between Laos government and Pathet Lao, Cold War
United States	Liberia	1990-1991	Civil War rebel factions include INPFL and NPFL
United States	Liberia	1996, 1998	Civil War rebel factions include INPFL and NPFL
United States	Morocco	1976-1978	Civil War led by POLISARIO
United States	Nicaragua	1979	Civil War by rebel faction FSLN
United States	Pakistan	2004	Rebel Factions in Baluchistan led by the BLA
United States	Panama	1989-1990	Military Coup led by Moises Giroldi
United States	Philippines	1989	Civil War initiated by CPP and Military coup led by Honasan, Abenina, and Zumel
United States	Sierra Leone	1992	Civil War between government and RUF
United States	Sierra Leone	2001-2002	Civil War rebel factions include RUF and WSB

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Table 11 – Continued

Nation Providing Aid	Country	Year	Conflict
United States	Somalia	1994	Civil War rebel factions include USC and SNA
United States	Sudan	1984-1985	Civil War instigated by SPLM/A
United States	Thailand	1966-1976	Civil War instigated by CPT
United States	Tunisia	1961-1962	Bizerte Conflict
United States	Turkey	1986	Civil War rebel faction includes PKK
United States	Vietnam	1963-1964	Vietnam War before other nations join
United States	Vietnam	1973-1974	Vietnam War before after allied nations pull out of war
United Nations	Afghanistan	1998	Civil War in Kashmir provinces
United Nations	Algeria	1991-2003	Civil War rebel factions include Takfir wa'l Hijra, AIS, GIA
United Nations	Angola	1991-1993, 1995, 1998	UNITA
United Nations	Bosnia and Herzegovina	1996-2002	Bosnian War, Bosnian-Serbian Conflict, Genocide
United Nations	Burundi	2004	Civil War rebel factions include CNDD, Frolina, Palipehutu-FNL
United Nations	Cambodia	1993	Cambodian-Vietnamese Conflict
United Nations	Central African Republic	1999-2000	Military Coup by Cyriac Souke
United Nations	Croatia	1994-2002	Bosnian War
United Nations	Cyprus	1974-1979	Turkish Invasion of Cyprus
United Nations	Democratic Republic of the Congo	1960-1964	Civil War
United Nations	Democratic Republic of the Congo	2002-2005	Civil War rebel factions include MLC, RCD, RCD-ML
United Nations	Egypt 1967-1978	Egyptian-Israeli Conflict	

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Table 11 – Continued

Nation Providing Aid	Country	Year	Conflict
United Nations	El Salvador	71991, 1993, 1995	Civil War led by the FMLN
United Nations	Ethiopia	2000-2004	Eritrean-Ethiopian War
United Nations	Georgia	1994-1998	War in Abkhazia, "Frozen Conflict"
United Nations	Guatemala	1992, 1997	URNG
United Nations	Haiti	1994-1996, 2005	Civil War
United Nations	India	1961-1981	Indio-Pakistani Wars
United Nations	Iran	1988	Iran-Iraq War
United Nations	Iraq	1988	Iran-Iraq War
United Nations	Israel	1960-1975	Egyptian-Israeli Conflict, Israeli-Syrian Conflict, Israeli-Jordan Conflict, Israeli-Lebanon Conflict
43 United Nations	Jordan	1967	Israeli-Jordan Conflict
United Nations	Jordan	1972	Israeli-Jordan Conflict
United Nations	Lebanon	1977, 1978	Israeli-Lebanon Conflict
United Nations	Lebanon	1993-1995	Israeli-Lebanon Conflict
United Nations	Liberia	2004-2005	Second Liberian Civil War led by LURD and Movement for Democracy in Liberia
United Nations	Morocco	1991-1994	Territorial dispute with Polisario Front over Saharawi Arab Democratic Republic
United Nations	Mozambique	1992-1994	Civil War against Renamo Faction
United Nations	Nicaragua	1991-1992	Civil War with FLAA
United Nations	Pakistan	1964-1982, 1984-1985	Indio-Pakistani Wars
United Nations	Sierra Leone	1998-2000	Civil War

Continued on Next Page . . .

Table 11 – Continued

Nation Providing Aid	Country	Year	Conflict
United Nations	Sudan	2005	Civil War SPLM/A and genocide
United Nations	Syria	1972-1982, 1984-1985	Israeli-Syrian Conflict
United Nations	Tajikistan	1996-2000	Ethnic War and rebel factions under United Tajik Opposition
United Nations	Uganda	1993-1994	Civil War