

Democracy and Military Expenditure: A Cross Country Evidence

By

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Abstract:

The growth effects of the degree of democracy have recently been analysed in the literature. However there is no general agreement as to the net effect of democracy on economic growth. Another strand of literature analyses the effects of increased levels of democracy on peace, arguing that as the degree of democracy increases the probability of conflict between countries declines. From this line of argument it follows that more democratic countries allocate less of their scarce resources for defence purposes than less democratic states. This paper tests empirically if there is a negative relationship between the degree of democracy and defence expenditures. The empirical analysis is based on data for up to 92 countries for the time period 1987-1997. The relationship between the military expenditure and democracy is investigated by using cross section and panel estimation techniques. The results suggest that the higher the degree of democracy is associated with lower levels of military expenditure.

Key words: Democracy, defence economics, panel data.

JEL codes: D74, H56, O57

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INTRODUCTION

There has been a growing literature devoted to the examining the economic consequences of the degree of democracy. The bulk of the recent studies have analyzed the impact of democracy on economic growth (see among others, Helliwell, 1994; Barro, 1996; Landman, 1999). The empirical studies agree that increased levels of economic growth are associated with democracy. Tavares and Wacziarg (2001) argue that democracy fosters economic growth by improving the human capital and lowering the income inequality. However, it also reduces the rate of physical capital accumulation and increases government consumption whereby hindering economic growth. Overall democracy has a moderate negative effect on economic growth. Barro (1996) claims that the net effect of democracy on economic growth is ambiguous. Even though at low levels of democracy, increases in the degree of democracy fosters economic growth, further increases reduces it after a moderate amount of democracy has been reached.

DEFINITION OF DEMOCRACY

Hartlyn and Valenzuela (1994) provide a definition of democracy which has the following aspects: The first is the contestation which embodies the notion of uncertain peaceful competition among political powers with the acceptance of the legitimacy of the political opposition. Second aspect is constitutionalism which guarantees the full legal protection of basic political and civil rights. Participation aspect requires all adult groups in the competition for political power regardless of their race, gender and ethnicity. Tavares and Wacziarg (2001), on the other hand, defines democracy as a body of rules and procedures that regulates the transfer of political power. Accordingly, democracy requires citizens of widely differing ethnicity and political opinions be free to speak and have access to whatever it takes to seek political office.

DEMOCRACY, PEACE AND MILITARY EXPENDITURE

In addition to the economic growth effects of democracy, another strand of literature focuses on the relationship between democracy and peace. It is generally believed that democratic states are more likely to be at peace and less prone to become involved in international conflicts. See for example Solberg and Wolfson (1999), James et al (1999), Oneal and Russett (1997). From this line of argument it follows that as the degree of democracy increases in a country, one would expect a decrease in the defence expenditures of that country. (See Lebovic, 2001).

With the spread of democracy in southern Europe in the late 1970s, to Latin America in the 1980s and Eastern Europe and former Soviet Union in the late 1980s and early 1990s, the promotion of democracy is seen desirable to achieve peace around the world and to foster international trade and diplomacy. (See Steward and O'Sullivan, 1998). In a democratic state domestic conflicts are resolved by compromise and non-violent means, which provide an environment where international conflicts between democratic states are also settled peacefully.

Democracies have internal checks and balances which hold the governors responsible for any political action they take and public's support should be gained prior to any military action. However in an autocratic state the leader reaps all the gains from war in spite of the fact that he would not sacrifice as much as his nation in case of a defeat. In a democratic state, on the other hand, citizens would not want to suffer the consequences of a war, rather may choose a peaceful settlement. Solberg and Wolfson (1999) claim that two states are more likely to have peaceful relations if they are both democratic. They develop a simultaneous two equations system showing that peace and democracy foster each other. Moreover, the effect of peace in encouraging democracy is found to be stronger than that of democracy on peace. Similarly Lebovic (2001) claim that the level of democracy has a significant positive

effect on the size of non-military relative to military budgets. This follows from the fact that democracies must respond to the wishes of the public which places its economic interest and welfare needs first. However, after the elections take place citizens do not control the daily actions of the government, which may give rise to imperfections as the leaders have a political desire to stay at the office. Thus a democratic leader may chose war in order to diverge nation's attention away from poor economic performance. Accordingly, Russet (1990), Lian and Oneal (1993), Wang (1996) and Gelpi (1997) report a link between occurrences of war and the economic conditions of a country.

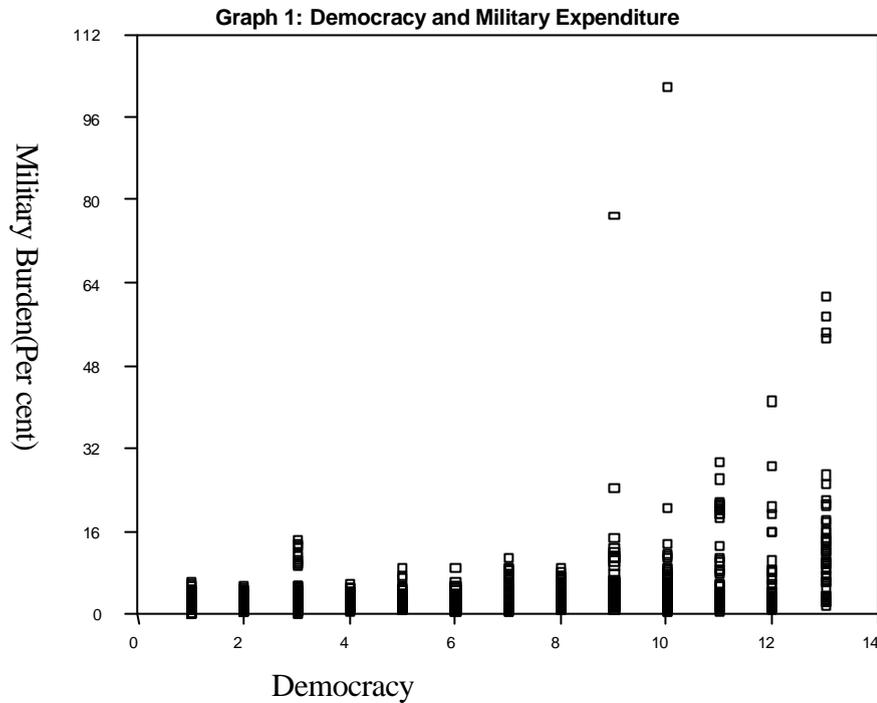
Moreover, most of the world's national militaries are more often used as internal police forces to control and repress their own populations rather than for protection of those population against external threats. In a democratic society people of widely differing political viewpoints can speak out freely and can freely seek access to political office. However, the militarisation of the society aids the concentration of the economic power. In order to keep the status quo militarised societies may spend more of their national income on defence purposes.

MILITARY SPENDING TRENDS AND DEMOCRACY.

After the end of the Cold War and the democratisation process of the former Soviet Union countries, there has been a downward trend in worldwide military expenditures, reaching its lowest point in 1993. Since then it has increased by 5% in real terms in 2000 amounting to roughly \$798 billion in current dollars with a world defence burden of 2.5 %.

The association between military expenditures and democracy is illustrated in Graph 1. The democracy indicator (COMB) is obtained by combining the freedom house civil and political rights indicators, each with a range of 1-7, and the scale is set to 1 for the most democratic country and 13 for the least democratic.

In Graph 1 an upward sloping trend imply that there is a negative relationship between the level of democracy and the military burden of a country, as a high score in the democracy index indicates a low level of democracy.



Tables 1 and 2 contain summary statistics for the main variables in this study, where MB is the military burden, FR, POL and CIVIL are freedom, political civil rights indices, respectively. In the period under study, countries became on average more democratic, with the mean level of democracy changing from 1.800 in 1987-1990 period, to 1.735 in 1991-1997 period, according to freedom index. Similarly, political and civil rights indices also indicate an increase in the level of democracy in the post 1990 period. Moreover, the mean level of military burden decreased from 4.6922 in 1987-1990 period, to 3.916 in 1991-1997 period, confirming the downward trend in worldwide military expenditures.

The first column of Table 2 correlates military burden with all democracy indices. The signs of correlations are consistent with our a priori

expectations, that less democratic countries spend allocate more of their resources for military purposes.

Table 1: Mean Values of the Variables

Variables	1987-1997	1987-1990	1991-1997
MB	4.128	4.692	3.916
FR	1.752	1.800	1.735
POL	3.344	3.608	3.245
CIVIL	3.500	3.695	3.245

Table 2: Correlation matrix of the Main Variables

Variables	MB	FR	POL	CIVIL
MB	1			
FR	0.319	1		
POL	0.333	0.928	1	
CIVIL	0.342	0.906	0.913	1

4. Estimation Results

The data for this study came following sources. Military expenditure data are extracted from USACDA WMEAT (World Military Expenditure and Arms Transfers) yearbooks. Democracy Indicators data came from Annual Survey of Freedom Country Scores 1972-73 to 1998-99 the Freedom House annual comparative survey. The period cover between 1987-1997 (11 years). The sample countries reduced to 92 countries, because some of the countries does not have data in that period either democracy indicators or defence data, in some countries both. The data for former Soviet Union Countries (for earlier years) are not available therefore they are also excluded from the sample¹. All defence data 1997 constant US \$ and democracy indicators between 1 to 7 (both political rights and civil liberty) which higher number indicate low level of democracy.

The democracy – military expenditure relationship has been analysed by estimating the following equation based on the features of the panel data models.

$$MB_{it} = \mathbf{b}_0 + \mathbf{b}_1 COMB_{it} + \mathbf{b}_2 CY_{it} + \mathbf{b}_3 Y_{it} + \mathbf{b}_4 AF_{it} + \mathbf{e}_{it} \quad (1)$$

where

MB denotes military expenditure –GNP ratio

COMB is the combined democracy index (civil liberty and political rights)

CY is the government consumption out of GNP

Y is the GNP at 1997 prices

AF is the armed forces per 1000 person

An alternative model has also been estimated where the dependent variables is the MG which denotes the ratio of military spending to total government spending.

$$MG_{it} = \mathbf{b}_0 + \mathbf{b}_1 COMB_{it} + \mathbf{b}_2 CY_{it} + \mathbf{b}_3 Y_{it} + \mathbf{b}_4 AF_{it} + \mathbf{h}_{it} \quad (2)$$

In order to specify the panel data model that fits best the data, equations (1) and (2) are estimated employing static and dynamic panel data estimators: a one way (country dummy) fixed effects panel analysis, a random effect panel analysis, and GMM method. All estimations are performed by using PcGive . The one way fixed effects model assumes the existence of systematic differences across countries that are captured by country specific constant terms. Whereas the systematic differences across countries are captured by country specific error terms.

However, to deal with the possible reverse causality biases the models have also been estimated by generalised method of moments (GMM). Then the estimates are compared using likelihood ratio and F tests.

Table 3: Democracy and Military Spending (Dependent variable: MB)

Variables	Model 1	Model 2	Model 3	Model 4
CONS	-7.3570 (-0.027)**	-10.9119 (-1.42)	-8.9970 (-9.73)***	-7.3570 (-0.781)
COMB _t	0.5739 (0.000)***	0.1154 (0.646)	0.3242 (4.78)***	0.5739 (1.38)
Y _t	0.000005 (0.010)*	0.000009 (1.26)	0.000004 (0.299)	0.000005 (0.810)
CY _t	0.1771 (0.047)*	0.2923 (1.47)	0.2515 (14.9)***	0.1771 (0.785)
AF _t	0.3129 (0.004)**	0.6026 (1.84)	0.4716 (13.7)***	0.3129 (1.43)
Wald 1	$\chi^2(4)=41.56$ [0.000]	$\chi^2(4)=11.67$ [0.020]	$\chi^2(4)=521.3$ [0.000]	$\chi^2(4)=5.915$ [0.206]
Wald 2	$\chi^2(11)=19.91$ [0.047]	$\chi^2(102)=19.04$ [1.000]	$\chi^2(11)=138.5$ [0.000]	$\chi^2(11)=18.41$ [0.073]
Wald 3	$\chi^2(10)=10.67$ [0.384]	$\chi^2(10)=7.791$ [0.649]	$\chi^2(10)=17.87$ [0.057]	$\chi^2(10)=18.40$ [0.049]
Sargan Test				$\chi^2(10)=508.1$ [0.000]
AR(1)	2.050 [0.040]	1.842 [0.065]	29.15 [0.000]	2.091 [0.037]
AR(2)	2.809 [0.005]	2.407 [0.016]	7.717 [0.000]	2.704 [0.007]
Estimation Method	Pooled OLS	Fixed Effect	GLS	GMM

(*),(**),(***) denote significance at 10%, 5% and 1% respectively. Values in parentheses are heteroscedasticity consistent t-statistics and values in brackets are p-values.

Table 4: Democracy and Military Spending (Dependent variable: MG)

Variables	Model 1	Model 2	Model 3	Model 4
CONS	4.2341 (0.887)	-2.1514 (-0.290)	5.7260 (3.26)***	4.2341 (0.887)
COMB _t	1.2035 (4.45)***	0.9801 (3.24)	1.037 (8.17)***	1.2035 (4.45)***
Y _t	0.00001 (2.01)**	-0.00001 (-1.36)	0.000003 (0.445)	0.00001 (2.01)**
CY _t	-0.0794 (-0.684)	0.008 (0.0605)	-0.0032 (-0.105)	-0.0794 (-0.684)
AF _t	0.530 (2.19)**	0.0836 (0.482)	0.2119 (3.28)***	0.5302 (2.19)**
Wald 1	$\chi^2(4)=40.15$ [0.000]	$\chi^2(4)=16.39$ [0.003]	$\chi^2(4)=86.01$ [0.000]	$\chi^2(4)=40.15$ [0.000]
Wald 2	$\chi^2(11)=33.59$ [0.000]	$\chi^2(102)=101.0$ [0.510]	$\chi^2(11)=41.04$ [0.000]	$\chi^2(11)=33.59$ [0.000]
Wald 3	$\chi^2(10)=19.35$ [0.036]	$\chi^2(10)=20.24$ [0.027]	$\chi^2(10)=32.85$ [0.000]	$\chi^2(10)=19.35$ [0.000]
Sargan Test				$\chi^2(55)=619.0$ [0.000]
AR(1)	3.618 [0.000]	4.042 [0.000]	18.53 [0.000]	3.618 [0.000]
AR(2)	3.416 [0.001]	2.313 [0.021]	9.098 [0.000]	3.416 [0.001]
Estimation Method	Pooled OLS	Fixed Effect	GLS	GMM

(*),(**),(***) denote significance at 10%, 5% and 1% respectively. Values in parentheses are heteroscedasticity consistent t-statistics and values in brackets are p-values.

Wald 1: Wald test of joint significance of the estimated coefficients which is asymptotically distributed as chi-squared under the null of no relationship.

Wald 2: Wald test of joint significance of the country dummies

Wald 3: Wald test of joint significance of the time dummies.

Sargan : Test of overidentifying restrictions which is asymptotically distributed as chi-squared under the null instrument validity.

AR(1): Test of first order of autocorrelation of residuals which is asymptotically distributed as standard normal N(0,1) under the null of no serial correlation.

AR(2): Test of second order of autocorrelation of residuals which is asymptotically distributed as standard normal $N(0,1)$ under the null of no serial correlation.

Conclusions

This study is an attempt to investigate possible relationships between level of democracy and burden of military expenditure. The main findings from this study is that such relationships exist. Countries with higher level of defence burden has a low level of democracy or vice versa. Disarmaments more likely to make the world more democratic and peaceful.

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¹ Sample countries: Algeria, Angola, Argentina, Australia, Bahrain, Bangladesh, Belgium, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chile, China Mainland, Taiwan, Colombia, Costa Rica, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Finland, France, Germany, Ghana, Greece, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea, South, Kuwait, Luxembourg, Madagascar, Malawi, Malaysia, Malta, Mauritius, Mexico, Mongolia, Morocco, Mozambique, Nepal, Netherlands, New Zealand, Nigeria, Norway, Oman, Pakistan, Panama, Paraguay, Philippines, Poland, Portugal, Romania, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, South Africa, Spain, Sri Lanka, Swaziland, Sweden, Switzerland, Thailand, Tunisia, Turkey, Uganda, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Zambia, Zimbabwe.