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## Preventing Regional Conflicts as a Global Public Good: The Case of the MENA Region

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## **Preventing Regional Conflicts as a Global Public Good: the Case of the MENA Region**

Globalization has created various challenges for world economies, making global cooperation a necessity. Global public goods have become a key issue for countries in the midst of the globalization trend. One possible example to global public goods is the prevention of regional conflicts and maintaining peace around the world. This has particular relevance to the Middle East and North Africa (MENA) region since it's considered one of the most conflict-ridden regions in the world. This paper examines the economic spillover effects of regional conflicts as a public bad to determine the significance of conflict prevention as a global public good. The study builds on an extended model of optimal public good provision and focuses on the MENA region, considering spatial dependence between countries. UCDP/PRIO Armed Conflict Dataset (Version 4-2006b) is used for conflicts in the period 1971-2004. These results show evidence of a significant negative link between armed conflicts and GDP per capita. MENA countries show a particularly greater negative impact from internationalized internal conflicts. Results from spatial analysis show evidence of cross-country spillovers or negative externalities from armed conflicts. This can be interpreted as further evidence of cross-country externalities and makes regional conflict prevention fit into the global public good framework.

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## 1. Introduction

Recent globalization trend has created various challenges for world economies, making global cooperation a necessity. Global public goods have become a key issue for countries in the midst of the globalization trend. A global public good is a good “with benefits, or costs in the case of public bads, that extend across countries and regions, across rich and poor population groups and even across generations” (Kaul *et al.*, 2003:2). One possible example to global public goods is the prevention of regional conflicts and maintaining peace around the world. This has particular relevance to the Middle East and North Africa (MENA) region since it’s considered one of the most conflict-ridden regions in the world.<sup>1</sup>

World history is full of conflicts between nations. There is much confusion, however, in the use of the term “conflict” and the contexts it has been used. For example, while privateering by corsairs in the Mediterranean was traditionally defined as “merely a means of making a living” (Braudel, 1995)<sup>2</sup>, it has recently been portrayed in popular media and elsewhere as an example of outright conflict between civilizations (or religions), even referred to as state sponsored terrorism to draw parallel with recent terrorist activities.<sup>3</sup> To be consistent with data, we use “armed conflict” as defined by the Uppsala Conflict Data Program (UCDP). UCDP defines conflict as: “a contested

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<sup>1</sup> See Milton-Edwards and Hinchcliffe (2004) for a chronology and detailed discussion of conflicts in the Middle East since 1945.

<sup>2</sup> Braudel refers to privateering as an ancient form of piracy native to the Mediterranean, with its own familiar customs, agreements and negotiations. He asserts that it had “little to do with either country or faith, but was merely a means of making a living.” This form of Mediterranean privateering ended in early 19<sup>th</sup> century.

<sup>3</sup> See Leiby (2001) and Woodward (2004). Unfortunately, Barbary corsairs were singled out in such comparison while largely ignoring similar privateering activities by Christian corsairs in the Mediterranean in the same historical period. Fisher (1957), Braudel (1995) and recently Naylor (2006) all point to this misconception.

incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths”<sup>4</sup> (UCDP and PRIO, 2006).

This paper examines the economic spillover effects of regional conflicts as a public bad to determine the significance of conflict prevention as a global public good. The study builds on an extended model of optimal public good provision from the public finance literature and focuses on the MENA region, considering the spatial dependence between countries. UCDP/PRIO Armed Conflict Dataset (Version 4-2006b) from the Centre for the Study of Civil War at the International Peace Research Institute, Oslo (PRIO) and Department of Peace and Conflict Research, Uppsala University is used broadly for conflicts in the period 1971-2004.

The paper is structured as follows. The next section provides a brief review of the relevant literature on public goods provision in a global framework including Agnar Sandmo’s extension of Paul Samuelson’s public goods provision model. Section 3 lays out our empirical approach and discusses the data used in our regression analysis. Section 4 presents the regression results. The last section provides our concluding remarks.

## **2. Internationalizing Public Goods**

We start with a standard public goods provision model originally explained by Samuelson (1954, 1955). In this model, social planner’s problem is to maximize a social welfare function,  $\Psi(U^1, U^2, \dots, U^n)$  which is a function of individual utilities

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<sup>4</sup> UCDP/PRIO Armed Conflict Dataset Codebook (Version 4-2006b) explains the separate elements of this definition.

$U^i = U^i(x^i, y)$ , subject to the economy's resource constraint  $F\left(\sum_{i=1}^n x^i, y\right) = 0$ , where

there are  $n$  consumers and  $i=1, \dots, n$ ,  $x^i$  is the private good consumption of the  $i$ 'th individual and  $y$  is the public good. Hence it is assumed that there is one private good ( $x$ ) and one pure public good ( $y$ ) in the model. This maximization problem gives the following first order conditions:

$$\frac{\partial \Psi}{\partial U^i} \frac{\partial U^i}{\partial x^i} - \lambda F_x = 0 \quad i=1, \dots, n \quad (1)$$

$$\sum_{i=1}^n \frac{\partial \Psi}{\partial U^i} \frac{\partial U^i}{\partial y} - \lambda F_y = 0 \quad (2)$$

$$F\left(\sum_{i=1}^n x^i, y\right) = 0 \quad (3)$$

where,  $\frac{\partial \Psi}{\partial U^i} = \Psi_i$  = marginal social welfare,  $\frac{\partial U^i}{\partial y} = U_y$  = marginal utility of  $y$ , and

$\frac{\partial U^i}{\partial x^i} = U_x^i$  = marginal utility of  $x$ . There are  $n$  equations in (1) so (1)-(3) together make

$n+2$  equations. There are  $n+2$  unknowns,  $x^i$  ( $i=1, \dots, n$ ),  $y$ , and  $\lambda$ . These can be rearranged to get

$$\frac{\Psi_1 U_y^1}{\Psi_1 U_x^1} + \frac{\Psi_2 U_y^2}{\Psi_2 U_x^2} + \dots + \frac{\Psi_n U_y^n}{\Psi_n U_x^n} = \frac{F_y}{F_x}$$

or,

$$\frac{U_y^1}{U_x^1} + \frac{U_y^2}{U_x^2} + \dots + \frac{U_y^n}{U_x^n} = \frac{F_y}{F_x} \Rightarrow \sum_{i=1}^n \frac{U_y^i}{U_x^i} = \frac{F_y}{F_x} \quad (4)$$

This gives  $\sum_{i=1}^n MRS_{YX}^i = MRT_{YX}$  which is the Samuelson condition for the *Pareto Efficient* provision of the public good  $y$ .

Sandmo (2003) extends the above standard Samuelson model to a world with two countries, one rich and one poor. In Sandmo's model rich country (R) has  $n$  consumers and poor country (P) has  $m$  consumers. There is still one private good but the public good becomes a global public good and the global public good is the sum of individual countries' contributions where  $y = y^R + y^P$ . Social planner's problem changes to the maximization of the social welfare function,  $\Psi^G(U^{1R}, \dots, U^{nR}; U^{1P}, \dots, U^{mP})$  which is a function of individual utilities  $U^{iR} = U^{iR}(x^{iR}, y)$  and  $U^{jP} = U^{jP}(x^{jP}, y)$ , subject to respective economies' resource constraints  $F^R(x^R, y^R) = 0$ , and  $F^P(x^P, y^P) = 0$  where  $i=1, \dots, n$ , and  $j=1, \dots, m$ . Hence  $x^{iR}$  is the private good consumption of the  $i$ 'th individual in country R and  $x^{jP}$  is the private good consumption of the  $j$ 'th individual in country P. Here  $x^R$  and  $x^P$  are the aggregate values of the private goods such that  $\sum_i x^{iR} = x^R$  and  $\sum_j x^{jP} = x^P$ .  $y^R$  and  $y^P$  are the public good contributions of rich and poor countries, respectively. Sandmo uses quasilinear forms for the economy resource constraints  $x^R + C^R(y^R) - R^R = 0$ , and  $x^P + C^P(y^P) - R^P = 0$ , where  $C^R$  and  $C^P$  are assumed to be continuous functions with positive first and second derivatives. Global welfare maximization requires maximization of the global social welfare function,  $\Psi^G$ , subject to the economy resource constraints and the following additional constraint that ties world consumption to world production:  $\sum_i x^{iR} + \sum_j x^{jP} = x^R + x^P$ , which requires world

consumption to equal world production. This maximization problem gives rise to the following first order conditions:<sup>5</sup>

$$C_y^R = C_y^P \equiv C_y \quad (5)$$

$$\sum_i (U_y^{iR} / U_x^{iR}) + \sum_j (U_y^{jP} / U_x^{jP}) = C_y \quad (6)$$

$$\Psi_{iR}^G U_x^{iR} = \Psi_{jP}^G U_x^{jP} \quad i=1, \dots, n; j=1, \dots, m. \quad (7)$$

These optimum conditions have clear interpretations. Equation (5) is an efficiency condition for global production of the public good. It's also highlighting the workings of comparative advantage in the production of the public good. The country that can produce the public good cheaper should provide more of it. Equation (6) is the extension of the Samuelson condition in equation (4) to two-country model. As in equation (4) it requires sum of marginal rate of substitutions to equal marginal rate of transformation. The difference is the left-hand side of the equation is the sum of the sums of marginal rate of substitutions for each country and the right-hand side is the global marginal rate of transformation since  $y$  is the public good not only in the national sense but also in the global sense. Finally, equation (7) is an equity condition for the distribution of resources between individuals in each country and also between countries. Hence this condition implies international transfers between countries. For example, if the global production efficiency condition (equation 5) requires poor country to provide more for the provision of a public good such as armed conflict prevention (in terms of national guards and other public safety expenditures), equation 7 indicates that the loss of resources in poor country for private consumption can then be compensated for by international transfers of income or consumption from rich country to poor country.

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<sup>5</sup> A detailed solution of the model is available from authors upon request.

The framework laid out above shows that the standard public good provision model by Samuelson can easily be extended to global public goods where two countries or regions interact in the provision of the public good. As another byproduct, the extended model also indicates a role for international transfers in terms of foreign aid or development assistance to countries or regions that provide much of the public good for the benefit of all countries in the world. This would even indirectly call for the establishment of an international governing body that oversees the public good provision and manages the transfer of such funds between countries. Regional conflict prevention could be an interesting application of this as long as the global public good nature is established at least empirically. Institutional implications of international resource transfers could also be quite relevant in the case of conflict prevention since we already have an institutional framework in reality through such international organizations as United Nations and NATO. Next, in our analysis, we will explore whether regional conflict prevention fits global public good framework explained in this section. For this, it is vital to find evidence of the existence of cross-country negative externalities from armed conflicts so that prevention of such conflicts would be considered a public good.

### **3. Data and Empirical Approach**

#### **Data**

The years, intensity and types of conflicts for the period 1970-2004 are compiled from Armed Conflicts Version 4-2006b dataset, prepared by Uppsala University, Center for the Study of Civil War in Norway. Armed Conflicts Version 4-2006b dataset groups conflicts into three categories: Minor armed conflicts that result with at least 25 battle-related deaths in a year and fewer than 1,000 battle-related deaths during the course of the



conflict. Intermediate armed conflicts are those that result with at least 25, but fewer than 1,000 battle-related deaths in a year and an accumulated total of more than 1,000 deaths. Conflicts with at least 1,000 battle-related deaths in a year are called war. The dataset divides conflicts into four types: Internal conflicts are those between a government and a non-governmental party, with no interference from other countries. Interstate conflicts are between two or more governments. Internationalized internal conflicts are within a country between a government and a non-governmental party; where the government, the opposition or both sides receive troop support from other governments. Extrastate conflicts are the ones that are between a colonialist government and a non-governmental party. GDP figures used in this study are taken from United Nations Statistics. Per capita GDP at current prices in US dollars are converted into per capita GDP at 2000 prices in US dollars by using real effective exchange rate index taken from World Development Indicators 2005.

Table 1 gives the summary statistics of data for the MENA countries, including averages for MENA and Non-MENA country groups. On average, MENA countries have more armed conflict years than other countries. They also have more intermediate conflict, war, interstate and internationalized internal conflict years than other countries. On the other hand, they have lower minor conflict and internal conflict years than other countries. MENA countries have particularly high number of war years with Sudan leading with 21 war years out of 34 years in the period of study. Sudan also has the highest number of internal conflict years (25) followed by Turkey (22) and Pakistan (20). Lebanon has significantly higher number of internationalized internal conflict years (16)

compared to other MENA countries. In terms of total armed conflict years, Iraq leads with 26 conflict years, followed closely by Sudan (25) and Turkey (22).

### **Empirical Methodology**

We use regression analysis to estimate the impact of armed conflicts on GDP per capita of countries. The data are a panel of 3026 observations that include 89 countries for years 1971 through 2004. Summary statistics of regression variables for the entire sample of countries is given in Table 2. Two conventional approaches for estimating panel data are the fixed-effects and random-effects procedures. However, if the individual country fixed-effects are correlated with other exogenous variables, the random-effects estimation procedure yields inconsistent estimates. A fixed effects model has the advantage of removing the bias from the estimation caused by a possible correlation between explanatory variables and time-invariant country specific effects. Hausman specification test shows that the fixed country-effects are correlated with the other exogenous variables in some of the regressions, which suggests that the fixed-effects estimation procedure could be more appropriate for this analysis.

Our discussion in section 2 about regional or global externalities from armed conflicts points to spatial correlations between GDP of different countries, particularly contiguous ones. First introduced by Cliff and Ord (1981) and Anselin (1988), models of spatial dependence account for any direct influence of spatial neighbors, spillover effects, and externalities generated between cross-sectional observations (in this research the unit of observation is countries). Failing to address spatial dependence may lead to biased, inefficient, and/or inconsistent coefficient estimates. In order to test for spatial autocorrelation in the data, we conducted diagnostic tests for a cross-section of averages

from the period 1971-2004. For this, we created a spatial weights matrix that shows the presence of potential spatial interaction between neighboring countries. We ran diagnostic tests for both the spatial error and spatial lag models (Anselin *et al.*, 1996). In a spatial error model there is an autoregressive process in the error term, whereas a spatial lag model assumes a spatially lagged dependent variable. Lagrange multiplier test statistics are used to test the null hypothesis that autoregressive parameters are equal to zero.<sup>6</sup> The null hypothesis is rejected, indicating the presence of spatial autocorrelation.

Spatial dependence is caused by the existence of spillover effects between units of observation (countries) and the presence of a direct influence from activity in one country on neighboring countries. In this case, it may be that economic activity measured by GDP in one country affect GDP per capita in neighboring countries. We therefore run separate regressions using the spatial lag model.

In all the regressions, we use GDP per capita as the dependent variable. Explanatory variables are the armed conflict variables described above in the Data section and we also use country dummies to run fixed effects regressions. Specific regressions and results are explained in the next section.

#### **4. Empirical Results**

Empirical results are provided in Tables 3 through 5. We start in Table 3 with regressions for all 89 countries without particular reference to MENA countries. As expected, column (1) shows that having an armed conflict has a negative and highly significant effect on the per capita GDP of the country that experiences armed conflict.

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<sup>6</sup> Spatial data analysis commands developed by Pisati (2001) for STATA are used to conduct the spatial autocorrelation diagnostic tests. Diagnostic test output presents Moran's I, Lagrange multiplier and Robust Lagrange Multiplier test statistics for the spatial error model and Lagrange multiplier and Robust Lagrange Multiplier test statistics for the spatial lag model. See Anselin *et al.* (1996) for a detailed explanation of these tests.

Column (2) regression distinguishes between three degrees of armed conflict: minor, intermediate and (war). All three degrees are found to be negative and statistically significant with particularly strong effects from minor armed conflict and war.

Alternatively, column (3) distinguishes between different types of armed conflict. The first three types, internal, interstate and internationalized internal conflicts are all found to have negative effects with statistical significance established only for internal and interstate conflicts. Interestingly, extrastate conflict is found to have a statistically significant positive effect which seems to be counterintuitive.

In Table 4, we extend to include interactions of the variables in Table 3 with a dummy for the MENA countries. The dummy itself is removed from the regressions due to country dummies used in fixed-effects regressions. The first column shows that Armed Conflict has a negative and significant effect on GDP per capita as in Table 3. Interaction between MENA dummy and Armed Conflict is also negative indicating a relatively stronger negative effect of armed conflicts in MENA countries. This effect, however, is not found to be statistically significant. Column (2) separates armed conflicts into minor and intermediate armed conflicts and war. All three conflict degrees are found to be negative and significant while none of the interactions with the MENA dummy is significant. Interaction between Internal Conflict and MENA dummy is positive but not significant. These results show that the effects of different degrees of armed conflicts on GDP are not significantly different in MENA countries. Column (3) of Table 4 separates armed conflicts into internal, interstate, internationalized and extrastate conflicts. Overall, different types of conflicts have negative effect on GDP per capita in MENA countries with the exception of extrastate conflict. In fact, data shows that there is no

reported extrastate conflict in MENA countries in the 1971-2004 period. The effect of internationalized internal conflicts is particularly strong and significant in MENA countries compared to other countries in the sample. On the other hand, the negative effect of internal conflicts is relatively smaller in MENA countries compared to others.

In Table 5, we repeat the regressions in Table 4 correcting for spatial autocorrelation in the dependent variable. Due to missing observations, we are moving away from the panel data form and run cross sectional regressions on the averages of variables for the entire 1971-2004 period. We start by examining the autocorrelation parameter,  $\rho$ , of the lagged dependent variable.  $\rho$  is found to be around 0.4 in all three regressions. It is also found to be significant according to Wald, Likelihood Ratio and Lagrange Multiplier tests reported at the bottom of Table 5. Additional diagnostic tests using Moran's I and Lagrange Multiplier test statistics also revealed presence of spatial dependence. This is important for our analysis since such spatial dependence points to cross-country externalities. Results in column (1) show that armed conflicts have a particularly strong and negative effect on GDP per capita in MENA countries. This is controlling for the fact that MENA countries on average have higher GDP per capita than other conflict-ridden countries in the sample. Of course, this is partly driven by oil-rich Gulf Cooperation Council (GCC) countries in the MENA group. Column (2) shows that armed conflicts by different degrees have a negative effect on GDP in MENA countries. These negative effects are statistically significant for minor and intermediate armed conflicts but not for wars. Finally, column (3) shows that only internal and internationalized internal conflicts are negative and statistically significant for MENA

countries, with particularly strong and significant effect from internationalized internal conflicts.

These results show evidence of a significant negative link between armed conflicts and GDP per capita. Overall, minor conflicts and war have particularly strong negative effects. MENA countries show a particularly greater negative impact from certain conflicts, especially internationalized internal conflicts. This matches our expectation that conflicts with international involvement would create greater externalities. Results from spatial analysis show evidence of cross-country spillovers or negative externalities from armed conflicts. This can be interpreted as further evidence of cross-country externalities and makes regional conflict prevention fit into the global public good framework.

## **5. Conclusion**

In this paper we examined the economic spillover effects of regional conflicts as a public bad to determine the significance of conflict prevention as a global public good. We used UCDP/PRIO Armed Conflict Dataset (Version 4-2006b) from the Centre for the Study of Civil War at the International Peace Research Institute, Oslo (PRIO) and Department of Peace and Conflict Research, Uppsala University for conflicts in the period 1971-2004. Our regional focus was the MENA region with higher than average number of armed conflicts and particularly more intermediate conflict, war, interstate and internationalized internal conflict years than other countries. Our results generally give support to the treatment of conflict prevention efforts as a global public good. This would allow researchers to consider conflict prevention in the global public good provision framework that is also sketched in this paper. It also makes it possible to study

institutional framework regarding international transfers between countries to help with the provision of regional conflict prevention efforts. We leave examination of current prevention efforts and possible reforms for future research.

## References

- Anselin, Luc. *Spatial Econometrics: Methods and Models*. Dordrecht: Kluwer Academic Publishers, 1988.
- Anselin, L., Anil K. Bera, Raymond Florax and Mann J. Yoon. 1996. "Simple Diagnostic Tests for Spatial Dependence." *Regional Science and Urban Economics* 26 (1) (February): 77-104.
- Braudel, Fernand. 1995. *The Mediterranean and the Mediterranean World in the Age of Philip II*, Volume II, Berkeley, CA: University of California Press.
- Cliff, A., and J. Ord. 1981. *Spatial Processes, Models, and Applications*. London: Pion.
- Fisher, Godfrey. 1957. *Barbary Legend: War, Trade and Piracy in North Africa, 1415-1830*, Oxford.
- Kaul, Inge, Pedro Conceição, Katell Le Goulven, and Ronald U. Mendoza, eds. 2003. *Providing Global Public Goods: Managing Globalization*. New York: Oxford University Press.
- Leiby, Richard. 2001. "Terrorists by Another Name: the Barbary Pirates," *Washington Post*, October 15, 2001.
- Milton-Edwards, B. and P. Hinchcliffe. 2004. *Conflicts in the Middle East Since 1945*, New York, NY: Routledge.
- Naylor, R.T. 2006. "Ghosts of Terror Wars Past? Crime, Terror and America's First Clash with the Saracen Hordes," *Crime, Law and Social Change*, 45: 93-109.
- Pisati, Maurizio. 2001. sg162: "Tools for Spatial Data Analysis." *Stata Technical Bulletin* 60: 21-37.
- Samuelson, Paul A. 1954. "The pure theory of public expenditure." *Review of Economics and Statistics* 36: 387-389.
- Samuelson, Paul A. 1955. "Diagrammatic exposition of a theory of public expenditure." *Review of Economics and Statistics* 37: 350-356.
- Sandmo, Agnar. 2003. "International aspects of public goods provision." I. Kaul, P. Conceicao, K. Le Goulven and R. U. Mendoza (eds.), *Providing Global Public Goods*, Oxford: Oxford University Press, 112-130.



Uppsala Conflict Data Program (UCDP) and International Peace Research Institute (PRIO). 2006. *UCDP/PRIO Armed Conflict Dataset Codebook (Version 4-2006b)*, <http://www.prio.no/cscw/armedconflict>

Woodward, G.Thomas. 2004. "The Costs of State-Sponsored Terrorism: The Example of the Barbary Pirates," *National Tax Journal* (National Tax Association Symposium: Tax Policy in Transition), 57 (3): 599-611.

**Table 1**  
**MENA Country Summary Statistics**

Country	Period	Average GDP per Capita (\$)	Number of Conflict Years	Number of Minor Conflict Years	Number of Intermediate Conflict Years	Number of War Years	Number of Internal Conflict Years	Number of Interstate Conflict Years	Number of Internationalized Internal Conflict Years
Algeria	1971-2004	2,583	14	2	3	9	14	0	0
Djibouti	1971-2004	1,197	5	5	0	0	5	0	0
Egypt	1971-2004	1,015	7	6	0	1	6	0	0
Iran	1971-2004	2,756	20	1	6	13	10	10	0
Iraq	1971-2004	1,295	26	0	12	14	14	11	1
Kuwait	1971-2004	19,898	2	1	0	1	0	1	1
Lebanon	1971-2004	2,917	16	1	9	6	0	0	16
Libyan Arab Republic	1971-2004	9,739	1	0	0	1	0	1	0
Morocco	1971-2004	1,241	16	1	9	6	16	0	0
Oman	1971-2004	7,081	4	4	0	0	0	0	4
Pakistan	1971-2004	583	20	1	17	2	20	0	0
Saudi Arabia	1971-2004	11,739	1	1	0	0	1	0	0
Sudan	1971-2004	585	25	0	4	21	25	0	0
Syria	1971-2004	1,551	5	3	0	2	5	0	0
Tunisia	1971-2004	1,955	1	1	0	0	1	0	0
Turkey	1971-2004	2,690	22	3	12	7	22	0	0
MENA Average	1971-2004	4,302	11.6	1.9	4.5	5.2	8.7	1.4	1.4
Non-MENA Average	1971-2004	2,303	10.1	3.1	3.5	3.6	9.1	0.9	0.1

Source:

**Table 2**  
**Summary Statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Std.Dev.</b>	<b>Min</b>	<b>Max</b>
GDP per Capita in constant dollars	2872	2,804.6200	4,927.3740	68.4	39600
MENA Dummy	3026	0.1798	0.3841	0	1
Armed Conflict	3026	0.3057	0.4608	0	1
MENA*Armed Conflict	3026	0.0611	0.2396	0	1
Minor Armed Conflict	3026	0.0836	0.2768	0	1
Intermediate Armed Conflict	3026	0.1084	0.3109	0	1
War	3026	0.1137	0.3175	0	1
MENA*Minor Armed Conflict	3026	0.0099	0.0991	0	1
MENA*Intermediate Armed Conflict	3026	0.0238	0.1524	0	1
MENA*War	3026	0.0274	0.1634	0	1
Internal Conflict	3026	0.2647	0.4412	0	1
Interstate Conflict	3026	0.0284	0.1662	0	1
Internationalized Internal Conflict	3026	0.0106	0.1023	0	1
Extrastate Conflict	3026	0.0013	0.0363	0	1
MENA*Internal Conflict	3026	0.0459	0.2094	0	1
MENA*Interstate Conflict	3026	0.0076	0.0869	0	1
MENA*Internationalized Internal Conflict	3026	0.0073	0.0850	0	1

**Table 3**  
**Dependent Variable: GDP per Capita in Constant U.S. Dollars**  
**(Standard Errors in Parentheses<sup>^</sup>)**

<b>Variable</b>	<b>(1)</b>		<b>(2)</b>		<b>(3)</b>	
Armed Conflict	-463.0230 *** (99.8602)					
Minor Armed Conflict			-540.4083 *** (138.4899)			
Intermediate Armed Conflict			-379.6684 *** (129.3725)			
War			-429.5482 *** (116.6378)			
Internal Conflict					-426.9900 *** (86.1565)	
Interstate Conflict					-486.790 ** 216.160	
Internationalized Internal Conflict					-917.2933 (927.9874)	
Extrastate Conflict					371.3418 *** (110.5577)	
Constant	349.4282 *** (72.0919)		353.6087 *** (74.9525)		349.3695 *** (81.8189)	
Obs.	2872		2872		2872	
R-Squared	0.860		0.860		0.860	

Note: Due to space constraints we omit results for country dummies

<sup>^</sup>Robust standard errors.

\*, \*\*, \*\*\* indicate significance at the 10%, 5%, and 1% significance levels, respectively

**Table 4**  
**Dependent Variable: GDP per Capita in Constant U.S. Dollars**  
**(Standard Errors in Parentheses<sup>^</sup>)**

<b>Variable</b>	<b>(1)</b>		<b>(2)</b>		<b>(3)</b>
Armed Conflict	-435.8140 *** (99.7258)				
MENA*Armed Conflict	-114.9542 (290.4149)				
Minor Armed Conflict			-546.8077 *** (119.3525)		
Intermediate Armed Conflict			-299.2692 * (162.9381)		
War			-375.7403 *** (110.9988)		
MENA*Minor Armed Conflict			163.7495 (696.6173)		
MENA*Intermediate Armed Conflict			-330.7353 (222.8519)		
MENA*War			-217.366 (329.0895)		
Internal Conflict					-499.0458 *** (90.5904)
Interstate Conflict					-573.408 *** (184.7330)
Internationalized Internal Conflict					2631.8610 * (1386.4330)
Extrastate Conflict					299.2861 *** (114.0696)
MENA*Internal Conflict					445.9184 * (247.4072)
MENA*Interstate Conflict					422.224 (694.0629)
MENA*Internationalized Internal Conflict					-5803.085 *** (1630.3070)
Constant	338.9632 *** (68.9123)		342.1760 *** (70.9789)		380.4437 *** (85.8893)
Obs.	2872		2872		2872
R-Squared	0.860		0.860		0.862

Note: Due to space constraints we omit results for country dummies

<sup>^</sup>Robust standard errors.

\*, \*\*, \*\*\* indicate significance at the 10%, 5%, and 1% significance levels, respectively

**Table 5**  
**Dependent Variable: GDP per Capita in Constant U.S. Dollars**  
**(Standard Errors in Parentheses<sup>^</sup>)**

<b>Variable</b>	<b>(1)</b>		<b>(2)</b>		<b>(3)</b>	
MENA Dummy	4078.996 (1710.0900)	**	7102.646 (2114.7280)	***	4324.495 (1646.9340)	***
Armed Conflict	341.8727 (1424.3590)					
MENA*Armed Conflict	-9368.919 (3895.7900)	**				
Minor Armed Conflict			-3702.2300 (5063.3830)			
Intermediate Armed Conflict			5766.6780 (2404.1820)	**		
War			-3939.9430 (2434.0790)			
MENA*Minor Armed Conflict			-51870.25 (20030.7300)	***		
MENA*Intermediate Armed Conflict			-17693.71 (6569.4070)	***		
MENA*War			-7501.433 (6264.9950)			
Internal Conflict					388.9214 (1454.9480)	
Interstate Conflict					-565.827 (5473.7040)	
Internationalized Internal Conflict					56618.8500 (20359.3300)	***
Extrastate Conflict					-7510.1850 (31964.0600)	
MENA*Internal Conflict					-10309.08 (4194.8840)	**
MENA*Interstate Conflict					-2379.772 (10548.7300)	
MENA*Internationalized Internal Conflict					-68588.12 (22029.7000)	***
Constant	1395.8540 (658.7808)	**	1614.8810 (676.2391)	**	1165.7100 (641.6379)	*
Rho	0.4003 (0.0984)	***	0.4164 (0.1888)	***	0.4125 (0.0973)	***
Wald test, rho=0:	$\chi^2 =$	16.5580		19.4470		17.9930
Likelihood ratio test, rho=0:	$\chi^2 =$	13.5230		15.5750		14.4950
Lagrange multiplier test, rho=0:	$\chi^2 =$	10.6320		11.9650		11.1640
Obs.		89		89		89
Variance Ratio		0.168		0.272		0.234

<sup>^</sup> \*, \*\*, \*\*\* indicate significance at the 10%, 5%, and 1% significance levels, respectively