ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية
Working Paper Series

THE IMPACT OF MILITARIZATION ON GENDER INEQUALITY AND FEMALE LABOR FORCE PARTICIPATION

Adem Y. Elveren and Valentine M. Moghadam

Working Paper No. 1307

THE IMPACT OF MILITARIZATION ON GENDER INEQUALITY AND FEMALE LABOR FORCE PARTICIPATION

Adem Y. Elveren and Valentine M. Moghadam[1]

Working Paper No. 1307

June 2019

Send correspondence to:
Adem Y. Elveren
Fitchburg State University
aelveren@fitchburgstate.edu

[1] Northeastern University, MA, v.moghadam@northeastern.edu

First published in 2019 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

Feminist research has revealed significant relationships between militarization, patriarchy, and gender inequality. This paper takes that research forward through an empirical analysis of the impact of militarization on gender inequality and on women's participation in the labor market. Using the Gender Inequality Index and the Global Militarization Index for the period of 1990-2017 for 133 countries, the paper shows that higher militarization is significantly correlated with higher gender inequality and lower level of female labor force participation rate, controlling for major variables such as conflict, democracy level, regime type, fertility rate, and urbanization rate. The results are significant in the case of Islam and MENA countries, and with respect to countries with different income levels.

Keywords: Militarization, military expenditure, gender inequality, Islam, democracy

JEL Classifications: B54, H56, J16

1. Introduction

Since at least the pioneering work of Cynthia Enloe (1983), feminist scholars have examined the close link between militarism and patriarchy. They argue that militarism emerged out of patriarchy and in turn reinforces and perpetuates patriarchal institutions and attitudes in society and globally. As Enloe argued, militarization affects women's lives both in the private sphere of the household and the public sphere of states, markets and institutions. With respect to the public sphere, research shows that higher military spending crowds out expenditures on civilian needs such as education and health. This disproportionately harms women, because, together with children, they are more dependent on social spending. This concern echoes the longstanding "guns vs butter" debate, but puts the spotlight on its effect on the welfare of women and children specifically. An extensive research shows a positive relationship between military spending and income inequality,[2] which similarly would adversely affect women and their dependents, given gender gaps in wages, income, and assets. The Middle East and North Africa region (MENA) has high levels of military spending, along with low rates of female labor force participation and other measures of gender inequality. Research also links militarization with what Connell (1987) theorized as forms of "hegemonic masculinity" and "emphasized femininity", which may perpetuate violence against women. Feminist scholars of international relations have extensively examined the gendered nature of world politics, including war and global security (Enloe 2007; Pettman 1996; Runyan and Peterson 2014). Gender inequality and militarization are intertwined, but how precisely does militarization affect gender inequality?

To the best of our knowledge, the relationship between militarization and gender inequality has not been empirically tested. The aim of this study, therefore, is to provide some empirical evidence on the issue. To this end, we employ different panel data methods to analyze 133 countries over the period ranging from 1990-2017 by using the Gender Inequality Index (and female labor force participation rate) and the Global Militarization Index. The findings reveal a very significant correlation between different indicators of militarization and gender inequality.

In what follows, we begin with an overview of the literatures on militarization, gender inequality, and social spending. Section 3 introduces the data and empirical method. Section 4 presents the estimation results. We end by discussing our findings and suggesting avenues for further research.

[2] The following studies found that higher military spending leads to higher income inequality: Ali (2007) for 160 countries for the 1987-1997 period; Vadlamannati (2008) for South Asian countries for the period of 1975-2005; Ali (2012) for MENA countries over the period 1987–2005; Kentor et al. (2012) for 82 countries for the period of 1970-2000; Töngür and Elveren (2015) for 37 countries for the period of 1988–2003 with respect to the welfare regimes; Töngür et al. (2015) for 130 countries during 1963–2000 in the context of the political regimes; Töngür and Elveren (2017) for 82 countries for the period of 1988–2008 in the context of an augmented Solow growth model; and Taşıran and Elveren (2017) for 21 countries for the period of 1988-2008 with a Partial Least Squares Path Modelling method.

2. Literature and Theory

Scholars of defense and peace economics explain the long-term dynamics of military spending in terms of the Military Industrial Complex (MIC) (Elveren 2019). The MIC, which became popular with President Dwight Eisenhower's famous Farewell Address in 1961, is a symbiotic coalition between the military services and their industrial suppliers that promotes bureaucratic over national needs by increasing defense expenditure (Galbraith, 1967; 1969).[3] In other words, the MIC is an autonomous entity within the state, which presses for increasing military spending against perceived or real external threats. As an institution, the MIC is also part of a broader mindset, militarism.

Militarism and militarization are sometimes used interchangeably. Militarism is the set of material and ideological manifestations that promote militaristic values - such as a belief in hierarchy, obedience, and the use of force - in the political, social and economic domains (Burke 1998; Enloe 2007). Militarism is the mindset of the justification of wars, direct military interventions, destabilization of other countries through proxy armies, foreign-sponsored coups, and foreign and colonial occupation (Burke 1998:1). A 'natural' result of this mindset is militarization, the domination of military rule in the society through a sizeable armed force with a disproportionate budget. In this sense, militarization is the quintessence of militarism.

Feminist scholars consider militarism to be closely linked to gender relations, and they emphasize the interconnection between militarism and patriarchy. Militarism through military institutions reinforces the notion that social stability is best achieved through hierarchical gender relations (Khalid 2014:4). Militarism stems from patriarchy, and patriarchy reinforces and legitimizes the effect of militarization (Enloe 1983). In this sense, the military is the embodiment of a patriarchal institution that affects women in a same negative way as other patriarchal institutions, reinforcing and perpetuating the stereotypical role of women as subordinate, subservient, and in need of protection (Enloe, 1983; Reardon 1985). Women are at the bottom of this patriarchal system, and men are assigned to the role of 'protector.' Thus, feminine traits are defined by the patriarchy (and the military) in opposition to masculine ones in which the strength and potency of the masculine soldier is revitalized because soldiers (and by extension, all "real" men) are strong, brave and aggressive (Burke 1998). For this reason, Cynthia Enloe underscores that the oppression of women is a fundamental part of militarism, not just a consequence of it (Enloe 1983; Burke 1998).

Militarism justifies itself in terms of the 'national interest', but Cockburn (2011: 41) argues that gender relations "pushes the wheel around" in cyclical processes of the war system, "proceeding from the discourse of militarist ideology, through material investment in militarization, aggressive policy-making, outbreaks of war, short firefights, prolonged stalemates, ceasefires, demobilization, periods of provisional peace, anxieties about security, rearmament etc." Militaristic ideology promotes women as symbols of motherhood during times of war and in its

[3] For a review of Military Keynesianism and the Military Industrial Complex see Elveren (2019).

aftermath, where the duty is to sacrifice their sons and provide future soldiers for the good of the nation (Burke 1998: 7). The wife of a soldier is expected to fulfill several tasks such as raising the children on her own, maintaining the home when the soldier is sent on a tour of duty, being able and willing to relocate, rendering quality service as motivation for the soldier to fight well and return home safely, and being supportive of male troops and other military wives (Via 2010: 45).

A recent study on Britain's military spending and arms transfers (WILPF-UK et al. 2019), submitted as a shadow report to the CEDAW committee, states that increased investment in defence "perpetrates a militarised system and armed conflict, which has specific impact on women and girls living in both conflict and non-conflict areas" (p. 4). Among other effects, as Sjoberg and Via (2010:10) note, women "are the key targets of those who specialize in using rape and forced pregnancy as weapons of war as well as being the major civilian casualties of war, before, during, and after the conflict." The report on Britain also notes that increased spending and arms transfer have "dislocated funds from development aid, used to promote and protect human rights, to foment war" (p. 5). In turn, war generates refugees. As women comprise the majority in refugee camps, they are, compared to men, more likely to experience varied direct and indirect effects of militarized conflicts (Plutmper and Neumayer 2006). The destruction of infrastructure, for example, reduces access to food, hygiene, health services, and clean water during and after conflict; women and girls are less likely to access these basic needs. Culture and gender norms may dictate that males receive preference in access to food supplies; nutritional deficiency also may affect women's reproductive health (Plutmper and Neumayer 2006). In sum, war and militarism have a disproportionate impact on women due to persistent gender inequality in access to economic and political resources (Reardon 1985; Meintjes et al. 2001; Moser and Clarke 2001; Enloe 2000; Cockburn 2001; Goldstein 2001; Plumper and Neumayer 2006; Sjoberg and Via 2010; Peksen 2011).

In peace times, militarization affects women's wellbeing in the private and public spheres (Enloe 1983). In the private sphere, militarism reinforces and perpetuates women's subordinated roles (Enloe 1983). In the public sphere, militarization results in disproportionate defense budget at the expense of basic civilian expenditures such as education and health. An extensive empirical literature suggests that there exists a trade-off between "guns and butter", as defense spending crowds out other major government expenditures.[4] Such a budgetary allocation, or cuts in social programs due to economic crises, is likely to aggravate existing gender inequality because women are disproportionally dependent on welfare programs (Benería and Blank 1989; Benería and Feldman 1992; Sparr 1994; Elson and Çağatay 2000; Abramovitz 2006; Berik et al. 2011). Militarization is not necessarily associated with neoliberalism, but the combination further reduces

[4] On Turkey, see Ozsoy (2002), Yildirim and Sezgin (2002), Eryigit et al (2012), and Aksogan and Elveren (2012); on Egypt, Ali (2011); on Taiwan, Huang and Ho (2018). See also Töngür and Elveren (2015) for 37 major countries; Lin et al (2015) for 29 OECD countries; Fan et al (2018) for 197 countries – who show that defense expenditures crowd out health (and for some cases education) expenditures. For the opposite view, suggesting the absence of a tradeoff, see Williams (2018) and Coutts et al. (2019).

the public sector's ability to meet increasing need for social security (Harvey 2005; Peterson and Runyan 1999; WILPF-UK et al. 2019).

In addition to these direct economic consequences, militarization increases gender inequality through other mechanisms. Azhar (2009) showed that the absence of girls compared to boys in terms of educational attainment increased during the military government in Pakistan. The military government not only pursued a patriarchal discourse but also passed two laws that codified women's second-class citizenship (Azhar 2009). In the case of Israel, Golan (1997) argues that in a country in a state of war, gender equality is not a priority; boys are valued more than girls by custom, but also perhaps by 'necessity'. In addition, ex-military men enjoy some privileges, which are not available for women, in the labor market upon their return to civilian life (Benería and Blank 1989; Golan 1997).

Plutmper and Neumayer (2006) argue that women are more negatively affected by armed conflict than men. In particular, they find that armed conflict decreases the ratio of female to male life expectancy at birth. The proliferation of arms is correlated with an increase in gender inequality and the culture of violence that affects women more. The proliferation of arms reduces women's bargaining power within the household, their mobility, and their political participation (CEDAW 2017). Regarding the culture of violence, the evidence shows that a higher level of private gun ownership is associated with intense and fierce violence against women (CEDAW 2017:7).

Would the presence of more women in political power help increase gender equality by enabling more social spending and less militarization? There has been extensive debate on whether women's representation really affects policy outcomes as their gender identity influencing their policy preferences. More specifically, the question is if higher representation of women in the legislature or executive branches of government leads to less defense spending and/or higher social spending. Some studies suggest that women are more likely than men to initiate and pass laws in favor of women and children (Berkman and O'Connor 1993; Bratton and Haynie 1999; Taylor-Robinson and Heath 2003; Childs and Withey 2004; Schwindt-Bayer 2010; Htun et al. 2013, cited in Hughes and Paxton 2019; O'Brien and Piscopo 2019; Clayton et al. 2019). There is some empirical evidence in this regard. In his study of OECD countries, Park (2017) finds increased social spending on three specific "women's interests" policy areas: healthcare, daycare, and education. Clayton and Zetterberg (2018) examine 139 states during 1995-2012 and find a positive correlation between "quota shocks" – a substantial increase in women's parliamentary representation – and public health spending. Moreover, they show that an increase in national budgets for public health is due to decline in military spending, not in education spending. In line with arguments by Caprioli (2000) and Regan and Paskeviciute (2003) that an increase in women's role in the legislature is likely to reduce international disputes, Koch and Fulton (2011) study 22 major democracies during 1970-2000 and find a negative relationship between women's legislative representation and conflict and military spending. In the case of India, Bhalotra and

Clots-Figueras (2014) report a positive relationship between women's representation in state legislatures and public provision of antenatal and childhood health services. On the other hand, Devlin and Elgie (2008) find that in Rwanda, although women's higher representation in parliament initiates discussions of women's issues in the public sphere, it has limited effect on policy outputs.

The scholarship on militarization and gender inequality is rich in qualitative studies and theoretical contributions. We build on that body of work and seek to contribute to it through a quantitative study of the impact of militarization and gender inequality.

3. Data and Method

Dependent Variable

We use two alternative dependent variables, *Gender Inequality Index (GII)* and *female labor force participation rate*. Our primary dependent variable is the GII as it reflects the gender inequality in social and economic life better than female labor force participation rate. The index is provided by the UNDP. The GII shows gender-based disadvantage in three dimensions —reproductive health, empowerment, and the labor market. It is computed based on maternal mortality ratio, adolescent birth rate, female and male population with at least secondary education, female and male shares of parliament seats, and female and male labor force participation rates. The index ranges from 0, which refers to equality between women and men, to 1, where women's disadvantages in all measured dimensions are the highest. The GII is available for 1995, 2000, 2005, and from 2010 onward. Gonzales et al. (2015) calculated the year 1990 value and extended the GII from 1990 to 2010, where the correlation between the actual and constructed GII is as high as 0.97[5]. Thus, this new set allows us to have two alternative sets of analysis. First, we analyze the relationship with the actual data from 1990 to 2015 in a five-year interval panel data. Second, we use the index calculated by Gonzales at al. (2015) as a robustness check, allowing to extend our analysis to the 1990-2017 period with a yearly data. Theory suggests a positive relationship between militarization and gender inequality. That is, we expect a positive correlation between the GII and the Global Militarization Index, a key independent variable that is explained below.

As another set of robustness check, we also consider female labor force participation rate as an alternative dependent variable, obtained from the World Development Indicators. In a similar manner, we expect that higher level of militarization is associated with lower female labor force participation rate.

Militarization Variable

Our primary militarization variable is the *Global Militarization Index (GMI)*, computed by the Bonn International Center for Conversion. The index is prepared with respect to three elements of

[5] Data is available at https://www.imf.org/external/datamapper/GII_TC@GD/gbtier_1/gbtier_2/gb_othersource

militarization: military expenditure, military personnel and heavy weapons[6]. As a first element, the index measures military spending in relation to GDP and health spending. Second, it considers the number of military personnel as a share of the total population and physicians. Finally, the index includes the number of heavy weapons in relation to the total population.

As alternative measures, we also use *military spending as a share of GDP* and *military spending as a share of government spending*, both provided by the Stockholm International Peace Research Institute (SIPRI), a standard source for military spending.

Economic Variables

We use *GDP per capita* (PPP, constant 2011 international $) and *openness* (volume of exports and imports as a share of GDP), both of which are obtained from World Development Indicators. The theory suggests that a higher level of economic development generates more paid work opportunities for women. Therefore, we should expect a negative (positive) correlation between GDP per capita (and openness) and the GII (female labor force participation rate).

Conflict Variable

Conflict variable is taken from UCDP/PRIO Armed Conflict Dataset Version 18.1. We considered "interstate armed conflict which occurs between two or more states" and "internationalized internal armed conflict which occurs between the government of a state and one or more internal opposition group(s) with intervention from other states (secondary parties) on one or both sides." We preferred only to consider these major conflicts (e.g. wars) as they may have more significant negative impacts than other types of conflicts. Also, it is reasonable to assume that the impact on other minor conflicts will be captured by increasing military expenditures during the times of conflict. Therefore, our primary explanatory variable, GMI, will reflect such change. That is, we control for the devastating impact of wars, as discussed earlier. However, the literature also notes that it is likely that female labor participation increases in most of the conflict-affected countries since women fills men's positions (Justino 2018). Thus, the sign of conflict variable is ambiguous.

Regime Type

We measure regime type with two alternative variables. *Democracy* is variable of Polity2, taken from POLITY™ IV Project. Polity2 is the modified version of the Polity variable to convert traditional polity scores to facilitate its use in time-series analyses. The variable ranges from -10 to +10. The higher the number the higher the level of democracy, in that while -10 refers to the most autocratic regime, +10 refers to the most democratic regime. We also use the Anckar and Fredriksson Data Set for political regimes. *Regime* variable takes values from 0 to 8, referring to parliamentarism, semi-presidentialism, presidentialism, semi-monarchy, party-based rule, personalist rule, military rule, absolute monarchy, oligarchy, respectively. We also use *parliament* as a benchmark regime type for comparison with others. The theory suggests that democratic

[6] For detailed information about see https://gmi.bicc.de/

countries promote gender equality. In other words, a higher level of democracy is negatively correlated with the GII. Therefore, we expect a negative sign both for *democracy* and *parliament*, and a positive sign for *regime*.

Other control variables

Fertility is birth per woman; *infant mortality* is the mortality rate of infant per 1,000 live births, and *urbanization* is the urban population as a share of the total population; all are taken from the World Development Indicators. Our *education* variable is average years of schooling in the female population aged 15 and older, computed by Barro and Lee (2013). The theory suggests while urbanization, education and infant mortality rate are positively correlated with FLFPR, fertility rate reduces FLFPR.

Dummy Variables

We have three dummy variables. *Islam* refers to countries whose majority of population are Muslim,[7] and *mena* refers to Middle East and North African countries.[8] Finally, we also use dummy variable for income groups. *Low-income* refers to countries with GDP per-capita level is below 5000 USD, *middle-income* refers to those between 5000 and 15000 USD, and finally, *high-income* includes the rest.

Method

We employed the panel fixed-effect method. We use different sets of control variables in the first set of regressions, and stratify our dataset with respect to different levels of income per-capita. In the benchmark analysis, we estimate the following regression equation using the panel fixed-effects estimator:

$$gii_{it} = \beta_1 gii_{it-1} + \beta_2 gdpcap_{it} + \beta_3 conflict + \beta_4 democracy_{it} + \beta_5 \mathrm{X}_{it} + \pi_i + \mu_t + \epsilon_{it}$$

where the subscripts *i* and *t* refer countries and years, respectively. gii_{it} is the Gender Inequality Index, $gdpcap_{it}$ is GDP per capita, $democracy_{it}$ is polity2 showing democracy level, and X_{it} includes several dummy variables, namely, Islamic, MENA, low-income, middle-income, and high-income. Finally, country fixed effects (π_i) and year fixed effects (μ_t) are controlled for.

Moreover, we employ system GMM, and Dynamic Common Correlated Effects Estimator - Pooled Mean Group as well.

[7] Algeria, Bangladesh, Egypt, The Gambia, Indonesia, Iran, Jordan, Kuwait, Kyrgyz Republic, Lebanon, Malaysia, Mali, Mauritania, Morocco, Niger, Pakistan, Saudi Arabia, Senegal, Sierra Leone, Sudan, Syria, Tajikistan, Tunisia, Turkey, United Arab Emirates, and Yemen.

[8] Algeria, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Morocco, Saudi Arabia, Syria, Tunisia, Turkey, and United Arab Emirates.

4. Results

4.1. Benchmark Analysis and Robustness Check

Table 1 presents the descriptive statistics of variables. The benchmark results in Table 2 suggest a very significant positive correlation between militarization and gender inequality for all model specifications. The findings also show that a higher GDP per capita is associated with lower gender inequality. This is an expected result because economic development is expected to generate more economic and social opportunities for women. Model 4 and Model 5 show that correlation between militarization and gender inequality is significant in the case of Islamic countries as well, but somewhat less strong in the case of MENA countries (e.g. 10 per cent significance level).

Table 1: Summary Statistics of the Dataset

Variable	Obs.	Mean	Std. Dev.	Min	Max
Gii	3,353	0.412	0.201	0.01	0.839
Gmi	3,592	6.443	0.512	-0.733	6.907
Gdpcap	3,658	17189.71	19714.79	247.436	129349.9
Growth	3,659	3.537	5.410	-51.030	106.279
Open	3,594	82.908	50.220	11.087	441.603
Milexbudget	3,050	0.074	0.061	0	0.574
Milexgdp	3,441	0.022	0.029	0	1.173
Flfpr	3,752	50.227	15.890	5.998	90.784
fertility	3,695	3.862	7.139	1.076	99.078
infant mortality	3,703	32.288	31.456	1.7	175
Urbanization	3,701	56.902	23.17196	2	100
Education	644	7.169	3.140	0.43	13.23

Table 2: Fixed Effect Results

	Model 1	Model 2	Model 3	Model 4 (Islam)	Model 5 (MENA)
gmi	0.0399***	0.0396***	0.0434***	0.5515**	0.9496*
	(0.011)	(0.011)	(0.011)	(0.226)	(0.492)
Gdpcap	-0.0601***	-0.0590***	-0.0613***	-0.2368***	-0.3041***
	(0.011)	(0.011)	(0.012)	(0.037)	(0.074)
Conflict		-0.0119			
		(0.047)			
Regime			0.0011		
			(0.0007)		
Constant	0.6567***	0.6481***	0.6418***	-0.9837	-2.9078
	(0.047)	(0.047)	(0.047)	(1.568)	(3.461)
No. Observations	568	568	566	126	61
No. Countries	126	122	126	24	12
F-test	4.68	4.69	4.69	6.77	7.13

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

We extend our analysis to consider different income groups. These results are provided in Table 3. The key finding of the table is that there is no significant correlation between militarization and GDP per capita with gender inequality in the case of high-income countries. Finally, except for one model specification, the sign of regime variable is positive in all other model specifications in Table 2 and Table 3. As discussed above, this is an expected result because more authoritarian regimes are likely to be more patriarchal, not having gender equality in their agenda. However, this positive correlation is significant only in the case of middle-income countries. Since there does not exist a very clear association between regime type and gender inequality, we further investigate this relationship with alternative model specification and with alternative proxy variables for the level of democracy. Those findings are provided in the Appendix and discussed in the following section.

Table 3: Fixed Effect Results-Income Groups

	Model 1 (low)	**Model 2 (low)**	**Model 3 (middle)**	**Model 4 (middle)**	**Model 5 (high)**	**Model 6 (high)**
gmi	0.2245*** (0.030)	0.2196*** (0.030)	0.0823*** (0.023)	0.1282*** (0.028)	0.0012 (0.015)	0.0012 (0.015)
Gdpcap	-0.1372*** (0.021)	-0.1341*** (0.022)	-0.0326 (0.020)	-0.0611*** (0.022)	-0.0229 (0.042)	-0.0235 (0.043)
Regime		0.0028 (0.002)		0.0025*** (0.0009)		-0.0008 (0.059)
Constant	0.1906*** (0.066)	0.1883*** (0.067)	0.1769*** (0.059)	0.1435** (0.057)	0.3855* (0.204)	0.3932* (0.216)
No. Observations	175	173	152	152	200	200
No. Countries	47	47	49	49	56	56
F-test	6.92	6.84	2.82	3.15	3.68	2.17

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10

We have three sets of robustness checks. First, we repeated our analyses for different proxies for militarization such as military expenditure as a share of GDP and military expenditure as a share of central government budget. Since military expenditure share is an important element of the Global Militarization Index, not surprisingly those results are not very different than those in our benchmark analysis.[9]

Second, we use the GII index calculated by Gonzales et al. (2015) as an alternative dependent variable. Taking advantage of higher number of observations, we repeat our analysis with GMM estimation techniques, where potential endogeneity problem is addressed. The results of those

[9] We do not present these results due to space constraint; however, they can be provided upon request.

analyses are provided in Table A1- A3 in the Appendix. Overall, these results confirm and strengthen our results in the benchmark analysis.

Finally, we also consider female labor force participation rate as an alternative dependent variable. Here, we have two main sets of analysis. In the first setting, we repeat our GMM analysis in Table A2 and Table A3, where dependent variable is GII, with FLFPR. These results are provided in Table A4 and Table A5 in the Appendix. In the second setting, we investigate the relationship between militarization and women's labor force participation by considering control variables commonly used in the literature, namely *fertility rate*, *infant mortality rate*, and *urbanization*. The results of this second set are provided in Table A6.

The results in Table A4 and Table A5 are very similar to Table A2 and Table A3, with the opposite signs as expected. That is, there is a highly strong negative correlation between women's labor force participation and militarization, and weak positive correlation with GDP. This finding encouraged us to further investigate the relationship in question. To this end, we extend our analysis to consider control variables that are commonly used in the literature. In Table A6, we dropped *education* and *GDP per capita* as they are insignificant in all model specifications. Our results are in line with the previous findings to certain degree in that while we found positive correlation between FLFPR and urbanization and infant mortality, we found negative but insignificant sign in the case of fertility. The key finding is that the strong negative correlation between militarization and women's labor force participation is valid, both controlling for being Islam and MENA countries and controlling for different income levels. The findings suggest that this negative association is somewhat less significant in the case of low- and high-income countries.

5. Discussion and Conclusions

Feminist studies have posited that "excessive global military spending feeds into a vicious cycle of societal instability, creating an unsuitable environment to pursue gender equality" (WILPF-UK et al. 2019: 5). Others have pointed out that as defense spending increases rapidly, the total government expenditure also increases at a faster rate. But there is a cost associated with this rapid increase in military spending: to fund it, government would need to cut expenditure on other sectors, typically those related to development or social needs – sectors associated with improved gender equality. A comparative glance at two MENA countries would confirm the stark difference between high military spending, high gender inequality, and low female labor force participation in Saudi Arabia versus low military spending, low gender inequality, and higher female labor force participation in Tunisia. As Enloe, Cockburn, as others have cogently argued, militarization reinforces a masculinized social order. Such a social order is also more likely to wage war or encourage conflict, with their predictable effects on the physical security of women and girls, not to mention their overall wellbeing. As Peksen (2011) shows, whereas US interventions are more likely to worsen women's economic and political status, the interventions by intergovernmental

organizations are more likely to have a positive effect on women's political rights (Peksen 2011). Such intergovernmental organizations, including the IMF, recommend the need for more, not less, resource allocation toward programs and policies for gender equality, such as gender budgeting (Kolovitch and Shibuya 2016).

Our study has empirically investigated the relationship between militarization and patriarchy, a relationship that has been extensively debated in feminist literature at the theoretical level. Using two major indices, the Global Militarization Index and Gender Inequality Index, to operationalize militarization and gender inequality, respectively, the study revealed a clear evidence of correlation between two for a large set of country. Our extensive robustness check with different dependent variables confirmed the results.

Inspired by the feminist literature on militarization and gender inequality, this study is an initial effort to operationalize two important variables. We acknowledge that the topic needs further and perhaps more detailed discussion, and we hope the study will encourage that. When there is no structural model to adopt, operationalization of variables and model specification become a challenge. Also, researchers might have to sacrifice the number of countries to cover or length of time dimension when data availability problem exists. Here, we preferred to study a large number of countries, over 130, for a relatively shorter time period, about three decades. Future studies may focus on major countries for which data is available for longer time period. Such case studies would generate more specific discussion by allowing researchers to pay special attention to the legislative structure and other institutions to better understand the interaction between militarization and gender inequality.

References

Abramovitz, Mimi. (2006). Welfare Reform in the United States: Gender, Race and Class Matter. *Critical Social Policy*, 26: 336–364.

Aksogan, Gul and Adem Y. Elveren. (2012). Defence Expenditures, Education and Health Expenditures and Income Inequality in Turkey, 1970-2008: An Econometric Analysis. (in Turkish), *Sosyoekonomi*, 2012/1: 263-280.

Ali, Hamid E., (2007). Military Expenditures and Inequality: Empirical Evidence From Global Data. *Defence and Peace Economics*, 18(6): 519-535.

Ali, Hamid E., (2011). Military Expenditures and Human Development: Guns and Butter Arguments Revisited: A Case Study from Egypt. *Peace Economics, Peace Science and Public Policy*, 17: 1-19.

Ali, Hamid E., (2012). Military Expenditure and Inequality in the Middle East and North Africa: A Panel Analysis. *Defence and Peace Economics*, 23(6): 575-589.

Azhar, Talat. (2009). *Patriarchy, Militarization, and the Gender Gap in Education: The Case of Pakistan*. Unpublished Dissertation. The Pennsylvania State University.

Barro, Robert and Jong-Wha Lee. (2013). A New Data Set of Educational Attainment in the World, 1950-2010. *Journal of Development Economics*, 104:184-198.

Benería, Lourdes and Shelley Feldman (Eds.). (1992). *Unequal Burden: Economic Crises, Persistent Poverty, and Women's Work*. Boulder, CO: Westview.

Benería, Lourdes and Rebecca Blank. (1989). Women and the Economics of Military Spending. In *Rocking the Ship of State*, Adrienne Harris and Ynestra King (Eds.). Boulder: Westview Press.

Berik, Günseli, Yana van der Meulen Rodgers and Stephenie Seguino. (2011). Feminist Economics of Inequality, Development, and Growth. In *Inequality, Development, and Growth*, Günseli Berik, Yana van der Meulen Rodgers and Stephenie Seguino (Eds.). London and New York: Routledge.

Berkman, Michael B., and Robert E. O'Connor. (1993). Do Women Legislators Matter? Female Legislators and State Abortion Policy. *American Politics Quarterly* 21 (1): 102–124.

Bhalotra, Sonia and Irma Clots-Figueras. (2014). Health and the Political Agency of Women. *American Economic Journal: Economic Policy*, 6 (2): 164–197.

Bratton, Kathleen A., and Kerry L. Haynie. 1999. Agenda Setting and Legislative Success in State Legislatures: The Effects of Gender and Race. *Journal of Politics*, 61 (3): 658–679.

Burke, Colleen. (1998). Women and Militarism. Women's International League for Peace and Freedom. Geneva, Switzerland.

Caprioli, Mary. (2000). Gendered Conflict. *Journal of Peace Research*, 37 (1): 51–68.

CEDAW. (2017). The Impact of Germany's Arms Transfers on Women. Joint Shadow Report, CEDAW Committee, 66th Session. Women's International League for Peace and Freedom and European Center for Constitutional and Human Rights.

Childs, Sarah, and Julie Withey. (2004). Women Representatives Acting for Women: Sex and the Signing of Early Day Motions in the 1997 British Parliament. *Political Studies*, 52 (3): 552–564.

Clayton, Amanda, Cecilia Josefsson, Robert Mattes, and Shaheen Mozaffar. (2019). In Whose Interest? Gender and Mass–Elite Priority Congruence in Sub-Saharan Africa. *Comparative Political Studies*, 52(1): 69 -101

Clayton, Amanda and Pär Zetterberg. (2018). Quota Shocks: Electoral Gender Quotas and Government Spending Priorities Worldwide. *The Journal of Politics*, 80 (3): 916-932.

Cockburn, Cynthia. (2011). Gender Relations as Casual in Militarization and War: A Feminist Standpoint. In *Making Gender, Making War: violence, military and peacekeeping practices*. Annica Kronsell and Erika Svedberg (Eds.), pp. 29-46, (Routledge Advances in Feminist Studies and Intersectionality). Routledge.

Connell, R. W. 1987. *Gender and Power: Society, the Person and Sexual Politics*. Cambridge: Polity.

Coutts, Adam, Adel Daoud, Ali Fakih, Walid Marrouch and Bernhard Reinsberg. (2019). Guns and butter? Military expenditure and health spending on the eve of the Arab Spring. *Defence and Peace Economics*, 30 (2): 227-237.

Devlin, Claire and Robert Elgie. (2008). The Effect of Increased Women's Representation in Parliament: The Case of Rwanda. *Parliamentary Affairs*, 61 (2): 237-254.

Elson, Diane and Nilüfer Çağatay. (2000). The Social Content of Macroeconomic Policies. *World Development*, 28(7): 1347-64.

Elveren, Adem Y. (2019). *The Economics of Military Spending A Marxist Perspective*. London: Routledge.

Enloe, Cynthia. (1983). *Does khaki become you? The militarisation of women's lives*. London, England: Pluto Press Ltd.

-----. (1990). Women and Children: Making Feminist Sense of the Persian Gulf War. *Village Voice* 25 (9).

-----. (2000). *Maneuvers: The International Politics of Militarizing Women's Lives*. Berkeley, CA: University of California Press.

-----. (2007). *Globalization and Militarism: Feminists Make the Link*. Lanham, MD.: Rowman & Littlefield.

Eryigit, Sibel B. Kadir Yasin Eryigit and Ufuk Selen. (2012). The Long Run Linkages between Health and Defense Expenditures and Economic Growth: Evidence from Turkey. *Defence and Peace Economics*, 23: 559-574.

Fan, HongLi, Wei Liu and Peter C. Coyte. (2018). Do Military Expenditures Crowd-out Health Expenditures? Evidence from around the World, 2000–2013. *Defence and Peace Economics*, 29 (7): 766-779.

Galbraith, John K. (1967). *The new industrial state.* Boston, MA: Houghton Mifflin Company.

-----. (1969). *How to control the military.* New York: Doubleday and Company.

Golan, Galia. (1997). Militarization and Gender: The Israeli Experience. *Women's Studies International Forum*, 20 (5/6): 581-586.

Goldstein, Joshua S. (2001). *War and Gender: How Gender Shapes the War System and Vice Versa*. Cambridge: Cambridge University Press.

Gonzales, Christian, Sonali Jain-Chandra, Kalpana Kochar, Monique Newiak, and Tlek Zeinullayev. (2015). Catalyst for Change: Empowering Women and Tackling Income Inequality. IMF Staff Discussion Note 15/20. International Monetary Fund.

Harvey, David. (2005). *A Brief History of Neoliberalism*. New York: Oxford University Press.

Hudson, Valerie M., Bonnie Ballif-Spanvill, Mary Caprioli, and Chad F. Emmett. (2012). *Sex and World Peace.* New York: Columbia University Press.

Htun, Mala, Marina Lacalle, and Juan Pablo Micozzi. (2013). Does Women's Presence Change Legislative Behavior? Evidence from Argentina, 1983–2007. *Journal of Politics in Latin America*, 5 (1): 95–125.

Huang, Chiung-Ju and Yuan-Hong Ho. (2018). Does Taiwan's Defense Spending Crowd out Education and Social Welfare Expenditures? *Journal of Economics and Management*, 14(1): 67-82.

Hughes, Melanie M. and Pamela Paxton. (2019). The Political Representation of Women over Time. In *The Palgrave Handbook of Women's Political Rights*. Susan Franceschet, Mona Lena Krook, and Netina Tan (Eds.), London: Palgrave Macmillan.

Justino, Patricia. (2018). Violent Conflict and Changes in Gender Economic Roles Implications for Post-Conflict Economic Recovery. In *The Oxford Handbook of Gender and Conflict*, Fionnuala Ni Aolain, Naomi Cahn, Dina Francesca Haynes, Nahla Valji (Eds.), NY: Oxford University Press.

Kentor, Jeffrey, Jorgensen, Andrew K., Kick, Edward. (2012). The "new" military and income inequality: a cross national analysis. *Social Science Research*, 41: 514–526.

Khalid, Maryam. (2014). Feminist perspectives on militarism and war: Critiques, contradictions, and collusions. Oxford Handbooks Online. DOI: 10.1093/oxfordhb/9780199943494.013.006

Koch, Michael T. and Sarah A. Fulton. (2011). In the Defense of Women: Gender, Office Holding, and National Security Policy in Established Democracies. *The Journal of Politics*, 73 (1): 1-16.

Kolovich, Lisa and Sakina Shibuya. (2016). Middle East and Central Asia: A survey of Gender Budgeting Efforts. Washington DC: IMF Working Paper 16/151 (July).

Lin, Eric S., Hamid E. Ali and Y. L. Lu, (2015). Does Military Spending Crowd out Social Welfare Expenditures? Evidence from a Panel of OECD Countries. *Defence Peace Economics*, 26: 33-48.

Meintjes, Sheila, Anu Pillay and Meredeth Turshen (Eds). (2001). *The Aftermath: Women in Post-Conflict Transformation*. London: Zed.

Moghadam, Valentine. (2007). Peace-Building and Reconstruction with Women Reflections on Afghanistan, Iraq and Palestine. In Moghadam (ed.), *From Patriarchy to Empowerment: Women's Participation, Movements, and Rights in the Middle East, North Africa, and South Asia*. Syracuse, New York: Syracuse University Press.

-----. (2013). *Modernizing Women Gender and Social Change in the Middle East,* 3rd ed. Boulder, Colorado and London: Lynne Rienner Publishers.

Moser, Caroline O.N. and Fiona C. Clarke (eds.) (2001) *Victims, Perpetrators, and. Actors? Gender, Armed Conflict and Political Violence*. New York: Zed.

O'Brien, Diana Z. and Jennifer M. Piscopo. (2019). The Impact of Women in Parliament. In *The Palgrave Handbook of Women's Political Rights*. Susan Franceschet, Mona Lena Krook, and Netina Tan (Eds.), London: Palgrave Macmillan.

Ozsoy, O. (2002). Budgetary Trade-offs between Defense, Education and Health Expenditures: The Case of Turkey. *Defence and Peace Economics*, 13 (2): 129–136.

Park, Soon Seok. (2017). Gendered Representation and Critical Mass: Women's Legislative Representation and Social Spending in 22 OECD Countries. *Sociological Perspectives,* 60(6):1097-1114.

Peksen, Dursun. (2011). Foreign military intervention and women's rights. *Journal of Peace Research*, 48 (4): 455-468.

Peterson, V. Spike, and Anne Sisson Runyan. (1999). *Global Gender Issues: Dilemmas in World Politics*. Boulder, Colorado: Westview Press.

Pettman, Jan Jindy. (1996). *Worlding Women: A Feminist International Politics.* London" Routledge.

Plümper, Thomas and Eric Neumayer. (2006). The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy. *International Organization*, 60 (3): 723-754.

Reardon, Betty. (1985). *Sexism and the War System*. New York: Teacher's College Press.

Regan, Patrick M., and Aida Paskeviciute. (2003). Women's Access to Politics and Peaceful States. *Journal of Peace Research*, 40 (3): 287–302.

Runyan, Anne Sisson and V. Spike Peterson. (2014). *Global Gender Issues in the New Millennium*, 4th ed. London: Routledge.

Schwindt-Bayer, Leslie A. (2010). *Political Power and Women's Representation in Latin America*. Oxford, UK: Oxford University Press.

Sparr, Pamela. (1994). *Mortgaging Women's Lives: Feminist Critiques of Structural Adjustment*. London: Zed Press.

Svedberg, Erika. (2012). Militarization and Women: Gendered Militarizations. Oxford Research Encyclopedia of International Studies. DOI: 10.1093/acrefore/9780190846626.013.263

Taylor-Robinson, Michelle M., and Roseanna Michelle Heath. (2003). Do Women Legislators Have Different Policy Priorities Than Their Male Colleagues? A Critical Case Test. *Women & Politics*, 24 (4): 77–101.

Töngür, Ünal and Adem Y. Elveren. (2015). Military Expenditures, Income Inequality, and Welfare and Political Regimes: A Dynamic Panel Data Analysis. *Defence and Peace Economics*, 26(1): 49-74.

Töngür, Ünal and Elveren, Adem Y. (2017). The Nexus of Economic Growth, Military Expenditures, and Income Inequality. *Quality and Quantity*, 51(4): 1821-1842.

Töngür, Ünal, Hsu, Sara and Elveren, Adem Y. (2015). Military Expenditures and Political Regimes: Evidence from Global Data, 1963-2000. *Economic Modelling*, 44: 68-79.

Via, Sandra. (2010). Gender, Militarism, and Globalization: Soldiers for Hire and Hegemonic Masculinity. In *Gender, War, and Militarism Feminist Perspectives*, Laura Sjoberg and Sandra Via (Eds.), Santa Barbara, California, Denver, Colorado, Oxford, England: Praeger Security International.

Vadlamannati, Krishna Chaitanya. (2008). Exploring the Relationship between Military Spending and Income Inequality in South Asia. William Davidson Institute, Working Paper 918. Ann Arbor: University of Michigan.

WILPF-UK, Quakers of UK, and Christian Aid. (2019). *The Impact of the UK's Arms Transfers and Military Spending on Women's Rights*. Joint Shadow Report to the CEDAW Committee, 72nd Session (February).

Williams, Laron K. (2018). Guns Yield Butter? An Exploration of Defense Spending Preferences. *Journal of Conflict Resolution*, DOI: 10.1177/0022002718785969

Yildirim, Julide and Selami Sezgin. (2002). Defence, Education and Health Expenditures in Turkey 1924-96. *Journal of Peace Research*, 39: 569-580.

Zarkov, Dubravka. (2018). From Women and War to Gender and Conflict? Feminist Trajectories. In *The Oxford Handbook of Gender and Conflict*, Fionnuala Ni Aolain, Naomi Cahn, Dina Francesca Haynes, Nahla Valji (Eds.), New York: Oxford University Press.

Appendix

Table A1: Fixed Effect Results (dependent variable is interpolated GII)

	Model 1	Model 2	Model 3	Model 4 (parliament)	Model 5 (low-income)	Model 6.a (Islam)	Model 6.b (non-Islam)
gmi	0.0132***	0.0132***	0.0260***	0.0080*	0.0882***	0.0935**	0.0088***
	(0.004)	(0.004)	(0.006)	(0.004)	(0.012)	(0.044)	(0.003)
gdpcap	-0.0008	-0.0007	-0.0083	0.0259	-0.0131	-0.0487	0.0011
	(0.006)	(0.006)	(0.006)	(0.005)	(0.010)	(0.031)	(0.005)
conflict		-0.0016	-0.0016	-0.0049	-0.0014	0.0002	-0.0019
		(0.0002)	(0.002)	(0.007)	(0.003)	(0.009)	(0.002)
democracy			-0.00001				
			(0.0002)				
constant	0.2527***	0.2525***	0.2357***	-0.0861***	0.0882***	0.2812***	0.2281***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.0000)	(0.003)
No. Observations	3091	3091	2990	979	959	563	2528
No. Countries	127	127	123	45	49	25	102
F-test	4.89	4.89	4.93	10.61	6.71	1.74	7.60

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

Table A2: System GMM Estimation Results (dependent variable is interpolated GII)

Variables	Model 1.a	Model 1.b	Model 2.a	Model 2.b	Model 3.a	Model 3.b	Model 4.a	Model 4.b
Lag (gii)	0.9508***	0.9537***	0.9818***	0.9878***	0.9584***	0.9601***	0.9719***	0.9732***
	(0.037)	(0.037)	(0.022)	(0.019)	(0.019)	(0.020)	(0.013)	(0.013)
gmi	0.0271**	0.0275**	0.0105	0.0110	0.0237***	0.0234***	0.0232**	0.0225**
	(0.011)	(0.011)	(0.007)	(0.006)	(0.008)	(0.008)	(0.009)	(0.009)
gdpcap	-0.0078	-0.0075	-0.0020	-0.0010	-0.0039	-0.0040	-0.0067	-0.0086
	(0.009)	(0.009)	(0.003)	(0.003)	(0.007)	(0.007)	(0.005)	(0.005)
conflict		0.0009		-0.0006		0.0024		0.0028
		(0.005)		(0.004)		(0.005)		(0.005)
democracy			-0.0003	-0.0002				
			(0.0002)	(0.0002)				
Islamic					0.0081	0.0093		
					(0.013)	(0.013)		
MENA							0.0220	0.0257*
							(0.015)	(0.015)
constant	-0.0938	-0.0997	-0.0483	-0.0632	omitted	omitted	omitted	omitted
	(0.1170)	(0.116)	(0.065)	(0.056)				
Observations	3098	3098	2996	2996	3098	3098	3098	3098
Number of countries	127	127	123	123	127	127	127	127

F-statistic	1180.63	1168.19	3439.21	1168.19	7025.04	7190.53	17150.14	17953.21
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(1)	-4.20	-4.21	-4.18	-4.21	-4.21	-4.22	-4.25	-4.27
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(2)	-0.90	-0.90	-0.78	-0.90	-0.91	-0.91	-0.91	-0.90
p value	0.367	0.368	0.436	0.368	0.362	0.365	0.363	0.367
Hansen test for over identification (p-value)	0.531	0.451	0.243	0.451	0.284	0.221	0.328	0.269
Diff-in-Hansen Tests for Exogeneity of GMM Instruments (p value)	0.801	0.743	0.493	0.743	0.319	0.264	0.542	0.487

All estimations were conducted with two-step efficient GMM and small sample corrections to the covariance matrix estimate. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A3: System GMM Estimation Results-Income Groups (dependent variable is interpolated GII)

Variables	Model 1.a	Model 1.b	Model 1.c	Model 2.a	Model 2.b	Model 2.c	Model 3.a	Model 3.b	Model 3.c
Lag (gii)	0.9662***	0.9688***	0.9739***	0.9705***	0.9818***	0.9905***	0.9645***	0.9654***	0.9798***
	(0.027)	(0.033)	(0.032)	(0.016)	(0.020)	(0.021)	(0.028)	(0.034)	(0.030)
gmi	0.0297**	0.0301**	0.0282***	0.0080	0.0076	0.0087	0.0270**	0.0287**	0.0347***
	(0.011)	(0.013)	(0.010)	(0.002)	(0.006)	(0.005)	(0.011)	(0.014)	(0.011)
gdpcap	-0.0077*	-0.0058	0.0004	-0.0031	-0.0026	-0.0008	-0.0071*	-0.0064	0.0003
	(0.004)	(0.005)	(0.008)	(0.0002)	(0.002)	(0.004)	(0.003)	(0.005)	(0.007)
low-income	0.0078			0.0030			0.0065		
	(0.005)			(0.003)			(0.005)		
middle-income		-0.0036			-0.0023			-0.0041	
		(0.003)			(0.0002)			(0.0030)	
high-income			-0.0012			0.0002			-0.0023
			(0.006)			(0.003)			(0.006)
democracy				-0.0004*	-0.0002	-0.0001			
				(0.0002)	(0.0002)	(0.0002)			
parliament							-0.0026	-0.0025	-0.0013
							(0.002)	(0.002)	(0.002)
constant	-0.1175	omitted	-0.1840*	omitted	omitted	-0.0536	-0.1038	-0.1184	omitted
	(0.099)		(0.109)			(0.596)	(0.097)	(0.127)	

Observations	3098	3098	3098	2996	2996	2996	3098	3098	3098
Number of countries	127	127	127	123	123	123	127	127	127
F-statistic	2322.25	7271.13	1529.89	59180.07	45347.51	3370.90	3001.30	2337.22	6287.42
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(1)	-4.22	-4.25	-4.25	-4.17	-4.17	-4.17	-4.23	-4.26	-4.27
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(2)	-0.91	-0.90	-0.90	-0.78	-0.78	-0.78	-0.91	-0.91	-0.90
p value	0.363	0.366	0.368	0.434	0.434	0.436	0.362	0.364	0.367
Hansen test for over identification (p-value)	0.653	0.483	0.579	0.402	0.351	0.298	0.750	0.630	0.677
Diff-in-Hansen Tests for Exogeneity of GMM Instruments (p value)	0.876	0.822	0.575	0.627	0.481	0.454	0.925	0.910	0.602

All estimations were conducted with two-step efficient GMM and small sample corrections to the covariance matrix estimate.
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A4: System GMM Estimation Results (dependent variable is FLFPR)

Variables	Model 1.a	Model 1.b	Model 2.a	Model 2.b	Model 3.a	Model 3.b	Model 4.a	Model 4.b
Lag (FLFPR)	0.9955***	0.9899***	0.9912***	0.9912***	0.9891***	0.9844***	0.9900***	0.9871***
	(0.015)	(0.015)	(0.014)	(0.014)	(0.012)	(0.012)	(0.014)	(0.013)
gmi	-1.3844***	-1.1534**	-1.5562**	-1.5899**	-1.1539***	-1.0272***	-1.3575***	-1.0809***
	(0.490)	(0.448)	(0.639)	(0.612)	(0.361)	(0.358)	(0.433)	(0.395)
gdpcap	0.3352	0.3346	0.2114	0.2425*	0.3380*	0.3516*	0.3532*	0.3747**
	(0.230)	(0.220)	(0.145)	(0.144)	(0.180)	(0.181)	(0.191)	(0.185)
conflict		0.302		0.1120		0.2528		0.3728
		(0.270)		(0.217)		(0.238)		(0.280)
democracy			-0.0067	-0.0013				
			(0.0011)	(0.011)				
Islamic					0.4548	0.3977		
					(0.616)	(0.611)		
MENA							-0.2422	-0.0490
							(0.986)	(0.900)
constant	omitted	omitted	omitted	8.4295**	4.8093	4.1217	6.2387*	omitted
				(4.180)	(3.3124)	(3.146)	(3.610)	
Observations	3428	3428	3273	3273	3428	3428	3428	3428
Number of countries	132	132	127	127	132	132	132	132

F-statistic	40204.32	35432.90	74161.72	911.63	750.48	776.97	1002.75	36248.66
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(1)	-5.12	-5.12	-5.06	-5.07	-5.13	-5.12	-5.14	-5.13
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(2)	-0.30	-0.29	-0.22	-0.23	-0.29	-0.29	-0.28	-0.28
p value	0.766	0.769	0.826	0.821	0.775	0.775	0.776	0.782
Hansen test for over identification (p-value)	0.391	0.298	0.202	0.167	0.275	0.273	0.254	0.162
Diff-in-Hansen Tests for Exogeneity of GMM Instruments (p value)	0.258	0.194	0.173	0.157	0.318	0.262	0.240	0.152

All estimations were conducted with two-step efficient GMM and small sample corrections to the covariance matrix estimate. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A5: System GMM Estimation Results-Income Groups (Dependent variable-FLFPR)

Variables	Model 1.a	Model 1.b	Model 1.c	Model 2.a	Model 2.b	Model 2.c	Model 3.a	Model 3.b	Model 3.c
Lag (FLFPR)	0.9803***	0.9964***	0.9962***	0.9843***	0.9939***	0.9911***	0.9863***	0.9991***	0.9979***
	(0.019)	(0.015)	(0.019)	(0.017)	(0.016)	(0.021)	(0.017)	(0.015)	(0.021)
gmi	-1.5210**	-1.3062***	-0.4206	-1.590**	-1.2604*	-1.4494	-1.6222**	-1.3553***	-0.9022
	(0.700)	(0.456)	(0.845)	(0.610)	(0.724)	(0.961)	(0.650)	(0.444)	(0.787)
gdpcap	0.2237	0.3868*	0.4220	0.4358	0.2737*	0.2555	0.2242	0.4106**	0.4255
	(0.363)	(0.1978)	(0.305)	(0.321)	(0.151)	(0.298)	(0.336)	(0.186)	(0.293)
low-income	0.5609			0.8847			0.4335		
	(0.730)			(0.687)			(0.696)		
middle-income		-0.0658			-0.1372			-0.0461	
		(0.150)			(0.144)			(0.145)	
high-income			-0.5388			-0.1080			-0.4420
			(0.486)			(0.465)			(0.4650)
democracy				-0.0017	-0.0009	-0.0080			
				(0.011)	(0.013)	(0.013)			
parliament							-0.0415	-0.0753	-0.0734
							(0.118)	(0.078)	(0.100)
constant	8.4857*	5.0292	-0.7280	omitted	5.9762	omitted	8.9577*	4.9850	omitted
	(4.732)	(3.987)	(5.7168)		(4.303)		(4.749)	(3.891)	

Observations	3428	3428	3428	3273	3273	3273	3428	3428	3428
Number of countries	132	132	132	127	127	127	132	132	132
F-statistic	557.86	789.15	488.65	35417.65	789.15	56333.63	596.95	847.84	22123.54
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(1)	-5.05	-5.10	-5.09	-5.02	-5.06	-5.05	-5.08	-5.09	-5.07
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(2)	-0.30	-0.30	-0.24	-0.22	-0.23	-0.22	-0.31	-0.31	-0.28
p value	0.766	0.765	0.808	0.824	0.821	0.822	0.757	0.757	0.783
Hansen test for over identification (p-value)	0.570	0.309	0.724	0.426	0.164	0.238	0.712	0.493	0.769
Diff-in-Hansen Tests for Exogeneity of GMM Instruments (p value)	0.449	0.175	0.630	0.334	0.216	0.157	0.587	0274	0.623

All estimations were conducted with two-step efficient GMM and small sample corrections to the covariance matrix estimate.
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A6: System GMM Estimation Results (dependent variable is FLFPR with common control variables)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Lag (FLFPR)	0.9727***	0.9890***	0.9894***	0.9888***	0.9812***	0.9875***	0.9868***	0.9905***
	(0.015)	(0.009)	(0.006)	(0.012)	(0.015)	(0.007)	(0.007)	(0.006)
gmi	-2.1977**	-2.3063**	-1.2238**	-1.3868**	-1.2239**	-1.0406*	-1.3397**	-1.0436*
	(1.092)	(0.956)	(0.589)	(0.591)	(0.577)	(0.559)	(0.591)	(0.562)
fertility	-0.0243	-0.0320	-0.0117	-0.0143	-0.0140	-0.0139	-0.0156	-0.0080
	(0.027)	(0.034)	(0.0240)	(0.022)	(0.025)	(0.023)	(0.024)	(0.022)
infant mortality		0.0006	0.0052*	0.0048	0.0064	0.0043	0.0048	0.0057*
		(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
urbanization			0.0139***	0.0130***	0.0139***	0.0171***	0.0132***	0.0151***
			(0.004	(0.003)	(0.004)	(0.005)	(0.004)	(0.005)
Islam				-0.0549				
				(0.327)				
Mena					-0.3807			
					(0.485)			
Low-income						0.2823		
						(0.199)		
Middle-income							-0.1239	
							(0.113)	
High-income								-0.0185

								(0.126)
constant	omitted	omitted	omitted	9.1618** (4.167)	omitted	omitted	9.0254** (4.2152)	omitted
Observations	3430	3425	3420	3420	3420	3420	3420	3420
Number of countries	133	133	133	133	133	133	133	133
F-statistic	28230.72	54233.07	70402.57	5691.20	58899.27	61310.46	2057.47	90737.04
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(1)	-5.13	-5.12	-5.19	-5.19	-5.17	-5.19	-5.18	-5.20
p value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond test for AR(2)	-0.25	-0.27	-0.21	-0.22	-0.21	-0.20	-0.22	-0.19
p value	0.800	0.786	0.834	0.828	0.830	0.840	0.824	0.846
Hansen test for over identification (p-value)	0.858	0.673	0.296	0.315	0.310	0.346	0.340	0.227
Diff-in-Hansen Tests for Exogeneity of GMM Instruments (p value)	0.919	0.827	0.965	0.968	0.971	0.932	0.973	0.924

All estimations were conducted with two-step efficient GMM and small sample corrections to the covariance matrix estimate. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.