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14. ABSTRACT

This project uses a theoretically-based empirical model to quantify the effect of nation building initiatives on GDP per capita growth. The research considers how the characteristics of conflict zones and the interaction of diverse types of both military assistance and economic aid impact the development process. The primary results suggest a 1% increase in spending on nation building results in a 0.8% increase in economic growth. Nation building's positive impact increases when countries or organizations initiate operations in order to provide humanitarian assistance or ensure a balance of power. Further, nation building operations which include economic grants targeted towards infrastructure development, agriculture, water, and sanitation show the largest marginal effect on economic growth. Once a conflict ends, however, the model predicts that continued military operations coupled with economic aid harms the post conflict economy. The results hold whether a single country or a multilateral group performs the operation.

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NATION BUILDING AS A DETERMINENT OF ECONOMIC GROWTH

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<u>Outline:</u>

Figures, Graphs, and Tables:

Appendices:

Abstract:

Nation building, the simultaneous allocation of economic aid and military assistance in conflict environments, has cost the world over $3 trillion in the last half century. This project uses a theoretically-based empirical model to quantify the effect of nation building initiatives on GDP per capita growth. The research considers how the characteristics of conflict zones and the interaction of diverse types of both military assistance and economic aid impact the development process. The primary results suggest a 1% increase in spending on nation building results in a .8% increase in economic growth. Nation building's positive impact increases when countries or organizations initiate operations in order to provide humanitarian assistance or ensure a balance of power. Further, nation building operations which include economic grants targeted towards infrastructure development, agriculture, water, and sanitation show the largest marginal effect on economic growth. Once a conflict ends, however, the model predicts that continued military operations coupled with economic aid harms the post conflict economy. The results hold whether a single country or a multilateral group performs the operation.

Section I: Introduction:

Historians date the first nation building operation conducted by the United States back to 1901. When the *USS THOMAS* brought 500 teachers to Manila Bay with Naval escorts in order to start the Philippines rebuilding process (Traub, 2010). Most recently, the public uses nation building as the catchall phrase to describe the operations in Iraq and Afghanistan. However, nation building did not evolve over night; it has been an element of foreign policy throughout the world for at least a century. To reduce the ambiguity of this term, this paper defines nation building as a period in which an organization, a single nation, or a group of nations both perform military operations and provide economic aid within a country that experiences conflict[1].
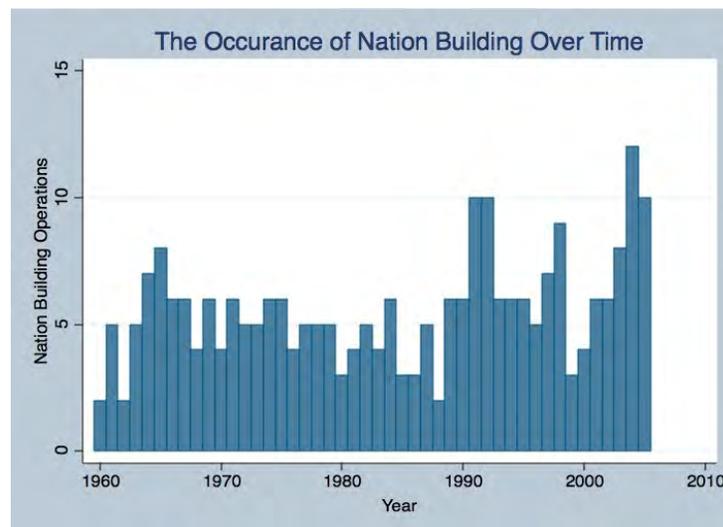
Graph 1: Nation Building over time
Source: OECD Creditor Reporting System, International Military Intervention Data Set, UCDP-PRIO Armed Conflict Data

While the occurrence of nation building fluctuates with time, it remains present throughout more recent history as Graph 1 indicates. Further the United States is not the sole provider of nation building efforts. European nations have actively engaged in nation building operations

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[1] For a full list of definitions used in the paper, see Appendix A

throughout the Balkans, Sub-Saharan Africa, and the Middle East.[2] While the example of French

military and economic assistance during the Rwandan genocide demonstrates that many

countries perform nation building operations unilaterally, groups of nations and multilateral

organizations like the United Nations can also conduct nation building.

Political atmosphere impacts the number of nation building operations. As seen in graph

1, episodes peaks after two key historical events. The first coincides with the end of the Cold

War in 1991 and 1992. With the fall of the Soviet Union, the world looked to create a universal

peace. 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, 2008). By the late 1990's to 2000, the world started to

tire of nation building forays. Many politicians actually built their campaigns around a no-nation

building platform (Traub, 2010). After the events of 9/11, these sentiments rapidly changed, and

nation building became the predominant tool in the Global War on Terror.

Current advocates of nation building argue that the combined effect of economic aid and

military assistance can break the cycle of conflict that exists in many under developed nations.

Breaking the Conflict Trap (Collier et al, 2003) describes a vicious cycle in which an

impoverished nation enters into conflict as a result of social and economic tensions. As the

violence ends, the country finds itself in a worse state of poverty than the pre-war condition due

to capital destruction, war debts, the emergence of shadow markets, and other negative

consequences of war. As economic growth stagnates, new tensions arise and eventually result in

relapse into conflict as shown in Figure 1.

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[2] For a full list of nation building operations see Appendix B
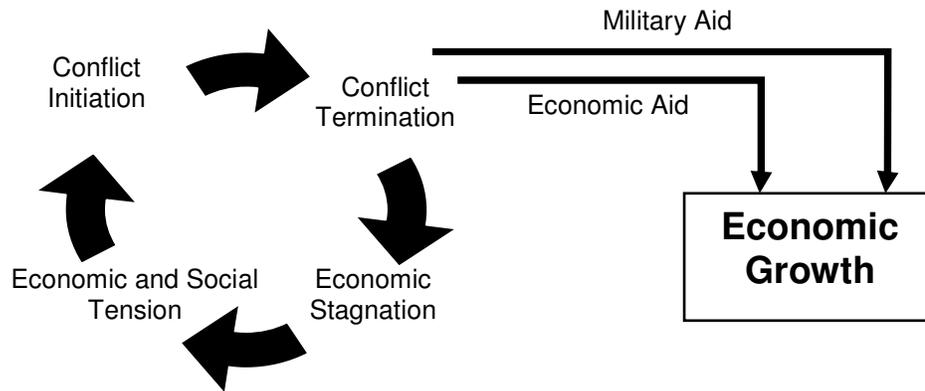
Figure 1: The Conflict Trap

Collier and Hoeffler (2002) and Bird, Bloomberg, and Hess (2008) show that an influx of foreign aid following conflict helps a nation grow economically and therefore escape the conflict trap. However Etzioni (2007) suggests that an unstable environment increases the inefficiency of economic aid because the economy does not have the capacity to use the aid. Rather, outside actors should establish security first by providing military forces and training. He further argues that post conflict stability provides a natural environment conducive to economic growth. As global disparity widens and an increasing number of terrorist and rebel factions form, policy makers look towards nation building as a means to stem current conflicts and prevent the reoccurrence of future wars.

The terrorist attacks of September 11, 2001 caused a resurgence of nation building with record levels of spending. Graph 2 shows the amount of money the United States alone has spent on nation building. While this graph accounts for the military

Levels of Military Assistance and Economic Aid During Nation Building
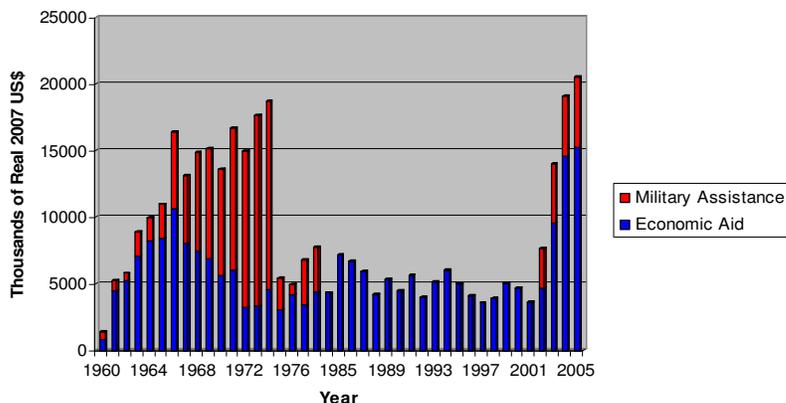
Graph 2: Levels of Military Assistance and Economic Aid during Nation Building
Source: US Green Book Overseas Loans and Grants

assistance (aid to help train foreign troops, provide counter narcotics/terrorism assistance, and

other similar activities)[3] this graph does not take into account the added costs of troops and

support forces. Support forces include "personnel to staff headquarters, serve as military police,

and 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 dollars.

The direct costs of combat troops accounts for 11 billion dollars. So each additional combat

troop deployed for a year costs about 550 nominal 2007 dollars. While admittedly troop costs in

Iraq are not synonymous to the troop costs during another conflict, one can use this statistic to

roughly estimate the total troop costs incurred by the United States during nation building

operations. Graph 3 includes troop costs in the estimate of United States nation building costs.

Clearly, nation building requires a huge commitment of monetary resources.

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[3] See appendix A for a full description of military financial assistance

Levels of Military Assistance, Economic Aid, and Combat Troop Costs during US Nation Building
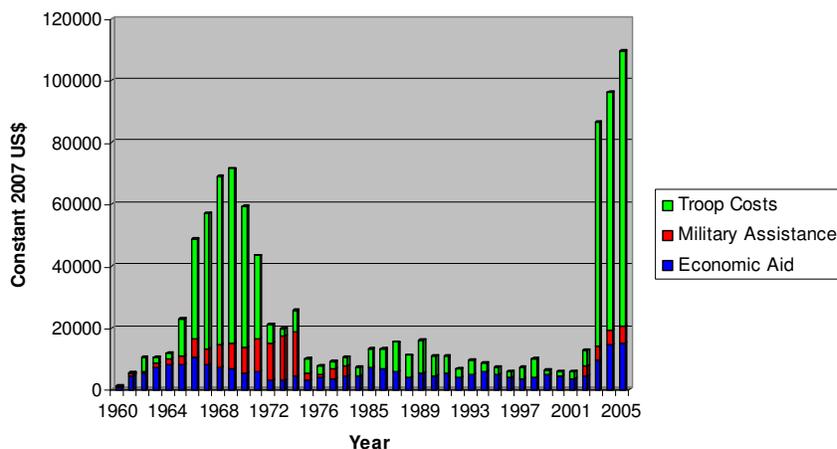
Graph 3: Estimated Levels of Military Assistance, Economic Aid, and Troop Costs for United States Nation Building Operations
Source: US Green Book Overseas Loans and Grants, Kane (2007), Orszag (2007)

Despite the costs, many countries and multilateral organizations consider nation building a key component of their foreign policy. This reliance on nation building rests on conjecture rather than empirical proof of nation building's economic benefits. The primary objective of this paper is to determine the economic gains of nation building. The secondary objective is to differentiate the economic impacts of military actions in response to various circumstances. The third objective is to establish which types of economic aid best induce growth. The final objective is to evaluate the unilateral approach to nation building against the multilateral approach. The paper finds that military backed economic aid will stimulate economic growth during conflict, but in the post conflict period it acts as a hamper to growth. Further, the research suggests that nation building in response to humanitarian crises and power imbalances is most effective and that when nation building providers link infrastructure aid to their efforts, they best assist a nation to recover from conflict. Overall, the paper finds that multilateral and unilateral nation building efforts produce the same results.

The Nation Building Criteria

Past nation building and post conflict research generally focuses on case studies of

reconstruction. Researchers use many different criteria and standards for distinguishing between

ordinary military interventions and nation building efforts. Many characterize nation building as

a purely American endeavor that aims to spread democracy (Fukuyama, 2006). However

Dobbins (2005, 2008) shows that the United Nations and many European nations have utilized

nation building for non-ideological reasons. Therefore, this paper does not limit the scope of

nation building to only cases involving the United States. Unfortunately, a data set including

every nation building operation from 1960 to 2005 does not exist. This project attempts to create

a universal repository of nation building episodes[4].

The project uses three criteria to determine the presence of nation building.   First, nation

building occurs during a conflict period. A year qualifies as a conflict period if the use of armed

force between two parties results in at least 25 battle-related deaths within that year[5]. Of the two

parties, at least one must be the government of a state. Secondly, during nation building, a

conflict-ridden nation must receive economic aid from an outside public source. Finally, external

military assistance coincides with the economic aid.

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[4] Due 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.   The unavailability of data admittedly causes a western-bias to the analysis,
but it still provides interesting insight int the nature of nation building. For a full list of nation building operations
see Appendix B
[5] The 25 battle related death threshold is conventionally used in conflict research to define war.

Figure 2: Nation Building: the Intersection of Military Intervention, Economic Aid, and Conflict

The rigidity of this nation building definition causes the omission of certain observations that some may consider as nation building. From 1952 to 1977 the United States provided most of Brazil's military training and weaponry (Tollefson, 1995). This military alliance coincided with the economic "Alliance for Progress", which increased US aid to South American nations in order to strengthen ties between the two continents. These years where US military assistance to Brazil overlapped US economic aid do not qualify as nation building because they do not occur during a conflict period. Rather this is considered a politico-military alliance. This is the case 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 the year, the episode is not a nation building episode.

Similarly, a nation can be in conflict, but if the country receives only economic aid, the country will not join the group of nation building observations. During the Sudanese Civil War, severe droughts cause food shortages throughout the country. The United Nations and other donor countries conducted Operation Lifeline Sudan, which brought 100,000 tons of food into Sudan (United Nations,1990). Because UN peacekeeping forces were not involved in the operation, this scenario does not fit the definition of nation building.

Finally, there are many times when a country sends troops to a conflict-torn nation to mediate in the conflict or to protect their interests abroad. In 1982, the Multinational Force in Lebanon consisted of US Marines, US Navy SEALS, French paratroopers, Italian soldiers and British soldiers. The force went to Lebanon 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, most of the countries involved did not provide economic aid to Lebanon, so this episode does not code as an episode of nation building (Collier, 1993). While this definition of nation building is strict, 193 observations within the data meet this criteria. The global spread of nation building is shown in figure 3.
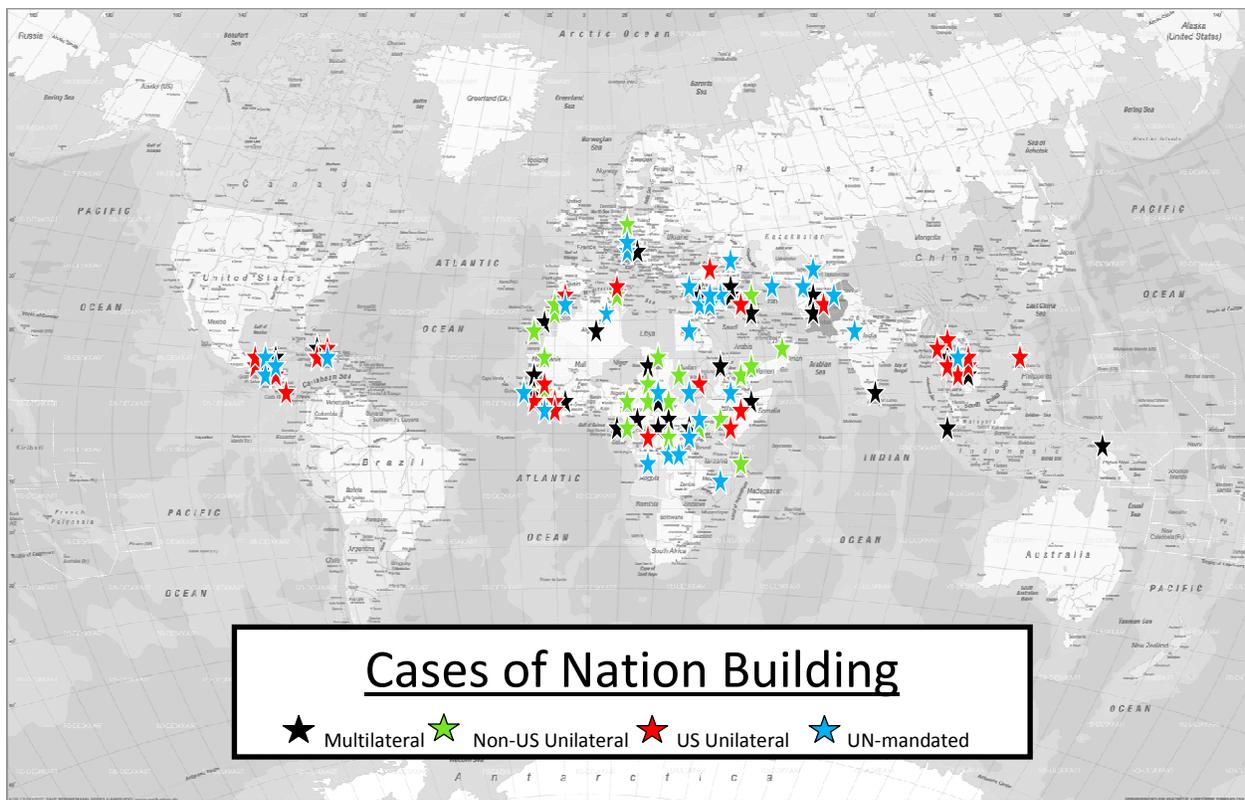
Figure 3: Cases of Worldwide Nation Building

Section II: Literature Review

Economic literature includes research on each of the nation building characteristics in isolation, but it leaves out analysis on the simultaneous impact of conflict, military intervention, and economic aid. Compton et. al. (2008) show that conflict negatively affects economic growth and the negative impact increases as a function of conflict intensity. They represent conflict intensity as the number of battle deaths accrued during the conflict divided by the overall length of conflict. They prove that this representation of intensity allows researchers to compare conflicts of different sizes. Imai and Weinstein (2000) expand this research by delineating the specific ways in which civil war negatively affects growth. They demonstrate that war diminishes capital stock, gross domestic investment, and private domestic investment, while also increasing government budget deficit. Caplan (2002) adds that conflict's negative effect on economic growth depends on the country characteristics of the war-torn nation. He shows that conflict harms less developed nations more than highly developed nations. 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. While each of these papers addresses the effect of conflict on economic growth, they fail to consider the effects of outside involvement in conflict.

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-conflict situations. Building off of 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 a conflict. They also demonstrate that different types of economic aid

impact GDP per capita growth differently. Collier and Hoeffler (2002) empirically prove that post conflict periods naturally induce economic growth. Elbadawi, Kaltani, Schmidt-Hebbel(2007) further address the timing issue of foreign aid in militarized areas. They assess whether the nature of foreign aid changes during the five years prior to conflict termination as opposed to the five-year period after conflict. They show that foreign aid allocated during a conflict results in less fluctuation in the future aid distribution levels. However, donors start giving aid directly after a conflict, they tend to provide an influx of aid that quickly tapers off. Elbadawi, Kaltani, Schmidt-Hebbel(2007) argue that these short term bursts of foreign aid deter economic growth. However aid allocated in steadily increasing positively impacts growth. Kang and Meernik (2004) demonstrate why post-conflict aid allocation follows certain patterns. The level of aid depends on the type of conflict in the previous period. They find that a nation undergoing regime transition receives the most aid in the post conflict period. More importantly, they show that a donor nation provides long-lasting post conflict economic assistance to nations to whom they previously provided military assistance.

The influx of foreign aid after military intervention seen by Kang and Meernik (2004) could explain the positive relationship seen between US troops and host country economic growth in Jones and Kane (2007). Under the assumption that troop presence creates a secure environment conducive to economic growth, Jones and Kane treat US troop levels as an environmental determinant of economic growth. Using the extreme bound test, they find that troop measure variables have not only a positive but also robust relationship with economic performance. They further cement this conclusion by proving the exogeneity of the troop level data.

While the current economic literature has shown that conflict affects economic growth negatively and that proper economic aid allocation can help to stimulate growth after conflict, the literature fails to address how economic aid and military intervention affect economic growth when they are given simultaneously. The literature also mainly focuses on post-conflict periods rather than considering both the conflict and post-conflict period. As nation building siphons more and more money, the necessity for research into these operations increases. Therefore, this paper draws off of the neoclassical economic growth model to consider how conflict, economic aid, and military intervention affect GDP per capita growth both during and following conflict.

Section III: Theory

Conflict, Economic Aid, and Military Assistance in the Solow Growth Model

The neoclassical growth model, first described by Robert Solow in 1956, provides a simplified representation of the effects of conflict, economic aid, and military assistance on a country's economy. In the model, output per capita grows as a function of capital per capita The production function has decreasing returns to scale. This means that an increase of capital per capita results in an increase of output per capita less than the increase in capital.

In each period, the economy invests an exogenously fixed portion of their output in new capital. Simultaneously, the capital stock depreciates by a fixed rate of depreciation and the amount of capital per capita changes based on the population growth rate. Therefore capital per capita grows as a function of savings, depreciation, and population growth rate. When the investment line equals the depreciation line, capital no longer grows (figure 4). This point is known as the steady state. An economy can attain a level of capital or output greater than the steady state, but cannot sustain this level of capital stock, and eventually the economy shrinks back to the steady state.
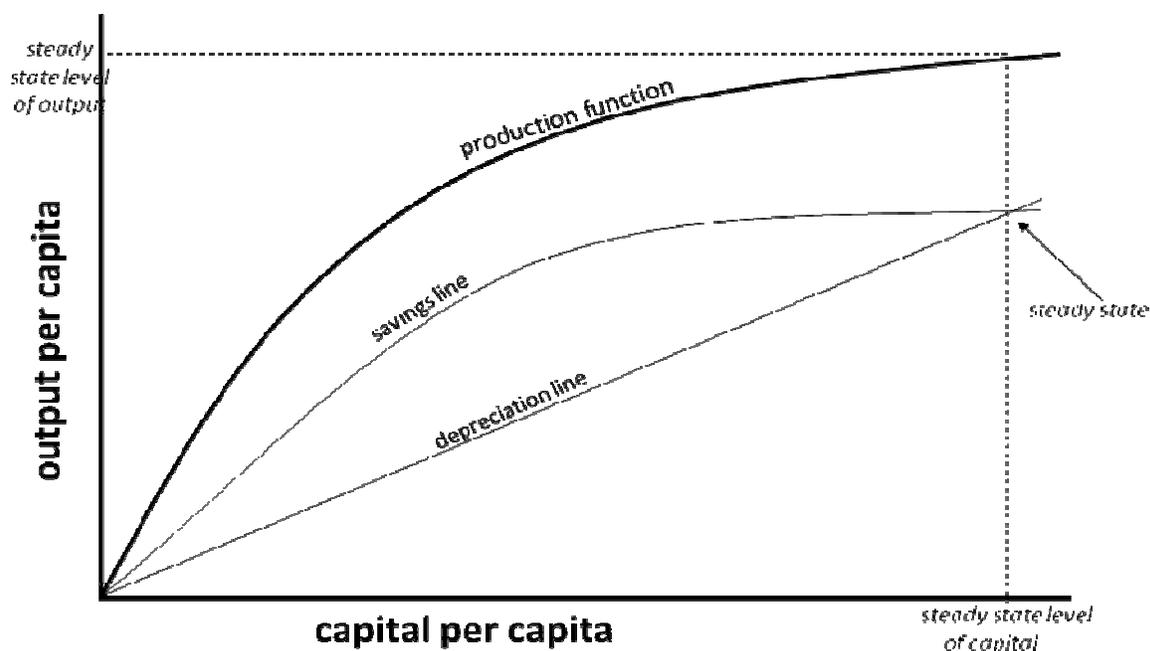
Figure 4: Basic Solow Growth Model

Conflict potentially affects this model in several different ways. First, recall that conflict

decreases the capital stock as evidenced by Imai and Weinstein (2000). The arrow in figure 5

represents the drop in the level of capital stock.
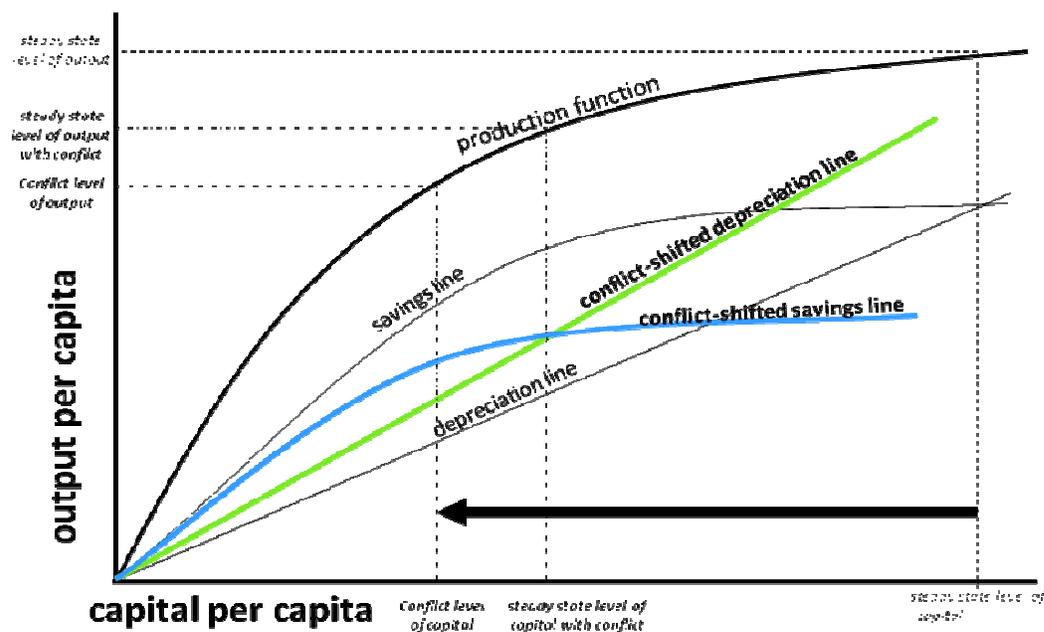
Figure 5: Effects of Conflict on Solow Growth Model

Additionally, the instability that conflict breeds can dissuade private investment (Stewart 2000). Therefore, in figure 5, the savings rate decreases from the black savings line down to the blue savings line. The destructive nature of conflict can also shift the depreciation line upwards to the green line. The decrease in savings rate and increase in depreciation rate cause a new equilibrium point. If this level of savings and depreciation remain constant, then the conflict permanently hinders the economy and reduces the economy's sustainable level of output and capital. Thus in both the short term and long term, conflict has a negative effect on economic output.

Economic aid and military assistance act as compliments in the model. One could imagine that economic aid given in isolation changes only the level of capital stock. The constant savings model predicts that by giving economic aid a donor causes a country to have an unsustainable stock of capital where the new level of capital exceeds the conflict-shifted steady state (see figure 6). For a brief period, economic assistance causes a higher level of capital (capital**). However in the long run, because the new level of capital cannot be sustained, the model predicts that the economy shrinks back to the conflict-shifted steady state (as shown by the black arrow).
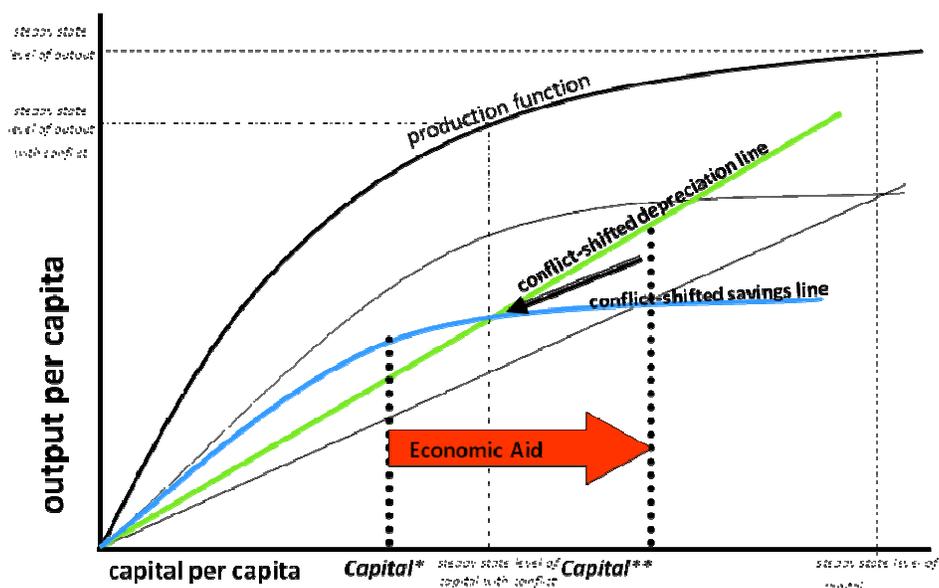
Figure 6: Economic aid in isolation

To overcome the inefficiencies, a donor can provide military assistance with the economic aid. Military assistance for operations other than war aims to stabilize a conflict zone (Army Field Manual). As a community stabilizes from conflict, the level of destruction will decrease, and the incentive to save will increase. People base their savings decision on their future expectations (Freidman, 1957). During a conflict, the future appears bleak. People do not expect pay offs in the future. However, as an economy returns to stability, people recognize private property, jobs become more stable, and the shadow market diminishes. Effective military assistance can help to decrease the depreciation line (from the green line to the red line) and increase savings (from the blue line to the purple line) causing a higher steady state level of

capital and output (figure 7).
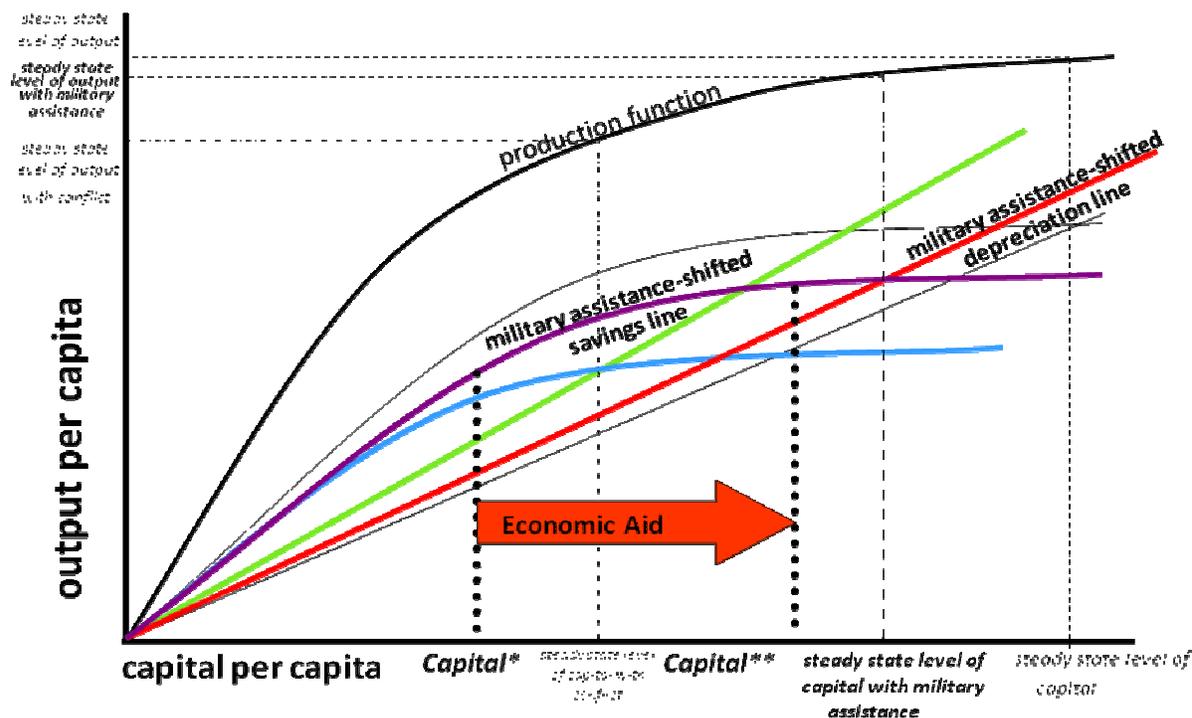
Figure 7: The effect of military assistance and economic aid on growth

With the shift in the steady state, economic aid no longer causes an unsustainable level of capital.

Rather, the economic aid helps the conflict-torn economy reach their new steady state level of

capital faster. The model suggests that when provided together, economic aid and military

assistance can mitigate some of the detrimental effects of conflict.

Theoretical Model

While the simplified representation of conflict, foreign aid, and military assistance

provides a basis for understanding, this two-dimensional representation cannot capture the

complexity of the conflict augmented growth model. The project therefore moves beyond a

diagrammatic explanation of the effects of nation building and turns to a mathematical

representation. The Solow model forms the basis for this amalgamated model calculated in this

research. The Solow model predicts that output per capita grows as a function of capital per

capita. Following the convention of Mankiw, Romer and Weil(1992), the model used in this

paper includes human capital as an input of the production function. Therefore, output varies

based on both the stock of physical capital (i.e. infrastructure, roads, machinery) and human

capital (i.e. education, training, health). This paper defines the production function as a standard

Cobb-Douglas function with constant returns to scale.

$$y = f(k) = Ak^{\alpha}h^{\beta} \tag{1}[6]$$

In this equation, y, k, h, α, and β represent output per capita, capital per capita, the proportion of

output per capita determined by capital per capita, and the proportion of output per capita

determined by human capital per capita, respectively. In each period the economy invests a

portion of output, s, in new capital. Simultaneously, a constant fraction of the current capital

stock, δ, depreciates. Finally, the level of capital per capita changes with population growth.

Therefore, capital evolves as a function of savings, s; population growth rate, n; and

depreciation, δ:

$$k_{t+1} = sk_t^{\alpha}h_t^{\beta} - (n + g + \delta)k_t \tag{2}$$

Eventually, when investment equals depreciation, the growth rate of capital per capita reaches a

steady state (i.e. $k_{t+1} = 0$). One can determine this steady state level of capital, k^*, by:

$$k^* = \left(\frac{sh^{\beta}}{n + g + \delta} \right)^{\frac{1}{1-\alpha}} \tag{3}$$

Thus the level of steady state capital per capita directly correlates to the savings rate and

inversely correlates with the population growth rate and depreciation. By substituting equation 5

into the production function (equation 3), one can determine the steady state level of output per

capita. Following the convention of Mankiw, Romer, and Wiel (1992) and Islam (1995) , one

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[6] All mathematical equations will be noted as "equation #" and refer to the equation number listed after the mathematical formula.

can log-linearize and first difference the equation in order to empirically test the model using

panel data. Panel data varies across both time and space.

$$\ln(y_{i,t}) - \ln(y_{i,t-1}) = \frac{\alpha}{1-\alpha}\sum\ln(s_{i,t}) + \frac{\beta}{1-\alpha}\sum\ln(h_{i,t}) + \frac{\alpha}{1-\alpha}\sum\ln(n_i) + \ln(A_{i,0}) + \eta_t + v_{i,t} \tag{4}$$

This creates a basis from which one can analyze economic growth. However, in order to get to

the root of the main research question, the canonical growth model must be augmented with

conflict, military assistance, and economic aid variables.

Section IV: Base Model

To measure the effects of nation building, the model augments the neoclassical growth

model with conflict, military assistance, and economic aid variables. Conflict and post conflict

variables enter the model as indicator variables. Theory predicts that conflict lowers the steady-

state level of output per worker. Thus, *ceteris paribus*, conflict decreases economic growth and

cause the economy to shrink.   As conflict escalates and intensifies, the capital destruction

increases. With a higher depreciation level, capital growth and therefore output growth

diminishes as conflict intensity increases. After the conflict, as the economy begins to replenish

capital stocks, growth rapidly increases due to the law of diminishing marginal returns. Thus, the

post conflict period should have a positive impact on output growth. Like Demekas, McHugh,

and Kosma (2002), the model treats economic aid as a public good, meaning it benefits all

sectors of society. Following the aid-growth literature, economic aid acts as pseudo-form of

capital investment Thus economic aid raises the amount of capital stock. Economic aid does not

cause a shift in the savings or depreciation line. Similarly, military assistance, which includes

funds given to repay an allied fighter, to train a foreign military, to conduct counternarcotics or

antiterrorism operations in another area, and other similar activities[7], decrease the amount of defense spending that a nation incurs. Based on the assumption of Jones and Kane (2007), military intervention creates a secure environment. A secure environment encourages economic growth. This can shift the savings rate upwards, leading to increased economic growth. It also can help to restore stability causing a decrease in the depreciation line.

While the inclusion of variables for economic aid, conflict, and military assistance shows their individual impacts on output per capita growth, to understand the effect of nation building, the model must include a variable which captures the conditional effect of conflict with economic aid and military assistance. Equation 5 uses interaction terms to model the conditional effects that military assistance, conflict, and foreign aid have on each other. Interaction terms indicate that independent variables have a non-additive effect on the dependent variable. Thus the model assumes 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 the other form of aid. In the following model (equation 5), the *nationbuilding$_{i,t}$* variable represents the interaction between economic aid, military assistance, and conflict. One would interpret this variable as the added effect of economic aid on a country's economic growth when the country receives military assistance during a conflict period. Model 5 includes seven interaction terms to explain the added conditional effects that exist due to the relationships between the individual independent variables.

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[7] For a full definition of military assistance see Appendix A

$$\Delta y_{i,t} = \sum_{j=1}^{3} \phi_j x_{i,t,j} + \sum_{k=1}^{12} \theta_k z_{i,t,k} + \eta_t + \mu_i + v_{i,t} \tag{5}$$

Where:

$$\Delta y_{i,t} = \ln(y_{i,t}) - \ln(y_{i,t-1}) \quad z_{i,t,4} = \ln(aid_{i,t})$$

$$\phi_1 = -\phi_3 = \frac{\alpha}{1-\alpha} \quad z_{i,t,5} = \ln(aid_{i,t}) * conflict_{i,t}$$

$$\phi_2 = \frac{\beta}{1-\alpha} \quad z_{i,t,6} = \ln(aid_{i,t}) * post_{i,t}$$

$$x_{i,t,1} = \ln(\frac{investment}{GDP}) \quad z_{i,t,7} = military_{i,t}$$

$$x_{i,t,2} = \ln(\frac{education}{GDP}) \quad z_{i,t,8} = military_{i,t} * conflict_{i,t}$$

$$x_{i,t,3} = \ln(n_i) \quad z_{i,t,9} = military_{i,t} * post_{i,t}$$

$$z_{i,t,1} = conflict_{i,t} \quad z_{i,t,10} = \ln(aid_{i,t}) * military_{i,t}$$

$$z_{i,t,2} = magnitude_{i,t} \quad z_{i,t,11} = \ln(aid_{i,t}) * military_{i,t} * conflict_{i,t} = nationbuilding_{i,t}$$

$$z_{i,t,3} = post_{i,t} \quad z_{i,t,12} = \ln(aid_{i,t}) * military_{i,t} * post_{i,t}$$

The project uses a panel consisting of 176 countries over the time period of 1960 to 2005 to estimate equation 5. The dataset includes many proxies to represent the variables included in the model. A proxy is an observed variable that is related but not identical to an unobserved explanatory variable. Economic development can be defined in many different ways, but in this paper the growth of gross domestic product per capita represents the economic growth rate. Because an economy does not immediately react to conflict, the project uses the three-year growth rate of GDP per capita. This follows the convention of the conflict-growth literature (Collier and Hoeffler, 1998). Every additional growth rate is a three-year growth rate. Any variable that is a level-value is a three-year average. Finally, for all dummy variables, if the event occurs within any a year of the three-year period, then that three-year period codes as having the presence of the categorical effect. The regression is modeled 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 the level of human capital. While this proxy for human capital does not capture the health stock, one can assume a direct relationship between expenditure for education and expenditure for health

(Sala-i-Martin, 1997). Population growth is observed. The GDP per capita growth rate and investment share of GDP data both come from the Penn World Tables (2009). The education expenditure share of GDP and the population growth rate are found in the World Bank Development Indicators data set (2009).

Results of the Growth Model

An estimate of the base model checks for the accuracy of the control variables. An estimate of the base model checks for the accuracy of the control variables. Table 1 reports three different specifications of the baseline model. The three models calculate the neoclassical model using a pooled cross section (model 1)[8], a random effects model (model 2), and a fixed effects model (model 3). In a pooled cross section, each observation is taken to be a unique independent event. In a fixed effects model, a country specific error term captures the effects of the unobserved characteristics in each group. Similar to a pooled cross section, a random effects model uses the same panel data model as fixed effects, but assumes that the unobserved effect does not correlate with the explanatory variables. Because this research follows the same 176 countries over the time period of 1960-2005, the observations are not independently distributed across time. Unobserved country-specific characteristics affect the growth rate of GDP per capita in multiple time periods. Therefore a fixed effects model best predicts the effect of nation building. To mathematically confirm this, the fixed effects model is compared to the random effects model using the Hausman test. The Hausman test uses probabilistic techniques to compare the predicted coefficients generated from both the random effects and fixed effects model. The null hypothesis of the test is that the random effects model is consistent. If this is true than the difference between the generated coefficients from the fixed effects model and the random

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[8] All estimated regressions are referred to as "model #" and correspond to the results listed in tables 1-8.

effects model should be insignificant. However, with a p-value[9] of .000 the Hausman test shows

that there is strong evidence to reject the null hypothesis. Therefore the growth regression

should be calculated using a fixed effects model. These control variables provide the framework

through which conflict, economic aid and military intervention can be analyzed.

On Table 1[10], Model 3 shows the expected coefficients on each of the control variables. The

model shows that ceteris paribus a 1% increase in investment causes a .952% increase in the

growth rate of GDP per capita. Additionally, a 1% increase in education spending results in a

.953% increase in GDP per capita growth. These results follow the convention of the Solow

growth model, which assumes that an increase in physical and human capital investment, s,

results in increased growth. The model predicts that a 1% increase in the population growth rate

results in a .472% increase in economic growth, matching the predicted value from the growth

literature (Islam, 1995).

Variables	Model 1 pooled cross section	Model 2 random effects	Model 3 fixed effects
ln(investment)	1.296 (.104)***	1.254 (.147)***	.952 (.198)***
ln(education spending)	.248 (.085)***	.485 (.123)***	.953 (.168)***
population growth rate	-.299 (1.880)	.266 (2.054)	.472 (2.176)**
constant	-2.126 (.350)***	-1.626 (.496)***	.217 (.692)
N	5581	5581	5581
Groups	176	176	176
R-squared	.0382	.0343	.0231

Table 1: Basic Growth Model
Dependent Variable: GDP per Capita Growth
Key: significant at 1%: ***, significant at 5% **, significant at 10% *

[9] This p-value indicates that less than 0.00% of the data models the same in a random effects model and a fixed effects model. Thus a fixed effects model is necessary.
[10] For a full description of models and tables see appendix E.

Conflict Augmented Model

The next version of the model augments the basic growth model with conflict and post conflict indicator variables as well as a measure of conflict intensity. 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 $conflict_{i,t}$ codes as a 1 if the conflict occurs within nation i and incurs at least 25 battle related deaths within year t. This definition of conflict originates in the UCDP-PRIO Armed Conflict Dataset. The post conflict variable, $post_{i,t}$ codes as a 1 if a conflict took place in country i anywhere from 1 to seven years prior to time t. Following the convention of Compton et al (2008), battle deaths accrued over days of conflict account for conflict intensity, $magnitude_{i,t}$.

Results: Effects of Conflict on Growth:

As expected, conflict acts as a detriment to economic growth (Table 2, Model 4). The model shows that in a conflict environment GDP per capita growth decreases by .812%. This value is statistically significant at the 1% level. Furthermore, the model shows that there is a statistically significant inverse relationship between the intensity of a conflict and the rate of GDP per capita growth where a 1% increase in battle deaths per day of conflict result in an additional .4% decrease in economic growth during conflict. While the model shows negative growth during a

	Variable	Model 4	Model 5	Model 6	Model 7
φ_1	ln(investment)	1.590 (.180)***	.970 (.205)***	.738 (.208)***	.596 (.221)***
φ_2	ln(education spending)	.583 (.146)***	1.028 (.176)***	1.374 (.185)***	1.411 (.196)***
φ_3	population growth rate	.019 (.059)	.089 (.066)	.085 (.065)	.054 (.066)
θ_1	conflict	-.812 (.184)***	-.052 (.198)	-1.068 (.283)***	-.593 (.319)*
θ_2	conflict intensity	-.400 (.113)***	-.524 (.122)***	-.462 (.120)***	-.361 (.128)***
θ_3	post conflict	.584 (.154)***	.340 (.174)*	1.293 (.260)***	.565 (.310)*
θ_4	economic aid			.172 (.042)***	.198 (.048)***
θ_5	economic aid conflict			.247 (.062)***	.148 (.068)**
θ_6	economic aid post conflict			-.228 (.065)***	-.118 (.071)*
θ_7	military assistance		-.228 (.296)		-.445 (.309)
θ_8	military assistance conflict		-.821 (.376)**		-2.595 (.757)***
θ_9	military assistance post conflict		1.076 (.380)***		3.722 (.738)***
θ_{10}	economic aid*military assistance				.125 (.159)
θ_{11}	nation building in conflict				.493 (.166)***
θ_{12}	post conflict * economic aid * military				-.715 (.182)***
φ_0	constant	-2.505 (.572)***	.453 (.733)	1.438 (.753)*	1.937 (.793)
	N	5581	5581	5581	5581
	groups	176	176	176	176
	R-Squared	.0496	.0658	.0582	.0448
	Fixed-Effects	yes	yes	yes	yes

Table 2: Nation Building Augmented Growth Model

Dependent Variable: GDP per Capita Growth

Key: significant at 1%: ***, significant at 5% **, significant at 10% *

period of conflict, during post conflict periods, economic growth is positive at the 1%

significance level. The economic growth rate increases by .584% during a post conflict period.

These results show that militarized periods either during war or following war do have an impact

on an economy's growth rate. The period of economic growth following conflict proves that

during conflict there is a drop in the level of capital per capita. From this model, the research

can add different variables to test the overall effects of nation building, test how different forms

of military and economic aid affect economic growth, and compare the effects of unilateral and

multilateral nation building efforts.

The Overall Effect of Nation Building

During a militarized period, a non-participatory actor can take four different courses of

action. First, they can do nothing and ignore the conflict. Second, the nation can give just

military support in the form of troops, training, or weaponry. Third, they can provide just

economic support. Finally, they can do a combination of military intervention and economic aid.

The final option represents this paper's definition of nation building.

$$nationbuilding_{i,t} = military_{i,t} * econ_{i,t} * conflict_{i,t} \qquad\qquad (6)$$

Thus, if a nation lacks either outside military assistance, economic aid, or conflict, the

nation building variable will take on the value of zero. The model uses economic aid data from

the Organization for Economic Cooperation and Development's Creditor Reporting System

(OECD CRS, 2007). This data set records 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.   The model

uses data on multilateral foreign aid from the World Bank Projects Database (2008). This data

set records every World Bank grant and its recipient country. The economic aid acts as a

limiting factor for the scope of nation building initiators. Because some major powers, like

China and Russia, do not publicly release their foreign aid data, the model does not consider

these countries. Therefore, the model has a western bias.

The military assistance data comes 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 or the United

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

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 definition of military aid. Essentially it captures any military action performed by one

country within another country's territorial borders for reasons other than 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, country-level involvement in United Nations operations codes only as a UN

intervention. With this data, one can test the overall model in equation 9.

Results: Effects of Military Aid, Economic Aid, and Nation Building

Because many of the variables of interest are interaction terms, to see the overall effect of

a condition on growth, one must look at the marginal effect of that variable. A condensed

version of the growth model during conflict follows

$$\Delta y_{i,t} = \sum_{j=1}^{3} \phi_j x_{i,t,j} + \sum_{k=1}^{3} \theta_k z_{i,t,k} + \theta_4 econ_{i,t} + \theta_5 econ_{i,t} * conflict_{i,t} + \theta_7 mil_{i,t} + \theta_8 mil_{i,t} * conflict_{i,t} + \theta_9 econ_{i,t} * mil_{i,t} + \theta_{11} econ_{i,t} * mil_{i,t} * conflict \tag{7}$$

The marginal effect of military assistance during conflict equals the partial derivative of the growth equation (equation 7) with respect to military assistance.

$$\frac{\partial \Delta y_{i,t}}{\partial military_{i,t}} = \theta_7 + \theta_8 conflict_{i,t} + \theta_{10} econ_{i,t} + \theta_{11} conflict_{i,t} * econ_{i,t} \tag{8}$$

Thus when a country provides military assistance without economic aid during a conflict period, the impact of this support on GDP per capita growth equals the sum of θ_7 and θ_8 (Table 2). The project uses a joint F-test to assess whether military assistance and conflict have joint significance. In other words, the test examines whether one can be certain that the sum of θ_7 and θ_8 is statistically different than zero. With a p-value[11] of .002, the test shows that conflict and military assistance have a joint impact on the output per capita growth. Thus overall military assistance without economic aid during conflict causes a 3.04% decrease in growth. In the post conflict period, however, the presence of military assistance without economic aid actually increases the economic growth rate by 3.277%.

Interestingly, economic aid has an opposite effect on GDP per capita growth than that of military assistance. The marginal effect of economic aid will be equal to:

$$\frac{\partial \Delta y_{i,t}}{\partial econ_{i,t}} = \theta_4 + \theta_5 conflict_{i,t} + \theta_6 post_{i,t} + \theta_{10} military_{i,t} + \theta_{11} conflict_{i,t} * military_{i,t} + \theta_{12} post_{i,t} * military_{i,t} \tag{7}$$

In a non-militarized environment (neither conflict nor post-conflict period), a 1% increase in economic aid increases GDP per capita growth by .198%. The project finds that economic aid and conflict and economic aid in a post conflict period are both jointly significant at a 1% significance level. During conflict, the marginal effect of a 1% increase in economic aid causes GDP per capita growth to change by an even greater amount, .346% . However, once the conflict is over, during the post conflict period, the positive impact of economic assistance

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[11] A p-value is the probability that the null hypothesis is true. In this case the null hypothesis is that the sum of θ_7 and θ_8 is zero.

dramatically reduces. A 1% increase in economic aid during a post conflict period results in only

a .08% increase in economic growth. A spurt of foreign aid during conflict meets the immediate

needs that arise due to the instability. But in the long term period after the conflict, foreign aid

barely induces economic growth. The results of model 4 show that an increase in economic

growth naturally occurs during the post conflict period. In the post conflict period, a nation

should begin the rebuilding process. This result supports the existing hypothesis in growth

literature that in the post conflict period foreign aid substitutes for domestic savings (Dacy,

1975). Therefore, by providing foreign aid to a post-conflict economy, a donor reduces the

natural shift in savings that should occur after conflict.

Model 7 observes the effect of economic aid and military intervention when they are

performed simultaneously during a militarized period. During conflict, these episodes represent

nation building. To calculate the marginal effect of nation building, one must take the partial

derivative of the economic growth equation, equation 5, with respect to both military assistance

and economic aid.

$$\frac{\partial^2 \Delta y_{i,t}}{\partial econ_{i,t} \partial military_{i,t}} = \theta_{10} + \theta_{11} conflict_{i,t} + \theta_{12} post_{i,t} \tag{8}$$

Once again, the research uses a joint F-test to check the joint significance of economic aid with

military assistance in both the conflict and post conflict periods.[12] In both cases, the test finds

that the null hypothesis is true less than 1% of the time. By summing θ_{10} and θ_{11} and θ_{10} and θ_{12},

one can find the marginal effect of nation building in the conflict and post conflict period,

respectively. When calculated in this manner, the marginal effect of nation building equals

.630%. This means that a 1% increase in economic aid for nation building operations results in a

.630% increase in GDP per capita growth.   Nation building almost doubles the percentage

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[12] Null Hypothesis for conflict period: $\theta_{10} + \theta_{11} = 0$

increase in GDP per capita growth that is seen when only economic assistance is provided to a nation in conflict. Therefore just providing economic aid to a conflict nation will help to mitigate the destructive consequences of war, but if a donor really wants to help a war-torn country achieve economic growth, then they should back economic aid with military assistance. These results indicate that military assistance compliments economic aid. Therefore this shows that increased security does make economic aid more effective. The more secure environment created by the presence of troops allows an economy to better absorb economic aid.

This result does not hold for the post conflict period. In fact, the marginal effect of military assistance combined with economic aid harms economic growth. A 1% increase in military backed economic aid during the post conflict period causes economic growth to shrink by .578%. The complimentary effect of military assistance and economic aid fades in the post conflict period. In fact, the results of model 7 indicate that after conflict, the only form of assistance that really helps an economy is military support. Thus, when a conflict ends, a donor should remove economic aid, provide limited security to prevent post-conflict tussles from relapsing into war, and allow the post-conflict economy to naturally rebuild itself.

Section V: Reasons for Military Assistance

With overall understanding of how military assistance, economic aid, and nation building affect GDP per capita growth, the project delves deeper into the different components of nation building. First, the research looks at the types of military assistance. The International Military Intervention Dataset (2008) provides data on nine different justifications for military assistance: (1) to affect policy in target nation, (2) to assuage socio-ethnic conflicts, (3) to pursue a rebel or terrorist, (4) to protect economic interests, (5) to maintain or restore power balance, (6) to provide humanitarian aid, (7) to acquire territory, (8) to protect diplomatic interests, and (9) to

mediate in domestic conflicts[13]. These nine purposes for intervention have radically different desired end-states. The next empirical model assesses whether the different missions create different effects on economic growth:

$$\Delta y_{i,t} = \sum_{j=1}^{3}\phi_j x_{i,t,j} + \sum_{k=1}^{12}\theta_k z_{i,t,k} + \sum_{l=1}^{8}\varphi_l M_{i,t,l} + \sum_{l=1}^{8}\rho_l M_{i,t,l} * \sum_{k=1}^{12} z_{i,t,k} + + \eta_t + \mu_i + v_{i,t} \tag{8}$$

where $M_{i,t}$ is an 1x8 matrix where each column indicates a type of military assistance. Essentially, this model augments the base model in equation 9 with categorical variables. The base group in this categorical model is military interventions for the purpose of policy change. The intercept of the model represents the effect of military assistance for policy change, and the coefficient on each of the particular groups represents the estimated difference between that particular type of military assistance and military assistance for policy change.

Results: Types of Military Assistance

When the model includes variables representing the different reasons for military intervention and their nation building interaction terms, it becomes clear that certain purposes for nation building have a much greater likelihood for promoting economic growth. To calculate the marginal effect of each type of military operation, one can use the following generic equation:

$$\frac{\partial\Delta y_{i,t}}{\partial miltype_i} = \rho_{miltype_i} + \rho_{miltype_i*conflict_{i,t}} conflict_{i,t} + \rho_{miltype_i*post_{i,t}} post_{i,t} \tag{9}$$

where the subscripts on the coefficients represent the regressor with which they are associated. After performing an f-test for the joint significance of each reason for military assistance during conflict, the model shows that one can assume with certainty[14] that military assistance for socio-ethnic protection (p =.055), economic interests (p = .031), balances of power (p=.000),

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[13] Reasons for military assistance taken from and defined by the International Military Intervention dataset.
[14] The f-test shows that there is less than a 10% chance that the joint impact of the military assistance in conflict is zero.

humanitarian aid (.000), diplomatic goals (.011), and civil war mediation (.000) have non-zero

effects on GDP per capita growth. Similar f-tests check the joint significance of each reason for

military assistance in the post conflict period, and for each reason for military assistance

combined with economic aid in both the conflict and post conflict periods. These tests suggest

that nation building in response to economic interests, imbalances of power, humanitarian

assistance, and civil war mediation have a non-zero impact on GDP-per capita growth.

The model suggests that when countries conduct military missions for their own

economic interests, they cause a positive marginal increase in GDP per capita growth equal to

1.173%. This intuitively makes sense. Bray (2007) argues that the investment climate of a war-

torn nation prevents private investment, which therefore prevents economic growth.   By

providing security in a host country, a donor country can ensure that trade and private investment

continues between the two countries. When donors only conduct military missions to maintain

the balance of power, promote diplomatic goals, or provide humanitarian relief in the conflict

period, the donor reduces GDP per capita by .449%, 4.68%, or 6.409%.

The different military types also cause nation building to have a different effect on GDP

per capita growth. When a country or group conducts nation building to maintain the balance of

power, the marginal effect of nation building over doubles the change in growth. A 1% increase

in economic aid coupled with military assistance to maintain the balance of power during

conflict results in a 2.613% increase in GDP per capita growth. Nation building associated with

humanitarian missions also causes an increase in growth, but it is not as dramatic.

A 1% increase in economic aid coupled with military assistance for humanitarian missions

during conflict results in only a 1.316% increase in GDP per capita growth. Nation building

operations for economic interests and for civil war mediation produce the opposite effect. A 1%

increase in economic aid coupled with military assistance for economic reasons or civil war mediation during conflict reduces GDP per capita growth by 1.451% and 2.81%. It is important to note that when military operations for both economic interests and for civil war mediation are conducted without economic aid, they both positively affect growth by 1.173% and 2.374% respectively. Thus these operations should not be combined with economic aid. This shows that certain missions have a military nature and other missions have a purely humanitarian nature. Countries and groups should therefore only use nation building when confronted with power imbalances or humanitarian crises. The results for humanitarian missions show the importance of civil-military cooperation. When a donor solely provides military support or economic aid to a humanitarian crisis, the assistance harms the host country's economy. But when economic aid compliments military assistance, the joint aid stimulates economic growth.

In the post conflict period, once again the marginal effects of the military assistance in isolation and the military assistance coupled with economic aid show that some military missions work better when backed by foreign aid, and some do not work when backed by economic aid. For example, military missions for terrorist pursuit have a positive marginal effect when conducted alone. However, when conducted simultaneous to aid allocation, these operations hurt the economic growth. This result indicates that even in the post conflict period, nations who harbor terrorists should not receive economic aid; it will actually hurt their own economy. When a military operation aims to protect a socio-ethnic group, the results show that economic aid should accompany the military mission in the post conflict period. Finally in the post conflict period, diplomatic military missions will positively effect growth when performed alone. In the

Variable	Model 8	Variable	Model 8 Continued	Variable	Model 8 Continued
ln(investment share of GDP)	1.695 (.188)***	economic interests * economic aid	-.672 (.468)	diplomacy * economic aid	.355 (.451)
ln(school expenditure)	.450 (.145)***	economic interests * economic aid*conflict	-.779 (.906)	diplomacy * economic aid*conflict	-.479 (.065)***
population growth	-.310 (.063)***	economic interests * economic aid*post	1.811 (1.196)	diplomacy * economic aid*post	3.282 (1.103)***
conflict	-1.434 (.402)***	power balance	1.054 (1.222)	civil war mediation	.647 (1.648)
ln(intensity)	-.002 (.134)	power balance *conflict	-1.503 (.336)***	civil war mediation *conflict	1.727 (.335)***
post	-.080 (.394)	power balance * post	4.953 (3.952)	civil war mediation * post	-8.941 (3.699)**
economic aid	-.197 (.054)***	power balance * economic aid	-.461 (.395)	civil war mediation * economic aid	.124 (.520)
economic aid conflict	.194 (.089)**	power balance * economic aid*conflict	3.074 (.734)***	civil war mediation * economic aid*conflict	-1.244 (.877)
economic aid post	.116 (.092)	power balance * economic aid*post	-2.899 (1.138)**	civil war mediation * economic aid*post	-2.931 (.822)***
socio-ethnic protection	4.76 (4.102)	humanitarian aid	-3.154 (1.501)**	constant	-2.052 (.598)***
socio-ethnic protection*conflict	5.680 (6.167)	humanitarian aid *conflict	-3.255 (1.874)**	R-squared	.1048
socio-ethnic protection* post conflict	-6.187 (.734)***	humanitarian aid * post	1.587 (1.905)	N	4958
socio-ethnic protection * economic aid	-.438 (1.835)	humanitarian aid * economic aid	.568 (.396)	Groups	152
socio-ethnic protection* economic aid*conflict	-1.715 (2.173)	humanitarian aid * economic aid*conflict	.748 (.413)*	Fixed Effects	Yes
socio-ethnic protection* economic aid*post	1.421 (1.874)***	humanitarian aid * economic aid*post	-1.025 (.458)**		
terrorist pursuit	.162 (1.808)	territorial acquisition	-5.003 (2.890)*		
terrorist pursuit *conflict	-6.368 (11.551)	territorial acquisition *conflict	.847 (3.794)		
terrorist pursuit * post	2.50 (1.105)**	territorial acquisition * post	3.083 (.397)***		
terrorist pursuit * economic aid	.158 (.586)	territorial acquisition * economic aid	1.097 (.700)		
terrorist pursuit * economic aid*conflict	3.719 (3.881)	territorial acquisition * economic aid*conflict	-.358 (.743)		
terrorist pursuit* economic aid*post	-12.28 (3.799)***	territorial acquisition * economic aid*post	-5.725 (.747)***		
economic interests	.603 (1.629)	diplomacy	-.151 (1.634)		
economic interests *conflict	.570 (.322)*	diplomacy *conflict	-4.529 (2.493)*		
economic interests * post	-5.768 (3.897)	diplomacy * post	7.817 (3.364)**		

Table 3: Reasons for Military Assistance
Dependent Variable: GDP per Capita Growth
Key: significant at 1%: ***, significant at 5% **, significant at 10% *

conflict period, diplomatic missions showed a negative effect on growth. This indicates that during conflict, the military should perform traditional hard-power military operations. However, in the post conflict period, if a military presence remains, it should perform more soft-power operations.

Section VI: Level of Military Involvement

The International Military Intervention Dataset (2008) also provides data on the level of troop activity. The five levels of troop activity are (1) to evacuate troops or personnel, (2) to transport troops/personnel, negotiate, or observe (3) to patrol and provide security support, (4) to intimidate, or (5) to combat. These categories cover the continuum of invasiveness where an evacuation involves the least troop presence and combat involves the most troop presence. The level of troop activity should be proportional to the amount of capital damage. Therefore, the combat should negatively affect GDP per capita growth by the greatest percentage. Similar to equation 9, this model predicts if each level of troop activity affects GDP per capita growth differently by including 4 indicator variables for the levels of involvement and the interaction of these categories with the military assistance and economic aid variables:

$$\Delta y_{i,t} = \sum_{j=1}^{3} \phi_j x_{i,t,j} + \sum_{k=1}^{12} \theta_k z_{i,t,k} + \sum_{l=1}^{4} \varphi_l A_{i,t,l} + \sum_{l=1}^{4} \rho_l A_{i,t,l} * \sum_{k=1}^{12} z_{i,t,k} + + \eta_t + \mu_i + v_{i,t} \tag{10}$$

where $A_{i,t}$ is a 1x4 matrix where each column represents a level of military involvement. The model does not include a variable for evacuations. The evacuation group acts as the base group.

Results: Level of Military Involvement

In conflict, the least invasive form of military operations, evacuations, affects growth negatively when performed alone and positively when performed with economic aid. The marginal effect of evacuations is -4.375% when performed alone and .758% when conducted alongside foreign aid. When a nation conducts an evacuation, they essentially remove their

Variable	Model 9	Variable	Model 9 Continued
Ln(Investment share of GDP)	.856 (.217)***	Intimidate	-.075 (.760)
ln(school expenditure)	1.124 (.223)***	Intimidate* nation building in conflict	-.590 (.232)**
Population Growth	.036 (.068)	Intimidate* nation building post conflict	-.318 (.281)
Conflict	-.304 (.411)	Combat	.730 (.730)
ln(intensity)	-.410 (.131)***	Combat* nation building in conflict	.222 (.220)
Post Conflict	.301 (.397)	Combat* nation building post conflict	.165 (.304)
military intervention	-1.186 (.716)*	Constant	1.094 (.803)
military intervention conflict	-3.189 (.907)***	N	3756
military intervention post conflict	4.372 (.875)***	Groups	92
economic aid	-.019 (.065)	R-squared	.0400
economic aid conflict	.062 (.088)		
economic aid post conflict	.139 (.090)		
economic aid*military intervention	.074 (.088)		
nation building in conflict	.684 (.276)**		
nation building post conflict	-.323 (.290)		
Transport	1.210 (.802)		
Transport* nation building in conflict	-.108 (.195)		
Transport* nation building post conflict	-.976 (.222)***		
Patrol	.141 (.654)		
Patrol* nation building in conflict	-.250 (-.349)		
Patrol* nation building post conflic	-.349 (.274)		

Table 4: Levels of Military Involvement
Dependent Variable: GDP per Capita Growth
Key: significant at 1%: ***, significant at 5% **, significant at 10% *

citizens or people of importance from the host country. Therefore the negative effect of these operations could reflect the severity of the situation; the operation is not worth investing troops in, but it is bad enough that people must be evacuated. While the t-tests indicates that overall the other levels of conflict have an effect which is statistically not different from the effect of an evacuation on economic growth, an F-test reveals that there is a difference in the regression function across the different levels of conflict. With an F-statistic of 3.89 and a p-value of zero to four decimal places, one can easily reject the hypothesis that all degrees of military operation during nation building induce the same impact on economic growth. Therefore the level of military intervention impacts the overall likelihood for economic growth during nation building. Interestingly, the level of military intervention that produces the most positive impact on economic growth both during the conflict and post conflict period is combat, which is the most severe form of military intervention. This may indicate that a nation building operation should only be performed when the situation calls for military troops.

Section VII: Types of Economic Aid

Next, the research turns from the types of military intervention and delves into the types of economic aid. Economic aid targets many different areas. The World Bank Projects Database (2008) delineates the purpose for every grant that the organization has given. One can categorize these projects into seven different sectors:

(1) environmental: agricultural development, animal production, fishing, forestry, agricultural research, irrigation, drainage, flood protection, sanitation, sewage, and water supply issues

(2) economic development: promotes banking, capital markets, finance, payment systems, securities clearance, settlements, domestic and international trade, and industry

(3) energy and resource management: concerns heating, oil and gas, power, renewable

energy, and mining and other extractive techniques

(4) public administration, law, and justice: central government development, compulsory

pension and unemployment insurance, compulsory health finance, law and justice, and

public administration.

(5) infrastructure development: roads, railways, ports, information and communications,

and public buildings

(6)health

(7)education.

Currently, a debate rages within aid literature over the most effective type of economic aid

(Easterly, 2002). While some advocate aid focused more closely on infrastructure and the

accumulation of physical capital, others argue that only aid for human capital promotes long-

term sustained growth. If a project pertains to multiple categories then it is divided into those

sectors according to the sector percentage. No project is double counted. This model looks at the

types of aid to determine the effectiveness of each type:

$$\Delta y_{i,t} = \sum_{j=1}^{3} \phi_j x_{i,t,j} + \sum_{k=1}^{7} \varphi_k \ln\left(\frac{WB_{i,t}}{GDP}\right) + \sum_{l=1}^{7} \rho_l \ln\left(\frac{WB_{i,t}}{GDP}\right) * conflict + \sum_{m=1}^{7} \psi_m \ln\left(\frac{WB_{i,t}}{GDP}\right) * post + \eta_t + \mu_i + v_{i,t} \qquad (12)$$

where $WB_{i,t}$ is a 7x1 matrix where each row is the level of aid for each project category.

Additionally, the model only uses military assistance data from the United Nations since the

economic aid data represents only World Bank grants. The number of nation building episodes

in the data decreases by almost three quarters because of this limiting factor.

Results: Types of Economic Aid

During conflict, when aid is divided by type, the model shows that military operations

without economic aid effect GDP per capita growth by -2.4%. All the aid types have a marginal

Variable	Model 10	Variable	Model 10 Continued	Variable	Model 10 Continued
Ln(Investment share of GDP)	.809 (.211)***	Education	-.005 (.007)	Environment *military intervention	.295 (.293)
ln(school expenditure)	1.512 (.206)***	Education *conflict	-.155 (.131)	Environ.*conflict nation building	-.224 (.372)
Population Growth	.054 (.066)	Education *post conflict	.318 (.151)**	Environ *post conflict nation building	-.929 (.391)**
Conflict	-.356 (.273)	Education *military intervention	-.452 (.362)	Infrastructure	.202 (.069)***
ln(intensity)	-.369 (.125)***	Education *conflict nation building	.607 (.438)	Infra. *conflict	.050 (.129)
Post Conflict	.588 (.255)**	Education *post conflict nation building	-.457 (.486)	Infra. *post conflict	-.117 (.334)
military intervention	-.812 (.406)**	Energy	.103 (.062)*	Infra *military intervention	.023 (.290)
military intervention conflict	-1.556 (.519)***	Energy *conflict	-.210 (.103)**	Infra. *conflict nation building	.040 (.371)
military intervention post conflict	2.692 (.537)***	Energy *post conflict	.236 (.114)**	Infra. *post conflict nation building	.547 (.395
Health	.057 (.096)	Energy *military intervention	-.539 (.280)*	Constant	1.924 (.816)**
Health *conflict	.008 (.158)	Energy *conflict nation building	.275 (.356)	N	3756
Health *post conflict	.059 (.183)	Energy *post conflict nation building	.298 (.366)	Groups	92
Health *military intervention	.385 (.587)	Govt.	.063 (.106)	R-squared	.0260
Health *conflict nation building	-1.361 (.647)**	Govt. *conflict	.089 (.159)		
Health *post conflict nation building	-.857 (.680)	Govt. *post conflict	-.264 (.176)		
Economic Support	-.138 (.068)**	Govt. *military intervention	-.620 (.445)		
Economic Support *conflict	.169 (.119)	Govt *conflict nation building	2.128 (.518)***		
Economic Support *post conflict	-.097 (.129)	Govt *post conflict nation building	.683 (.552)		
Economic Support *military intervention	.648 (.247)***	Environment	-.027 (.080)		
Economic Support *conflict nation building	-.355 (.324)	Environment *conflict	.159 (.143)		
Economic Support *post conflict nation building	.476 (.362)	Environment *post conflict	-.253 (.149)		

Table 5: Types of Economic Aid
Dependent Variable: GDP per Capita Growth
Key: significant at 1%: ***, significant at 5% **, significant at 10% *

effect both when allocated alone or alongside military assistance have a greater marginal effect on growth than just a military operation. Thus in the conflict period it is better to give aid regardless of the type than to provide military assistance without aid. During conflict, the types of aid that when allocated alone produce the most positive effect on growth include grants for economic development, and infrastructure growth. Of these, only aid for infrastructure continues to positively affect growth when paired with military assistance in the conflict period. In fact, a 1% increase in military backed infrastructure aid causes a .296% increase in GDP per capita. This result validates the assumptions of the Solow model because roads, bridges, buildings, machinery, all the things that aid for infrastructure supports represent additions to the capital stock. The canonical growth model predicts that as the capital stock grows, output grows. Once again these results also show that the complimentary nature of military assistance and economic aid in the conflict period amplifies the positive effect of economic aid when allocated simultaneous to military operations. When part of nation building, environmental aid also positively affects GDP per capita growth. Unlike infrastructure aid, the positive effects of environmental aid with military assistance do not continue in the post conflict period. The only type of economic aid that positively affects growth both during and after conflict when allocated with military assistance is infrastructure aid. In fact, a 1% increase in infrastructure aid backed by military support in the post conflict period will increase the percent change in GDP to 2.311%. This result suggests that economic aid pursued in the post conflict period should target infrastructure reconstruction.

Because this model is calculated over data which contains less nation building episodes and due to the number of variables in the model, certain types of aid lack statistical significance. An F-test on all the variables for each aid type can determine which types of economic aid have

joint significance with GDP per capita growth. Of the sectors, only aid for education with an F-statistic of .90 and a p-value of .4906 and aid for energy and resource management with an F-statistic of 1.98 and p-value of .0653 are statistically insignificant at the 5% level. This means that all the education aid variables have an insignificant impact on GDP per capita growth, and all the energy and resource management aid variables have an insignificant impact on GDP per capita growth. Barro and Sala-i-martin (2003) show that the quality of education is more important than the quantity of education received. The insignificance of the educational aid variables may be due to the quality of the education that the aid is invested in. For example, even if millions of dollars are thrown into educational programs in least developed countries, the educational benefit is less than the benefit of education in a developed nation. The human capital framework does not exist to effectively utilize the aid. Additionally, investment in education takes a long time to show an effect (Clemens et al, 2004). A new school does not instantaneously create human capital in a community. Ideas cannot be built like a machine. Energy and resource management aid may be insignificant because of the variety of natural resources inherent to a nation. Additionally, Collier (2009) shows that resource rich countries that are also least developed often substitute resource profits for government savings. The profits benefit the elite, and the rest of the country falls into a poverty trap. Therefore there is an inherent selectivity bias that may be throwing off the significance of energy and resource management aid.

Section VIII: Types of Nation Building Operations

Knowing the types of military assistance and types of economic aid that should be included in nation building is important, but the research has yet to determine whether these operations should be conducted by multilateral organizations or by single countries. Different

groups conduct nation building for different reasons. Dobbins et al. (2008) argue that multilateral organizations, especially the United Nations, have a different approach to nation building than single country actors. One would assume that with different methods of nation building, multilateral nation building would affect growth in a different way than unilateral nation building. The next model tests this assumption. First, it considers nation building during UN mandated peacekeeping operations. Next, it looks at nation building conducted by many nations. Finally it looks at the unilateral nation building efforts.

The episodes of nation building suggest that nations conduct unilateral nation building operations for varied reasons. Just the fact that the number of overall nation building operations varies so dramatically by country suggests that different countries have different motives for conducting nation building operations. Of the twenty-two DAC nations, only France, the United Kingdom, and the United States have conducted over ten nation building operations. A qualitative inspection of the cases of nation building preformed by the United States, the United Kingdom, and France reveals that each of the three nations has different motives for their nation building operations. Every single nation building operation conducted unilaterally by France occurred in a former French colony. Similarly only one case of British nation building occurred in a territory that was never a formal colony of the United Kingdom. That one case occurred in Oman and while Oman was never a British colony, it shared a close trading partnership with the United Kingdom. This relationship suggests that British and French nation building operations affects GDP per capita growth differently than an American operation. Due to the differences in foreign policy, the nation building operations of the United States, United Kingdom, and France should be analyzed individually.

Variable	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
	Unilateral	Multilateral	United Nation	United States	France	United Kingdom
ln(investment)	.871 (.218)***	.884 (.218)***	.729 (.207)***	1.260 (.224)***	1.004 (.210)***	.809 (.213)***
ln(school)	1.058 (.215)***	1.028 (.214)***	1.438 (.184)***	1.163 (.195)***	1.176 (.219)***	1.284 (.189)***
population growth rate	.076 (.067)	.070 (.067)	.071 (.064)	.175 (.068)**	.134 (.066)**	.094 (.067)
conflict	-.792 (.392)**	-.652 (.399)	-.478 (.292)	-.404 (.199)**	-.544 (.257)**	-.402 (.245)
conflict intensity	-.449 (.126)***	-.466 (.126)***	-.465 (.120)***	-.349 (.122)***	-.463 (.122)***	-.506 (.123)***
post conflict	.358 (.360)	.368 (.364)	.695 (.275)**	.580 (.168)***	.929 (.224)***	.437 (.213)**
military assistance	-.980 (.413)**	-1.216 (.737)*	-.095 (.431)	-.216 (.102)***	-.004 (.594)	.106 (.641)
military assistance* conflict	-1.575 (1.148)	-2.917 (1.172)**	-3.551 (.619)***	.428 (.401)***	.796 (.936)	-1.175 (1.084)
military assistance* post conflict	3.803 (1.270)***	5.173 (1.187)***	4.342 (.681)***	1.113 (.638)*	3.078 (1.092)***	2.131 (1.301)
economic aid	.017 (.064)	.027 (.064)	.172 (.042)***	.107 (.063)*	.117 (.086)	.340 (.096)***
economic aid*conflict	.152 (.084)*	.106 (.085)	.129 (.065)**	-.001 (.001)	.085 (.093)	.106 (.117)
economic aid*post conflict	-.041 (.084)	-.019 (.085)	-.109 (.069)	-.001 (.0003)***	-.251 (.093)***	.061 (.120)
economic aid*military assistance	.134 (.186)	1.137 (.632)*	-.477 (.153)***	.940 (.376)**	-.981 (.366)***	-.025 (.021)
nation building	.206 (.270)	.939 (.258)***	.726 (.138)***	-.024 (.002)***	.086 (.479)	2.703 (.802)***
economic aid*military assistance*post conflict	-.198 (.344)	-1.326 (.282)***	-.800 (.170)***	-.079 (.004)***	-.891 (.651)	-1.069 (1.054)
constant	.879 (.790)	.770 (.788)	1.614 (.170)***	-.545 (.796)	.418 (.784)	1.071 (.764)
N	5581	5581	5581	5581	5581	5581
groups	176	176	176	176	176	176
R-Squared	.0504	.0655	.0580	.0427	.0319	.0363
Fixed-Effects	yes	yes	yes	yes	yes	yes

Table 6: Unilateral v. Multilateral
Dependent Variable: GDP per Capita Growth
Key: significant at 1%: ***, significant at 5% **, significant at 10% *

Multilateral v. Unilateral Nation Building Operations

Models 10-15 show the estimated effects of economic aid, military assistance, and nation

building when the data includes only unilateral, multilateral mom-UN, United Nations,

American, French, and British nation building episodes. Table 6 shows the computed marginal

effects of each type of activity by donor type. Table 6 shows that the marginal effect of nation

building increases GDP per capita growth by the greatest amount during conflict regardless of

whether the donor is a group of countries, a single country, or the United Nations with the

exception of France.

	conflict-only economic aid	*conflict-only military assistance*	*conflict-economic aid and military assistance*	*post conflict-only economic aid*	*post conflict-only military assistance*	*post conflict-economic aid and military assistance*
Unilateral	.152	-.98	no effect	.152	2.823	no effect
Multilateral	no effect	-4.133	2.972	1.137	3.957	-.189
United Nations	.301	-3.551	.249	-.348	4.342	-.976
United States	-.001	.212	.916	.939	.897	-.103
France	-.251	no effect	-.981	-.981	no effect	no effect
United Kingdom	no effect	no effect	2.703	no effect	no effect	no effect

Table 7: Marginal Effect of Unilateral and Multilateral Nation Building Activities

The marginal effect of all French support both economic and military in both the conflict

and post conflict period is negative. This reflects the colonial nature of French aid. France

allocates aid and military assistance based on colonial ties. In fact, all of French nation building

episodes have occurred in Africa. African economic growth continues to elude economists

(Panchamuki, 2000). The growth volatility within Africa causes all forms of French aid to

produce negative effects on growth. Excluding France, all the donors follow the same pattern

seen in the overall nation building model (model 7) where nation building has a positive

marginal effect on growth. In most cases the continuation of economic aid with military assistance in the post conflict period has a negative marginal effect on economic growth. However in all cases, when troops remain after conflict, they positively affect post conflict growth.

The US model, model 13, suggests that economic aid and military assistance do not act as compliments in either the conflict or post conflict period. The negative coefficient on the interaction of military assistance, economic aid and conflict indicates that during conflict if military assistance coincides with the allocation of economic aid, then the military assistance will reduce the effectiveness of the economic aid and the economic aid will make the military assistance less effective.

Finally, these estimates suggest that during conflict, multilateral groups influence host country economic growth by the greatest magnitude. This means that while a United Nations and unilateral operation can be effective, these operations will never cause economic growth to increase as much as multilateral operations will be able to. Similarly, in the post conflict period, United Nations peacekeeping forces will be able to cause the greatest increase in economic growth. Therefore, in the ideal scenario, during conflict a multilateral group of nations should conduct nation building. Then, following conflict, the multilateral presence should rapidly reduce, and United Nations peacekeeping troops should maintain security.

Section IX: The Specific Case of US Nation Building

While the unilateral model described above provides a good framework with which to compare how different nations do nation building, more data helps construct a more accurate picture of nation building. In economics, one the greatest challenges is determining causality.

While the results above suggest that military assistance with economic aid cause an increase in GDP per capita growth, there could be a reverse causal nature where the level of growth causes the military assistance or economic aid. Clearly an endogeneity problem exists in the model. Unlike the other twenty-one DAC nations, the United States provides the monetary level of military assistance provided annually to foreign nations (US Overseas Loans and Grants, 2006). This extra data provides a means with which to measure the magnitude of military assistance. Therefore the project next tests a United States specific model. The reasons for this model are three-fold. First, the greater data availability allows one to check for endogeneity problems and measure how different magnitudes of military aid affect growth. Second, the United States provides a great deal of nation building efforts. Thus the United States is an important player to analyze. Finally, the endogeneity problem may be praticullarly pronounced for the United States due to their role as "police man of the world". Equation 13 presents a new model to analyze the United States nation building.

$$\Delta y_{i,t} = \sum_{j=1}^{3} \phi_j x_{i,t,j} + \sum_{k=1}^{16} \theta_k z_{i,t,k} + \eta_t + \mu_i + v_{i,t} \tag{13}$$

Where

$\Delta y_{i,t} = \ln(y_{i,t}) - \ln(y_{i,t-1})$ $z_{i,t,4} = \ln(military_{i,t})$

$\phi_1 = -\phi_3 = \dfrac{\alpha}{1-\alpha}$ $z_{i,t,5} = \ln(military_{i,t}) * conflict_{i,t}$

$\phi_2 = \dfrac{\beta}{1-\alpha}$ $z_{i,t,6} = \ln(military_{i,t}) * post_{i,t}$

$x_{i,t,1} = \ln(\dfrac{investment}{GDP})$ $z_{i,t,7} = \ln(econ_{i,t})$

$x_{i,t,2} = \ln(\dfrac{education}{GDP})$ $z_{i,t,8} = \ln(econ_{i,t}) * conflict_{i,t}$

$x_{i,t,3} = \ln(\eta_i)$ $z_{i,t,9} = \ln(econ_{i,t}) * post\_conflict_{i,t}$

$z_{i,t,1} = conflict_{i,t}$ $z_{i,t,10} = \ln(econ_{i,t}) * \ln(military_{i,t})$

$z_{i,t,2} = magnitude_{i,t}$ $z_{i,t,11} = \ln(econ_{i,t}) * \ln(military_{i,t}) * conflict_{i,t} = nationbuilding_{i,t}$

$z_{i,t,3} = post_{i,t}$ $z_{i,t,12} = \ln(econ_{i,t}) * \ln(military_{i,t}) * post_{i,t}$

In this model *military* $_{i,t}$ represents the amount of money for military purposes allotted to country

i in year *t*. Therefore the military assistance variable is no longer an indicator variable.

Unlike the other major nation builders, the United States does not perform nation

building operations based on colonial ties. The United States often responds to failed or failing

states by performing nation building operations. Many have even criticized the United States for

being the "world police force" (Archer, 2007). Therefore, the US military assistance data has a

selection bias. Selectivity bias causes an endogeneity issues. A variable is endogenous if a

correlation exists between that regressor and the error term. A state's level of "failing" affects

the growth rate of GDP per capita. Because a proxy does not exist that adequately captures this

level of state turmoil, the error term accounts for the variable. To mathematically illustrate this

dilemma, suppose that the growth rate of GDP per capita is determined by:

$$\Delta y_{i,t} = \beta X_{i,t} + \phi turmoil + u \tag{14}$$

Since no one measures *turmoil*, the model estimates the growth rate of GDP per capita as:

$$\Delta y_{i,t} = \beta X_{i,t} + v \tag{15}$$

where

$$v = \phi turmoil + u$$

Therefore, if one assumes that the level of US military assistance correlates to the level of

turmoil (i.e. cov(*military*, *turmoil*) $\neq 0$) then the level of US military assistance is also correlated

to the error term (i.e. cov(*military*, *v*) $\neq 0$). The endogeneity of the US military assistance

variable causes an inconsistent estimate of the coefficients on all the other variables in the model.

Instrumental variables can solve this endogeneity problem. An instrumental variable, *z*, is

a variable that does not appear in the original regression, is not correlated to the error term (i.e.

cov(*z*, *v*) = 0), and is correlated to the endogenous explanatory variable (i.e. cov(*military*, *z*) $\neq 0$).

A modified gravity model can instrument for the level of US military assistance. Often used to analyze trade patterns, the gravity model uses Newton's law of gravity to model human interactions. Essentially this model predicts that the gravitational pull or flow between two bodies is directly proportional to their size and inversely proportional to their distance:

$$I_{ij} = \frac{M_i M_j}{D_{ij}} \tag{16}$$

where I_{ij} is the flow between i and j, M_i and M_j are the size of bodies i and j, respectively, and D_{ij} is the distance between i and j. Unlike with trade, military aid flows one way from donor to recipient. Therefore, the size of donor nation i does not predict the flow of military aid to host nation j. The military aid modified gravity model is:

$$military_{ij} = \frac{M_j}{D_{ij}} \tag{17}$$

By log-linearizing the model, one can predict levels of military intervention using ordinary least squares regression. The level of GDP of the recipient nation act as a proxy for the size of the host nation. Thus the first stage of the model is:

$$\ln(military_{ij}) = \pi_0 + \pi_1 \ln(GDP_j) - \pi_2 \ln(D_{ij}) + \omega \tag{18}$$

Because the distance variable, D_{ij} is constant across time, equation 18 cannot be calculated as a fixed effects model. Since the fixed effect captures all time constant aspects of the model, then a fixed effect model would omit D_{ij}. Instead, equation 18 is calculated as a pooled cross-section. Equation 18 produces a consistent, exogonous estimator of $military_{i,t}$. This predicted value,

$\widehat{military}_{i,t}$, is then substituted for all values of $military_{i,t}$ in equation 13.

	Variable	Model 17	Model 18	Variables	Model 19
	Dependent Variable	GDP per capita growth		Gravity Model	ln(mil_assist)
φ_1	ln(investment)	1.69 (.182)***	1.682 (.185)***	ln(GDP)	.041 (.037)***
φ_2	ln(school)	.526 (.147)***	.522 (.148)***	ln(distance)	-.342 (.001)***
φ_3	population growth rate	-.008 (.059)	.031 (.060)	constant	2.048 (12.169)
θ_1	conflict	-.471 (.270)***	-.956 (2.187)	N	6921
θ_2	conflict intensity	-.469 (.117)***	-.426 (.116)***	groups	176
θ_3	post conflict	.430 (.264)	-.685 (2.391)	R-squared	.578
θ_4	US military aid	-.204 (.056)**	2.018 (.502)***	Fixed Effects	no
θ_5	US military aid conflict	.438 (.210)**	.136 (.617)		
θ_6	US military aid post conflict	-.052 (.273)	-.089 (.676)		
θ_7	US economic aid	.215 (.051)***	.941 (.362)***		
θ_8	US economic aid conflict	-.101 (.074)	-.525 (.454)		
θ_9	US economic aid post conflict	.081 (.081)	.358 (.635)		
θ_{10}	US economic aid* military assistance	-.025 (.021)	-.122 (.157)		
θ_{11}	US nation building	-.076 (.037)**	.198 (.106)**		
θ_{12}	US nation building After Effect	-.028 (.005)***	.118 (.054)**		
φ_0	constant	-1.013 (.726)	-8.686 (5.324)		
	N	4174	4086		
	groups	175	163		
	R-Squared	.0525	.0410		
	Fixed-Effects	Yes	yes		
	Two Stage Model	No	yes		

Table 8: US Specific Model

Key: significant at 1%: ***, significant at 5% **, significant at 10% *

Results: United States Specific Model

Model 16 estimates the United States nation building model before correcting for the endogeneity. This model suggests that economic aid and military assistance do not act as compliments. The non-corrected model suggests that for a 1% increase of dollars spent on military aid economic growth will increase by .234%. Similarly for a 1% increase in economic aid, economic growth will increase by .215%. In this model, an indicator does not represent military assistance; rather the model has a measure of military assistance. The partial derivative with respect to economic aid therefore provides the conditional effect on GDP per capita growth dependent upon the level of military assistance. The mixed second order partial derivative with respect to both military assistance and economic aid reveals the effect of combined military assistance and economic aid.

$$\frac{\partial^2 \Delta y_{i,t}}{\partial military_{i,t} \partial econ_{i,t}} = \theta_{10} + \theta_{11} conflict_{i,t} + \theta_{12} post_{i,t} \tag{19}$$

Equation 19 predicts that the effect of nation building equals the sum of θ_{10} and θ_{10}. So a nation building operation will cause a decrease in growth of .101%.

In the post conflict period, military assistance alone will have the worst overall effect on GDP per capita growth. A 1% increase in military assistance results in a -.256% change in growth, and simultaneous military assistance with economic aid causes a .053% drop in GDP per capita growth. The model suggests that all US military actions harmfully affect growth in the post conflict period. This model creates a very bleak prediction for US operations. However, the detrimental effects of US operations seen in this model could simply be a reflection of the endogeneity issues inherent to the military assistance data.

Model 18 predicts the gravity model. The dependent variables have a high correlation to the level of military assistance and the coefficients reflect the hypothesized results. Model 17

represents the estimate of equation 13 using the predicted value of military assistance from the gravity model. After correcting for endogeneity, model 17 suggests that a 1% increase in military assistance causes a 2.154 increase in GDP per capita growth and a 1% increase in economic aid results in a .416% increase in growth in all military climates (no conflict, conflict, and post conflict periods). Thus far, the magnitudes of the effects have changed, but the direction of the effects have remained constant. However, this changes for the nation building variable. After correcting for endogeneity, nation building has a positive effect on growth of .076%. In the post conflict period, nation building causes a .004% decrease in GDP per capita growth. This is essentially a zero effect of military backed economic aid in the post conflict period. These results suggest that US nation building is not a detriment to economic growth. Other forms of aid can cause a greater change in growth; this indicates that US aid is not the most cost-effective form of development assistance during conflict. These results offer that the United States should only conduct nation building when the complexity of a situation demands simultaneous economic aid and military assistance. For example, the model shows that military aid alone cause GDP per capita growth to increase by the greatest percentage, but in many cases if the United States performed a military intervention without giving economic aid, then the global community might loose esteem for the United States. This model proposes that when circumstances outside of the augmented growth framework cause the United States to enter into a nation building operation, then that operation will not harm a host economy.

Section X: Conclusions:

Overall this analysis has shown that during conflict nation building can help to increase the economic growth rate of a host nation. This result holds true no matter who performs the operation. In most cases, when a group or country continues to provide military backed

economic aid during the post conflict period, the economic growth rate reduces. While a multilateral nation building episode affects growth in the same manner as United Nations and unilateral nation building, a multilateral operation cause the largest marginal change in GDP per capita growth. The models show that nation building requires a huge commitment. If donors wish to positively impact a host nation's economy they must be willing to work with other nations and commit large numbers of troops.

The model also indicates that donors must consider their intent for nation building before starting the operation. If an operation is in response to a humanitarian crisis or a power imbalance then the operation likely will result in a positive impact on growth, yet if the operation reflects a desire for territorial usage then the mission will likely harm the host economy. Finally, the model suggests that donor's should know where aid is being spent and allocate aid for the purposes of infrastructure and agricultural development. This analysis demonstrates the huge responsibility that groups and countries obtain when they decide to enter a period of nation building. This analysis shows that foreign actions have very real implications for a host economy. While aid can help an economy, it can also harm an economy.

During the post conflict period, nations and groups must be willing to reduce aid involvement. Too much aid can hinder the natural rebuilding phase of a post-conflict nation. If economic aid continues into the post conflict period, it should target infrastructure development. Further the security support should be overseen by United Nations peacekeepers. While this model offers many insights into the nature of nation building, it is not all inclusive. This modeled assessed nation building solely in the context of GDP per capita growth. There are other exterior factors which will modify the effects of nation building. However this paper has shown that nation building is an effective development tool during conflict periods.

Appendix A: Definitions

Nation Building: A period in which (1) a nation is in a conflict or a post-conflict period, (2)in which they receive outside military involvement (3) from a nation, group of nations, or multilateral organization that simultaneously provides economic aid.

Conflict: a dispute where the use of armed force between two parties results in at least 25 battle-related deaths within one year. Of these two parties, at least one must be the government of a state.[15]

Post conflict period: the seven year period following a peace settlement in which a nation transitions out of a militarized state

Non-UN multilateral intervention: A military intervention carried out by more than one nation without an official United Nations mandate. This includes operations conducted by the North Atlantic Treaty Organization (NATO), the Organization for African Unity (OAU), and the Organization of American States (OAS).

United Nations Intervention (Also referred to as Peacekeeping): a military intervention that is mandated by the United Nations Security Council. This can be both for the purpose of peacekeeping (after conflict) and peace-imposing (prior to conflict)

Organization for Economic Cooperation and Development's Donor Assistance Countries: 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

Military Intervention: regular armed forces of independent states go over international boundaries of another state

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15 Armed Conflict 1946–2001: A New Dataset, Gieldsitch et. al.

Military Assistance: funds allotted for the purposes of foreign military financing, economic support funds, international military education and training, counter-narcotics assistance, Non-Proliferation, Anti-terrorism, Demining, and Related Programs, peacekeeping operations, and Assistance for the Independent States of the Former Soviet Union

- **Foreign Military Financing:** Foreign Military Financing refers to congressionally appropriated grants given to foreign governments to finance the purchase of American-made weapons, services and training. Since 1950, the US government has provided over $91 billion in FMF to militaries around the world. The vast majority of these funds goes to Israel and Egypt to reward them for making a cold peace in 1979.

- **Economic Support Fund:** Congress established the economic support fund (ESF) to promote economic and political stability in strategically important regions where the United States has special security interests. The funds are provided on a grant basis and are available for a variety of economic purposes, like infrastructure and development projects. Although not intended for military expenditure, these grants allow the recipient government to free up its own money for military programs.

- **International Military Education and Training:** International Military Education and Training (IMET) grants are given to foreign governments to pay for professional education in military management and technical training on US weapons systems. Over 2,000 courses are offered, including some on human rights and civil-military relations. This program is said by its proponents to promote positive military-to-military contacts, thereby familiarizing foreign officers with "US values and democratic processes," though critics argue there is too much emphasis on military skills and not enough on human rights. The Expanded IMET program offered to certain states only focuses on the latter.

- **Counter-Narcotics Assistance:** Through International Narcotics Control programs, the US government provides funds for military equipment and training to overseas police and armed forces to combat the production and trafficking of illegal drugs. These funds are generally dedicated to the export of firearms and the refurbishment of surveillance aircraft, transport planes and helicopters.Additional counter-narcotics training and equipment is provided by the Department of Defense, the Drug Enforcement Agency and other agencies. In recent years, human rights abuses by military and police units receiving this aid - especially in Colombia - have intensified criticism of the program.

- **Non-Proliferation, Anti-terrorism, Demining, and Related Programs:** This category of funding provides resources in support of a variety of security-related foreign policy objectives. Funds go to nuclear non-proliferation programs, anti-terrorism aid, demining activities, and - a new item in FY 2001 - small arms destruction programs.

- **Peacekeeping Operations:** These funds provide voluntary support for international peacekeeping activities (as opposed to the U.S. share of UN-assessed peacekeeping operations, which is financed elsewhere). PKO funds promote increased involvement of regional organizations in conflict resolution and help leverage support for multinational efforts where no formal cost sharing mechanism is available.

- **Assistance for the Independent States of the Former Soviet Union:** The Freedom Support Act (FSA) was passed in Congress on October 24, 1992 with the goal of providing the states of the former Soviet Union funds that support free market and democratic reforms through demilitarization, humanitarian and technical assistance. The bill particularly endorses American investment and trade through enterprise funds, small business programs and access to credits for purchases of U.S. food exports. The FSA also

provides funding for nuclear nonproliferation programs and activities, as well as the

dismantlement and destruction of biological, chemical and conventional weapons, and

humanitarian aid, including health and human services programs. While funds allocated

through this program are not used to purchase weapons or military training per se, they

are used to enhance law enforcement and border security capabilities. These funds also

free up money that the recipient government can then spend in other ways, including on

defense.

Fixed Effects: in a panel data model, the unobserved variable in the error term that is time-constant.

Dummy Variable: a binary variable that indicates the presence of a categorical effect

Proxy: an observed variable that is related but not identical an unobserved explanatory variable

Endogenous: a regressor is endogenous if a correlation exists between the regressor and the error term.

Instrumental Variable: in an equation with an endogenous explanatory variable, an instrumental variable is a variable that does not appear in the original regression, is not correlated to the error term, but is correlated to the endogenous explanatory variable

World Bank Environmental Grants: grants for the purpose of agricultural development, animal production, fishing, forestry, agricultural research, irrigation, drainage, flood protection, sanitation, sewage, and water supply issues

World Bank Economic Development Projects: projects that promote banking, capital markets, finance, payment systems, securities clearance, settlements, domestic and international trade, and industry.

World Bank Energy and Resource Management Projects: projects concerning heating, oil and gas, power, renewable energy, and mining and other extractive techniques.

World Bank Public Administration, Law, and Justice Projects: projects that include those for the purpose of central government development, compulsory pension and unemployment insurance, compulsory health finance, law and justice, and public administration.

World Bank Infrastructure Projects: areas of focus within this sector are roads, railways, ports, information and communications, and public buildings.

Appendix B: Cases of Nation Building[16]

Mulilateral Forces

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

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[16] 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

		Kingdom, United States
Democratic Republic of the Congo	1993-1994	Conflict: Border spill over s from Rwandan genocide Nations involved: Belgium, France, United States
El Salvador	1969-1974	Conflict: Soccer War between Honduras and El Salvador Nations involved: Organization of American States
El Salvador	1979-1980	Conflict: Civil Conflict Nations involved: Organization of American States
Eritrea	1998	Conflict: Eritrean-Ethiopian War Nations involved: France, Germany, Italy, Netherlands, United Kingdom
Gabon	1964	Conflict: Internal coup Nations involved: France, United States
Guinea-Bissau	1998	Conflict: Guinea-Bissau Civil War Nations Involved: France, Portugal
Haiti	2004	Conflict: Rebels against Aristide's government provoke Civil War Nations involved: Canada, France, United States
Honduras	1969-1974	Conflict: Soccer War with El Salvador concerning territorial border Nations involved: Organization of American States
Indonesia	2004-2005	Conflict: Ethnic Conflict Nations: Austria, Japan, Spain, United States
Iraq	1991	Conflict: Gulf War Nations: France, United Kingdom, United States
Iraq	2003-2005	Conflict: War in conjunction with the Global War on Terrorism Nations: Australia, Denmark, Italy, Japan, Netherlands, Norway, Portugal, Spain,

		United Kingdom, United States
Kuwait	1990-1991, 1994	Conflict: Iraq Kuwait Conflict Nations Involved: France, Netherlands, United Kingdom, United States
Lebanon	1989	Conflict: Lebanese Civil War Nations Involved: France, United States
Liberia	2003	Conflict: Second Liberian Civil War Nations: France, United States
Morocco	1963-1964	Conflict: Algerian-Morocco War Nations involved: Organization for African Unity
Pakistan	2005	Conflict: India-Pakistan Conflict Nations involved: Australia, United States
Papua New Guinea	1998	Conflict: Bouganville Revolt by rebel forces Nations involved: Australia, United States
Rwanda	1990, 1994	Conflict: Rwandan Genocide Nations involved: Belgium, Canada, France, United States
Sierra Leone	1997	Conflict: Sierra Leone Civil War Nations Involved: France, United Kingdom, United States
Somalia	1992-1993	Conflict: Somali Civil War Nations Involved: Canada, France, Italy, United States
Sri Lanka	2005	Conflict: Sri Lankan Civil War Nations involved: United Kingdom, United States
Thailand	1962	Conflict: Thai/Burmese border conflicts Nations involved: Australia, United Kingdom, United States
Vietnam	1965-1972	Conflict: Vietnam War Nations Involved: Australia, United States

Australia

Country	Year	Details
Cambodia	1997	Conflict: Coup staged by Khmer Rouge rebels

Belgium

Country	Year	Details
Democratic Republic of the Congo	1991	Conflict: Civil War, Mutiny

France

Country	Year	Details
Cameroon	1960	Conflict: Rebel uprisings (UPC)
Central African Republic	1997	Conflict: Military coup led by Cyriac Souke
Central African Republic	2003-2005	Conflict: Rebel Uprisings led by UFDR
Chad	1968-1992	Conflict: Rebel forces
Chad	2004-2005	Conflict: Civil War against the FUCD
Comoros	1989	Conflict: Coup staged by presidential guard
Djibouti	1992	Conflict: Civil War between government and FRUD
Gabon	1965	Conflict: Military coup led by Leon M'Ba
Mauritania	1977-1980	Conflict: Civil war between government and POLISARIO
Morocco	1960-1962,	Conflict: Reconstruction after independence
Morroco	1965-1976	Conflict: Algerian-Moroccan War and Border Clash
Rwanda	1993	Conflict: Rwandan Civil War and Genocide led by FPR
Tunisia	1961-1962	Conflict: Civil War started by National Liberation Army

Germany

Country	Year	Details
Czechoslovakia	1968-1969	Conflict: Cold War
Iran	1991	Conflict: Civil War staged by People's Mujahedin of Iran (MEK)
Sudan	2004	Conflict: Civil War rebel factions include JEM, SLM/A, NDA

Spain

Country	Year	Details
Morocco	2002	Conflict: Territorial Dispute over island of Ceuta

United Kingdom

Country	Year	Details
Kenya	1982	Conflict: Civil War started by Mau Mau
Oman	1972-1977	Conflict: Civil War between government and PFLO with help from People's Republic of Yemen
Sierra Leone	1998-2002	Conflict: Civil War, rebel factions include AFRC, Kamajros, and RUF
Yemen	1965-66	Conflict: Civil War over Southern Areas by FLOSSY

United States

Country	Year	Details
Cambodia	1975	Conflict: Civil War Khmer Rouge, Cold War
Cambodia	1997	Conflict: Civil War rebel factions include FUNCINPEC and Khmer Rougue
Democratic Republic of Congo	1965,1967	Conflict:
Dominican Republic	1961, 1965-1966	Conflict: Civil War after 1962 elections negated by civilian junta
El Salvador	1983-1988	Conflict: Civil War between government and CNL
Guatemala	1987	Conflict: Rebel Factions URNG
Haiti	1994-1995	Conflict: Operation Uphold Democracy
Haiti	2005	Conflict: Urban warfare between Haitian Police, former Hatian military, urban gangs, and armed political groups
Kenya	1982	Conflict: Military coup led by Hezekiah Ochuka
Kuwait	1996	Conflict: Iraq-Kuqait Conflict
Laos	1961-1970	Conflict: Civil War between Laos government and Pathet Lao, Cold War
Liberia	1990-1991	Conflict: Civil War rebel factions include INPFL and NPFL
Liberia	1996, 1998	Conflict: Civil War rebel factions include INPFL and NPFL
Morocco	1976-1978	Conflict: Civil War led by POLISARIO
Nicaragua	1979	Conflict: Civil War by rebel faction FSLN
Pakistan	2004	Conflict: Rebel Factions in Baluchistan led by the BLA
Panama	1989-1990	Conflict: Military Coup led by Moises Giroldi
Philippines	1989	Conflict: Civil War initiated by CPP and Military coup led by Honasan, Abenina, and

		Zumel
Sierra Leone	1992	Conflict: Civil War between government and RUF
Sierra Leone	2001-2002	Conflict: Civil War rebel factions include RUF and WSB
Somalia	1994	Conflict: Civil War rebel factions include USC and SNA
Sudan	1984-1985	Conflict: Civil War instigated by SPLM/A
Thailand	1966-1976	Conflict: Civil War instigated by CPT
Tunisia	1961-1962	Conflict: Bizerte Conflict
Turkey	1986	Conflict: Civil War rebel faction includes PKK
Vietnam	1963-1964	Conflict: Vietnam War before other nations join
Vietnam	1973-1974	Conflict: Vietnam War before after allied nations pull out of war

United Nations

Country	Year	Details
Afghanistan	1998	Conflict: Civil War in Kashmir provinces
Algeria	1991-2003	Conflict: Civil War rebel factions include Takfir wa'l Hijra, AIS, GIA
Angola	1991-1993, 1995, 1998	Conflict: UNITA
Bosnia and Herzegovina	1996-2002	Conflict: Bosnian War, Bosnian-Serbian Conflict, Genocide
Burundi	2004	Conflict: Civil War rebel factions include CNDD, Frolina, Palipehutu-FNL
Cambodia	1993	Conflict: Cambodian-Vietnamese Conflict
Central African Republic	1999-2000	Conflict:Military Coup by Cyriac Souke
Croatia	1994-2002	Conflict: Bosnian War
Cyprus	1974-1979	Conflict: Turkish Invasion of Cyprus
Democratic Republic of the Congo	1960-1964	Conflict: Civil War
Democratic Republic of the Congo	2002-2005	Conflict: Civil War rebel factions include MLC, RCD, RCD–ML
Egypt	1967-1978	Conflict: Egyptian-Israeli Conflict
El Salvador	1991, 1993, 1995	Conflict: Civil War led by the FMLN
Ethiopia	2000-2004	Conflict: Eritrean-Ethiopian War
Georgia	1994-1998	Conflict: War in Abkhazia, "Frozen Conflict"
Guatemala	1992, 1997	Conflict: URNG
Haiti	1994-1996,	Conflict: Civil War

	2005	
India	1961-1981	Conflict: Indio-Pakistani Wars
Iran	1988	Conflict: Iran-Iraq War
Iraq	1988	Conflict: Iran-Iraq War
Israel	1960-1975	Conflict: Egyptian-Israeli Conflict, Israeli-Syrian Conflict, Israeli-Jordan Conflict, Israeli-Lebanon Conflict
Jordan	1967	Conflict: Israeli-Jordan Conflict
Jordan	1972	Conflict: Israeli-Jordan Conflict
Lebanon	1977, 1978	Conflict: Israeli-Lebanon Conflict
Lebanon	1993-1995	Conflict: Israeli-Lebanon Conflict
Liberia	2004-2005	Conflict: Second Liberian Civil War led by LURD andMovement for Democracy in Liberia
Morocco	1991-1994	Conflict: Territorial dispute with Polisario Front over Saharawi Arab Democratic Republic
Mozambique	1992-1994	Conflict: Civil War against Renamo Faction
Nicaragua	1991-1992	Conflict: Civil War with FLAA
Pakistan	1964-1982, 1984-1985	Conflict: Indio-Pakistani Wars
Sierra Leone	1998-2000	Conflict: Civil War
Sudan	2005	Conflict: Civil War SPLM/A and genocide
Syria	1972-1982, 1984-1985	Conflict: Israeli-Syrian Conflict
Tajikistan	1996-2000	Conflict: Ethinic War and rebel factions under United Tajik Opposition
Uganda	1993-1994	Conflict: Civil War

Appendix C: Nations Included

Afghanistan	1960-2005	Cyprus	1960-2005
Albania	1960-2005	Czechoslovakia	1960-1993
Algeria	1962-2005	Czech Republic	1993-2005
Andorra	1993-2005	Democratic Republic of Congo	1963-2005
Angola	1982-2005		
Antigua and Barbuda	1981-2005	Denmark	1960-2005
Argentina	1960-2005	Djibouti	1977-2005
Armenia	1991-2005	Dominica	1978-2005
Australia	1960-2005	Dominican Republic	1960-2005
Austria	1960-2005	Ecuador	1987-2005
Azerbaijan	1991-2005	Egypt	1960-2005
Bahamas	1973-2005	El Salvador	1960-2005
Bahrain	1971-2005	Equatorial Guinea	1968-2005
Bangladesh	1971-2005	Eritrea	1993-2005
Barbados	1966-2005	Estonia	1991-2005
Belarus	1991-2005	Ethiopia	1968-2005
Belgium	1960-2005	Federated States of Micronesia	1991-2005
Belize	1981-2005		
Benin	1960-2005	Fiji	1970-2005
Bhutan	1971-2005	Finland	1960-2005
Bolivia	1960-2005	France	1960-2005
Botswana	1966-2005	Gabon	1960-2005
Brazil	1960-2005	Gambia	1965-2005
Brunei	1984-2005	Georgia	1991-2005
Bulgaria	1972-2005	Germany	1960-2005
Burkina Faso	1960-2005	Ghana	1960-2005
Burundi	1962-2005	Greece	1960-2005
Cambodia	1960-2005	Grenada	1974-2005
Cameroon	1960-2005	Guatemala	1960-2005
Canada	1960-2005	Guinea-Bissau	1980-2005
Cape Verde	1975-2005	Guinea	1960-2005
Central African Republic	1960-2005	Guyana	1966-2005
		Haiti	1960-2005
Chad	1960-2005	Honduras	1960-2005
Chile	1960-2005	Hungary	1960-2005
China	1960-2005	Iceland	1960-2005
Colombia	1960-2005	India	1960-2005
Comoros	1975-2005	Indonesia	1960-2005
Republic of the Congo	1960-2005	Iran	1960-2005
Costa Rica	1960-2005	Iraq	1960-2005
Cote d'Ivoire	1960-2005	Ireland	1960-2005
Croatia	1992-2005	Israel	1960-2005
Cuba	1960-2005	Italy	1960-2005

Jamaica	1962-2005	Paraguay	1960-2005
Japan	1960-2005	Peru	1960-2005
Jordan	1960-2005	Philippines	1960-2005
Kazakhstan	1991-2005	Poland	1960-2005
Kenya	1963-2005	Portugal	1965-2005
Kiribati	1999-2005	Qatar	1971-2005
Kuwait	1961-2005	Romania	1960-2005
Kyrgyzstan	1991-2005	Russia	1981-2005
Laos	1981-2005	Rwanda	1962-2005
Latvia	1991-2005	Samoa	1976-2005
Lebanon	1986-2005	Sao Tome and Principe	1975-2005
Lesotho	1963-2005	Saudi Arabia	1966-2005
Liberia	1960-2005	Senegal	1960-2005
Libya	1960-2005	Seychelles	1976-2005
Lithuania	1991-2005	Sierra Leone	1961-2005
Luxembourg	1960-2005	Singapore	1965-2005
Macedonia	1993-2005	Slovakia	1993-2005
Madagascar	1967-2005	Slovenia	1992-2005
Malawi	1964-2005	Solomon Islands	1963-2005
Malaysia	1960-2005	Somalia	1963-2005
Maldives	1973-2005	South Africa	1960-2005
Mali	1960-2005	South Korea	1960-2005
Malta	1963-2005	Spain	1960-2005
Marshall Islands	1991-2005	Sri Lanka	1960-2005
Mauritania	1960-2005	St Kitts and Nevis	1983-2005
Mauritius	1968-2005	St Lucia	1979-2005
Mexico	1960-2005	St Vincent and the Grenadines	1979-2005
Moldova	1991-2005		
Mongolia	1960-2005	Sudan	1960-2005
Morocco	1960-2005	Suriname	1975-1994
Mozambique	1975-2005	Swaziland	1968-2005
Myanmar (Burma)	1960-2005	Sweden	1960-2005
Namibia	1990-2005	Switzerland	1960-2005
Nepal	1965-2005	Syria	1961-2005
Netherlands	1960-2005	Taiwan	1963-2005
New Zealand	1960-2005	Tajikistan	1991-2005
Nicaragua	1960-2005	Tanzania	1961-2005
Niger	1964-2005	Thailand	1960-2005
Nigeria	1960-2005	Togo	1960-2005
Norway	1960-2005	Tonga	1999-2005
Oman	1963-2005	Trinidad and Tobago	1962-2005
Pakistan	1960-2005	Tunisia	1960-2005
Palau	1994-2005	Turkey	1960-2005
Panama	1960-2005	Uganda	1962-2005
Papua Ne Guinea	1963-2005	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

Appendix D: 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 publically available sources

- Penn World Tables: provides data on GDP per capita and investment share of GDP for 188 countries from 1950 to 2005

- World Bank World Development Indicators: provides data on population growth and education expenditure for 210 regions from 1960 to present

- 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

- 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.

- 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.

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

- 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.

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

Appendix E: Description of Tables and Models

Table 1:

Model 1: an estimation of the basic growth model treating every observation as an independent, random event.
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate

Model 2: an estimation of the basic growth model controlling for time effects but assuming no country specific effects
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate

Model 3: an estimation of the basic growth model controlling for time effects and country specific effects
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate

Table 2:

Model 4: an estimation of the growth model with the inclusion of conflict and post conflict variables
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable

Model 5: an estimation of the growth model with the inclusion of conflict and post conflict variables that looks at the isolated effects of military assistance
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, military assistance indicator variable, military assistance interacted with conflict indicator, military assistance in post conflict period

Model 6: an estimation of the growth model with the inclusion of conflict and post conflict variables that looks at the isolated effects of economic aid
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period

Model 7: an estimation of the growth model with all aggregate nation building variables
Dependent Variable: GDP per capita growth

Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Table 3:

Model 8: an estimation of the growth model with all reasons for military assistance both in isolation and with economic aid
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, 8 military assistance indicator variables, 8 military assistance variables interacted with conflict indicator, 8 military assistance variables in post conflict period, 8 military assistance variables interacted with economic aid, 8 nation building variables, 8 military backed post conflict economic aid variables

Table 4:

Model 9: an estimation of the growth model with all levels of military involvement both in isolation and with economic aid
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, 4 military assistance indicator variables, 4 military assistance variables interacted with conflict indicator,4 military assistance variables in post conflict period, 4 military assistance variables interacted with economic aid, 4 nation building variables, 4 military backed post conflict economic aid variables

Table 5:

Model 10: an estimation of the growth model with each type of economic aid both in isolation and during nation building
Dependent Variable: GDP per capita growth
Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, 8 economic aid indicator variables, 8

economic aid interacted with conflict indicators, 8 economic aid variables in post conflict period, military assistance indicator variable, military assistance variable interacted with conflict indicator, military assistance variable in post conflict period, 8 military assistance variables interacted with economic aid, 8 nation building variables, 8 military backed post conflict economic aid variables

Table 6:

Model 11: an estimation of the growth model with only unilateral nation building data
    Dependent Variable: GDP per capita growth
    Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 12: an estimation of the growth model with only multilateral nation building data
    Dependent Variable: GDP per capita growth
    Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 13: an estimation of the growth model with only united nations nation building data
    Dependent Variable: GDP per capita growth
    Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 14: an estimation of the growth model with only United States nation building data
    Dependent Variable: GDP per capita growth
    Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict

period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 15: an estimation of the growth model with only France nation building data

Dependent Variable: GDP per capita growth

Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 16: an estimation of the growth model with only United Kingdom nation building data

Dependent Variable: GDP per capita growth

Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance indicator variables, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Table 8:

Model 17: an estimation of the growth model for United States nation building that is not corrected for endogeneity problems

Dependent Variable: GDP per capita growth

Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance variable, military assistance variable interacted with conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 18: an estimation of the growth model for United States nation building that is corrected for endogeneity problems

Dependent Variable: GDP per capita growth

Independent variables: investment share of GDP, education spending share of GDP, population growth rate, conflict indicator variable, conflict magnitude variable, post conflict indicator variable, economic aid indicator variable, economic aid interacted with conflict indicator, economic aid in post conflict period, military assistance variable, military assistance variable interacted with

conflict indicator, military assistance variables in post conflict period, military assistance variable interacted with economic aid, nation building variable, military backed post conflict economic aid variable

Model 19: an estimation of the gravity model

Dependent Variable: Military assistance

Independent variables: level of US GDP, distance from recipient country to the United States

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