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## Can economic liberalization and improved governance alter the defense–growth trade-off? ☆

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### 1. Introduction

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The demise of the Cold War and the increasing pace of globalization, coupled with changing perceptions on the economic impact of defense expenditures, affected defense budgets in developed and developing countries alike. Following the collapse of the Soviet Union in 1991, perceived or actual reductions in international tensions contributed to discussions regarding the magnitude and use of the ‘peace dividend.’ Simultaneously, the need for fiscal adjustment led to an increasing focus on ‘unproductive’ expenditures, including military expenditures.<sup>2</sup>

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Despite the positive externalities associated with national security, bi- and multi-national donors increasingly expressed concern displacement of socially oriented public expenditures by military expenditures. With an increased emphasis on poverty reduction through improved governance and public expenditure management, intergovernmental organizations, to include the Organization for Economic Cooperation and Development (OECD), the World Bank and the International Monetary Fund (IMF), have, in some cases, conditioned aid upon the reduction of military expenditures.<sup>3</sup> Proponents of

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<sup>2</sup> International Monetary Fund, “Reducing Unproductive Expenditures is Important for Fiscal Adjustment,” IMF Survey (February 24, 1997), pp. 49–51.

<sup>3</sup> S.Mansoob Murschd and Somanth Sen. “Aid Conditionality and Military Expenditure Reduction in Developing Countries: Models of Asymmetric Information.” *The Economic Journal* 105 (March), 498–509.

neoliberalism also explicitly argued that high levels of defense expenditures were not only unproductive but also crowded-out foreign direct investment and lowered economic growth. 21 22

In this paper we examine whether economic liberalization and improved governance have affected defense expenditures. If military expenditures are, as argued by proponents of neoliberal economic reform, unproductive, then we should observe a shift in the functional composition of public expenditures away from defense. This shift may result from either a reprogramming of funds towards social expenditures or improvements in technical efficiency and effectiveness, thereby necessitating fewer resources for the same level of national security. On the other hand, emerging security threats and ingrained constituencies may have protected defense budgets in the immediate aftermath of the end of the Cold War.<sup>4</sup> We explore these questions below. 23 24 25 26 27 28 29 30

## 2. Rethinking defense expenditures in the post-Cold War 31

In the aftermath of the Cold War, the IMF and the World Bank modified their lending policies to account for the fungibility<sup>5</sup> of non-defense aid; empirical evidence suggesting that heightened defense expenditures were detrimental to economic growth; and increased criticism of lending practices of both organizations. While the charters of the World Bank and IMF forbid direct interference in political affairs of recipient states, each organization could, and did, argue that defense expenditures had a significant impact on fiscal sustainability and economic development. This approach allowed the frank discussion of the perceived tradeoffs between defense expenditures and other types of public expenditure.<sup>6</sup> 32 33 34 35 36 37 38

The focus on the economic costs of defense expenditures stems, in part, from the dominant role of neo-classical economists in both organizations. Neo-classical theory ignores the potential positive externalities associated with defense expenditure, instead focusing on the zero-sum tradeoffs among the various components of the public budget. Reductions in defense expenditures in developing and transitional countries can thus promote fiscal stability.<sup>7</sup> Coupled with research underlying the cost of defense expenditures has been increasing pressure from donor nations to inhibit grants and World Bank and IMF-secured loans to countries with relatively high levels of military expenditures. Why should taxpayers in countries providing development assistance be willing to indirectly subsidize military expenditure in recipient countries?<sup>8</sup> 39 40 41 42 43 44 45 46

### 2.1. Neoliberalism and the Washington Consensus 47

Concurrently, many developing and transitional countries adopted the neoliberal prescriptions of what became commonly known as the Washington Consensus. The Consensus stresses three broad themes. 48 49

<sup>4</sup> Norman Hicks and Ann Kubisch, "Cutting Government Expenditures in LDCs," *Finance & Development* (September 1984), pp. 37–39.

<sup>5</sup> N. Khilji and E.M. Zampelli, "The Fungibility of US assistance to Developing Countries and the Impact on Recipient Expenditures: A Case Study of Pakistan," *World Development* 19:8 (1991), pp. 1095–1105.

<sup>6</sup> Michael Brzoska, *Development Donors and the Concept of Security Sector Reform* (Geneva: Centre for the Democratic Control of Armed Forces, Occasional Paper No. 4, November 2003).

<sup>7</sup> Hamid Davoodi, Benedict Clements, Jerald Schiff and Peter Debaere, *Military Spending, the Peace Dividend, and Fiscal Adjustment*, IMF Working Paper WP/99/87 (Washington: International Monetary Fund, July 1999), p. 27.

<sup>8</sup> Michael Brzoska, *Development Donors and the Concept of Security Sector Reform* (Geneva: Centre for the Democratic Control of Armed Forces, Occasional Paper No. 4, November 2003).

First, it elevates the role of markets in economic governance and in mediating flows of goods and capital. 50  
 Second, it enhances the role and scope of the private sector and private property. Finally, it promotes a 51  
 particular notion of sound economic policy, including balanced public budgets and flexible labor and 52  
 trade markets. Advocates contend that these policies represent the only path to economic prosperity in an 53  
 increasingly interconnected world economy. 54

When successful, these reforms would promote macroeconomic stability, external trade and economic 55  
 growth. These arguments echo those of the capitalist peace theory, where healthy economy and sound 56  
 financial system make for political stability, and that countries in business together do not fight each other. 57  
 Encouraging developing and transitional countries to adopt business-friendly policies thus became one of 58  
 the central thrusts of U.S. foreign policy in the 1990s. Business-friendly policies would induce private 59  
 capital flows from developed to developing and transitional nations, creating economic growth and 60  
 stimulating employment. The rise in incomes and, more importantly, economic opportunities would 61  
 create a strong incentive for regional and global cooperation. Traditional grievances, resentments, and 62  
 hostilities would fade, and the need for large defense establishments would decline. Defense expenditures 63  
 could thus be reduced, combating statism and promoting democratic governance. 64

The Washington Consensus was not without its critics.<sup>9</sup> The term Washington Consensus became 65  
 synonymous with a rigid approach to economic reform. Critics argued that the singular focus on economic 66  
 efficiency, coupled with often-piecemeal implementation, exacerbated income inequality.<sup>10</sup> Fueling such 67  
 criticism was the fact that the proposed reforms' focus was on increasing growth and did not explicitly 68  
 consider inequality as an objective. 69

### 3. Economic liberalization, governance and defense expenditures 70

We now turn to the question of whether there is a statistically significant linkage between defense 71  
 expenditures, economic liberalization, and democratic governance. We also examine the impact between 72  
 defense and over-all economic growth allocations to determine if the new institutional environment is 73  
 compatible with increased allocations for security. To do so, we must first discern what measures of 74  
 economic liberalization and democratic governance exist in the literature and whether these measures are 75  
 suitable for our analysis. 76

We employ two measures of economic freedom in our empirical analysis. Gwartney and Lawson 77  
 employ the assumption that measures of personal choice, voluntary exchange, freedom to com- 78  
 pete and protection of individual property and liberties adequately capture to construct the 79  
 Economic Freedom of the World (EFW) index.<sup>11</sup> The Heritage Foundation and the Wall Street 80

<sup>9</sup> Naim, Moises. The Washington Consensus: A Damaged Brand. *Financial Times*, October 28th, 2002; Moreno-Brid, Juan Carlos, Esteban Perez Caldentey, and Pablo Ruiz Napoles. The Washington Consensus: A Latin American Perspective Fifteen Years Later. 2004–5. *Journal of Post Keynesian Economics*. 27(2), 345–365; Ocampo, Jose Antonio. 2004–5. *Journal of Post Keynesian Economics*. 27(2), 293–314.

<sup>10</sup> Lance Taylor. (2000). External Liberalization, Economic Performance, and Distribution in Latin American and Elsewhere. WIDER Working Paper Number 215, Available at: <http://www.wider.unu.edu/publications/wp215a.htm>; J. Barkley Rosser Jr, and Marina Vcherashnaya Rosser. Another Failure of the Washington Consensus on Transition Countries: Inequality and Underground Economies. *Challenge*. Volume 44, Number 2 / March–April 2001, 39–50.

<sup>11</sup> James Gwartney and Robert A. Lawson, *Economic Freedom of the World* (Vancouver: Fraser Institute, 2003).

Journal<sup>12</sup> compile another index of economic freedom, which focuses on the relative progress made by countries in moving to a deregulated, limited government, free-market environment. Institutions and policies are considered supportive of economic freedom when they provide a framework for voluntary exchange and protection of individuals and their property from unlawful expropriation.

While there has been a significant increase in the number of democratic governance indicators over the past decade, many of the more recent indicators lack a time-wise dimension. We choose to employ the innovative governance indicators constructed by Kaufman, Kraay, and Zoido-Lobaton and, most recently, Kaufman, Kraay and Mastruzzi which cover 199 countries and territories for 1996, 1998, 2000, and 2004. We do recognize that democratic governance, much like economic freedom, is a process that should be measured in multiple dimensions and that the composite measure may fail to capture all the dimensions of democratic governance. The advantages of these measures are consistency with the literature on governance issues and comparability across countries and time.

We now turn to the question of whether a statistical relationship exists between economic liberalization, democratic governance, and defense expenditures. Previous studies in the literature are inconclusive as to whether defense expenditures and economic growth are negatively related. One potential concern is that previous studies have pooled markedly different countries, suggesting the potential of spurious correlation. Often these studies have found a negative relationship between defense expenditures and economic growth. On the other hand, several empirical studies<sup>13</sup> have suggested that defense expenditures taking place in environments of plentiful savings or foreign exchange, often produced positive impacts on growth. Similarly, when these factors were relatively scarce, defense expenditures often had a negative effect on economic growth.

The question at hand is whether economic liberalization and democratic governance act as precursors to a positive relationship between defense expenditures and economic growth? Does reducing statism and improving public voice and accountability improve the technical efficiency of defense expenditures? Or, do improvements in economic and democratic freedom induce a sectoral shift in expenditures reducing the role of the defense establishment in the economy? We examine these issues below.

### 3.1. Differences in high–low country group means<sup>14</sup>

We first present descriptive statistics grouped by the share of defense expenditures in Gross Domestic Product (GDP) or the defense burden (Table 1). We note that the mean average defense burden for the sample countries during the 2000–2003 period was 2.66%, with the countries below that level averaging 1.49%, and those above at 5.49%. We argue that that two distinct cohorts of countries exist in the data, classified by defense burden.

We note that significant differences appear to exist between the low and high defense burden countries. Higher defense burden countries allocated approximately 18.35% of the public budget to defense expenditures as opposed to 6.3% of lower defense burden countries in the 2000–2003 period. This

<sup>12</sup> See for example Marc Miles, Edwin Feulner and Mary Anastasia O’Grady and Ana Eiras, 2004 Index of Economic Freedom (Washington: Heritage Foundation, 2004).

<sup>13</sup> P.C. Frederiksen and R.E. Looney, “Another Look at the Defense Spending and Development Hypothesis,” *Defense Analysis* (September 1985), pp. 205–210; R.E. Looney and P.C. Frederiksen, “Profiles of Latin American Military Producers,” *International Organization* (Summer 1986), pp. 745–752.

<sup>14</sup> Tables reporting the descriptive statistics in this section are available upon request. Unless otherwise specified all data is from: World Development Indicators 2005 (Washington: World Bank, 2005).

t1.1 Table 1

t1.2 Comparison: High/low defense expenditure countries

t1.3	Military/social	Defense budgetary share	Defense expenditure % GDP	Military personnel % labor force	Health expenditure % GDP	Education expenditure %GDP
t1.4	Group differences 2000–2003					
t1.5	<i>Low defense countries</i>					
t1.6	Mean	6.30	1.49	0.99	6.03	4.50
t1.7	Germany	4.57	1.48	0.69	10.77	4.55
t1.8	India	14.38	2.30	0.51	6.17	4.11
t1.9	Indonesia	–	1.14	0.48	3.00	1.41
t1.10	Romania	8.21	2.41	1.93	6.07	3.29
t1.11	Uganda	12.85	2.35	0.48	7.07	–
t1.12	<i>High defense countries</i>					
t1.13	Mean	18.35	5.49	3.08	6.00	4.40
t1.14	Chile	18.91	3.71	1.83	5.73	4.07
t1.15	Colombia	17.69	3.85	1.41	8.13	4.64
t1.16	Russia	18.41	4.05	1.78	5.97	3.02
t1.17	United States	17.22	3.43	0.99	13.87	5.75
t1.18	Group differences 1995–1999					
t1.19	<i>Low defense countries</i>					
t1.20	Mean	7.24	1.57	1.13	5.85	4.16
t1.21	Germany	4.81	1.58	0.86	10.60	4.60
t1.22	India	15.11	2.23	0.53	5.45	3.61
t1.23	Indonesia	9.66	9.66	0.52	2.55	1.24
t1.24	Romania	9.08	2.80	2.81	8.50	5.59
t1.25	Uganda	17.42	2.33	0.42	5.80	2.48
t1.26	<i>High defense countries</i>					
t1.27	Mean	20.82	5.78	3.44	6.06	4.38
t1.28	Chile	–	3.58	2.08	6.05	3.78
t1.29	Colombia	–	3.08	1.36	9.80	4.18
t1.30	Russia	–	3.82	2.14	5.65	3.67
t1.31	United States	–	3.26	1.12	13.00	5.39

t1.32 Source: Compiled from World Development Indicators 2005 (Washington: World Bank, 2005).

represents a decline in defense burden and budget shares for both cohorts relative to the 1995–1999 period. The argument that a lower defense burden translates into a greater percentage of the public budget going towards social (education and health) expenditure does not appear to be supported by the data. Both cohorts allocated approximately the same percentage of public resources to education (6.0%) and health (4.5%) expenditures. Furthermore, the higher defense burden cohort allocated a higher percentage of the public budget to social expenditures in the 1990s relative to the lower defense burden cohort.

The differences between the cohorts extend to key macroeconomic aggregates. The lower defense burden cohort attracted a significantly greater amount of Foreign Direct Investment (FDI) in the 2000–2003 period, 18.29% of GDP as opposed to 5.43% for the higher burden cohort. This appears to be a relatively new development in the two cohorts attracted relatively similar amounts of FDI in the 1995–1999 period, 5.43% (lower burden) as opposed to 4.93% (higher burden).

One potential explanation for the higher inflows of FDI is that the lower burden cohort's macroeconomic performance was superior to that of the higher burden cohort. Government consumption was relatively lower (14.98% vs. 18.42%) and Gross Domestic Savings was relatively higher (17.73% vs. 14.98%) in the 2000–2003 period. While the higher defense cohort enjoyed a marginally higher investment rate in the 1995–1999 period (21.83% vs. 20.70%), this reversed in the 2000–2003 period (19.23% vs. 20.91%). This pattern is mirrored in economic growth with the higher defense burden countries growing relatively faster in the 1995–1999 period (2.99% vs. 2.17%) and relatively slower in the 2000–2003 period (1.88% vs. 2.32%).

With respect to economic liberalization, the lower burden cohort appears to have made more significant process. Both measures of economic freedom suggest that lower defense countries have reduced the role of the state, improved market institutions, and were more hospital to private property owners than higher defense burden countries. Higher defense burden countries only appear to outperform the lower defense burden countries in the areas of sound money (1995–2003), regulatory climate (1995–1999) and sound money (2000–2003).

Yet, the most striking difference appears in the democratic governance data. The lower defense burden cohort consistently outperforms the higher burden cohort in each of the six dimensions of democratic governance. The difference is most marked in the area of voice and accountability, suggesting that citizens had a participatory role in the governance structures of the lower defense burden countries. These statistics are also suggestive of the relatively superior attraction of FDI and economic performance.

### 3.2. Causal linkages

We can now explore the causal linkages between economic liberalization, democratic governance, and defense expenditures. Regressing the mean defense burden for 2000–2003 on the measures of economic freedom and democratic governance suggests that a causal relationship does exist between the various measures of economic and democratic freedom and the defense burden. The results suggest that voice and accountability, the Gwartney and Larson summary measures of economic freedom and legal structure index and the Kaufman, Kraay and Mastruzzi index of the rule of law negatively influence the defense burden. These results are suggestive of the argument that improvements in economic freedom and democratic governance reduce military.

We again note that the sample is not homogenous in that the two cohorts are quite distinct. The results are suggestive of the existence of a reform threshold. Countries that are able to build upon initial reform efforts are able to sustain them over time, reaping the long-term benefits associated with the reduction of statism and improvements in democratic governance. Countries that lack the political or cultural will to sustain these efforts are unable to proceed with liberalization and fall into a general economic and political malaise.

Previous empirical studies have noted that defense expenditures statistically significantly influence the rate of economic growth. With this in mind, we specify the base estimating equation as:

$$\frac{\Delta y}{y} = \beta_0 + \beta_1 \frac{K}{Y} + \beta_2 \frac{\text{Def}}{Y} + \beta_3 \frac{\text{AID}}{L} + \beta_4 \frac{\text{FDI}}{Y} + \beta_5 \frac{G}{Y} + \Gamma Z + u \quad (1)$$

where  $y$  is GDP per capita;  $Y$  is GDP,  $L$  is population,  $K$  is gross capital formation; Def is defense expenditures; AID per capita; FDI is Gross Foreign Direct Investment;  $G$  is Government Consumption;

and  $Z$  is the matrix of other control variables and  $u_{it}$  is an error term whose properties depend upon which estimator we employ in our investigation of the relationship between defense expenditures and economic growth. *A priori* we would expect that economic growth as proxied by the rate of change in per capita GDP to be positively influenced by Gross Capital Formation; Aid per Capita; and Gross Foreign Direct Investment. We would expect that Government consumption would negatively influence economic growth and that the sign of defense expenditures is unknown *a priori*.

As illustrated below, for the pooled sample, defense expenditures appear to have a statistically significant impact on growth in per capita GDP. This finding, however, appears to be fragile to the composition of the sample. While defense expenditures are not a statistically significant determinant of economic growth in the low defense burden cohort, it is statistically significant and negative for the high defense burden cohort.

	Growth in per capita GDP	Growth in per capita GDP	Growth in per capita GDP.
Gross capital formation as % of GDP	0.357** (3.75)		0.422** (3.72)
Defense expenditures as % of GDP	-0.202** (-2.10)	-0.438** (-2.54)	
Degrees of freedom	94	28	65
<i>F</i> -statistic	9.282	6.424	13.83
<i>R</i> squared	0.150	0.162	0.165
Sample	Full	High burden	Low burden

### 3.3. Relative reform environments

Taken literally, the results above suggest that increased defense expenditures in the high defense burden cohort are detrimental to economic growth. Two possible explanations emerge that may explain this relationship. First, the opportunity cost of defense expenditures may be significant in that the reallocation of these public resources to other activities would positively influence economic growth. Second, while defense expenditures may generate non-quantifiable positive externalities, the negative externalities associated with defense expenditures outweigh these positive externalities.<sup>15</sup>

The evidence supporting either proposition is mixed. As noted previously, both cohorts had relatively similar patterns of investment and social expenditure. The fact that the high defense countries had fairly similar investment rates as the low defense countries may rule out the first explanation. The fact that both groups of countries also had fairly similar rates of expenditures on health and education strengthens this interpretation. On the other hand, there is some support for the externality explanation. Negative externalities may have prevailed in the high defense group because the supporting environment did not exist for substantiating positive linkages between military allocations and the over-all economy.

For many countries, the real question is how to create environments whereby the positive economic effects of defense expenditures dominate the negative. This is a particularly relevant issue for many

<sup>15</sup> A third possible explanation is that certain key variables impacting defense expenditure were omitted from the regression equation. This is a problem for all regression analysis. In any case inclusion of additional variables even if significant is highly unlikely to change the sign on the defense term.

t2.1 Table 2

t2.2 Comparison: High/low (relative to state of governance/economic reforms) defense expenditure countries

t2.3	Military/social	Defense budgetary share	Defense expenditure % GDP	Military personnel % labor force	Health expenditure % GDP	Education expenditure % GDP
t2.4	Group differences 2000–2003					
t2.5	<i>Low defense countries</i>					
t2.6	Mean	7.40	1.67	1.10	6.12	4.63
t2.7	Germany	5.58	1.48	0.69	10.77	4.55
t2.8	India	14.38	2.30	0.52	6.17	4.12
t2.9	Uganda	12.85	2.35	0.48	7.07	–
t2.10	<i>High defense countries</i>					
t2.11	Mean	11.53	3.19	2.01	6.25	4.33
t2.12	Chile	18.91	3.71	1.83	5.73	4.07
t2.13	Colombia	17.69	3.85	1.41	8.13	4.64
t2.14	Indonesia	–	1.14	0.48	3.00	1.41
t2.15	Romania	8.21	2.41	1.93	6.07	3.29
t2.16	Russia	18.41	4.05	1.78	5.97	3.02
t2.17	United States	17.22	3.42	0.99	13.87	5.75
t2.18	Group differences 1995–1999					
t2.19	<i>Low defense countries</i>					
t2.20	Mean	9.24	1.80	1.24	5.98	4.27
t2.21	Germany	4.81	1.58	0.86	10.60	4.60
t2.22	India	15.10	2.23	0.53	5.45	3.61
t2.23	Uganda	17.42	2.33	0.42	5.80	2.48
t2.24	<i>High defense countries</i>					
t2.25	Mean	12.58	3.18	2.33	6.05	4.18
t2.26	Chile	–	3.58	2.08	6.05	3.78
t2.27	Colombia	–	3.08	1.36	5.80	4.18
t2.28	Indonesia	9.66	1.23	0.52	2.55	1.24
t2.29	Romania	9.08	2.80	2.81	5.50	3.52
t2.30	Russia	–	3.82	2.14	5.65	3.67
t2.31	United States	–	3.26	1.12	13.00	5.39

t2.32 Source: Compiled from World Development Indicators 2005 (Washington: World Bank, 2005).

countries that have pressing needs for improved domestic security or increased protection from external threats. If the IMF and World Bank are correct in emphasizing economic liberalization and improved governance as keys to improved economic performance, then the answer may lie in achieving some sort of balance between defense expenditures and liberalization.

Our results above suggest that progress in reform may be associated with the influence of defense expenditures on economic growth. We can employ the estimates to calculate an estimated rate of liberalization in the economic and governmental spheres to defense expenditures. Conceptually, if economic liberalization/democratic governance are on the horizontal axis, the countries above the predicted regression line have higher defense burdens relative to their progress in economic and democratic reform. Likewise, countries below the regression line have progressed relatively quickly in reforms with respect to their defense burden. We can create two additional cohorts of countries using this methodology.



## 3.4. Differences in high–low defense relative to reforms country groupings

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As before, we first examine whether the two new cohorts differ with respect to their descriptive statistics. Unlike the defense burden cohorts described previously (Table 1), the new cohorts are closer in terms of the share of public resources allocated to defense. For the 2000–2003 period, the high defense burden relative to reform cohort (hereafter high cohort) expended approximately 3.19% of GDP relative to 1.67% for the low defense burden relative to reform cohort (hereafter low cohort) (Table 2).

Differences continue to emerge relative to the original groupings. While the low defense burden cohort expended more on health in the 2000–2003 period, the high cohort expended more on education. With respect to economic growth, the high cohort grew faster than the low cohort (1.94% vs. 1.76%) in the 2000–2003 period. The growth rates between the two cohorts appear, however, to be converging over the sample period. On the other hand, foreign direct investment flows follow the same pattern as discussed earlier. Lower defense burden countries appear to be more successful in attracting FDI. Whether this ability to attract FDI is due to a more hospitable investment or security climate is not clear.

The impact of September 11 appears to be demonstrated in aid flows to high defense countries. Prior to 2001, aid flows underwent a long-run downward trend. The higher aid flows, in part, helped the higher defense cohort offset the gap relative to the lower defense cohort, but questions remain whether these aid flows will be sustained over time. Another concern for the higher defense cohort is the continuing decline relative to the low defense cohort in investment rates. While we observe a spike in recent years in investment, it is unclear whether this is temporary or a reversal of the secular trend. If the decline continues, this will place more pressure on the high defense cohort to liberalization and reform their governance structures to promote investment and economic growth.

With respect to measures of economic freedom and governance, the two new cohorts are much closer than the previous grouping. While the higher burden cohort is now ranked ahead of the lower cohort in terms of government size and exchange with foreigners, the lower cohort is now considered equal in terms of access to sound money. Also, the higher defense cohort is now ranked higher in six of ten dimensions of economic freedom, whereas in the previous grouping the higher cohort only ranked ahead in one dimension. Finally, in the area of democratic governance, the high cohort is now ranked higher in voice and accountability, political stability, and regulatory quality. This is a marked change from the previous grouping where the low defense burden countries had attained higher rankings in all six dimensions.

	Growth in per capita GDP	Growth in per capita GDP	Growth in per capita GDP
Gross capital formation as % of GDP	0.357** (3.75)	0.567** (3.95)	0.565** (4.21)
Defense expenditures as % of GDP	–0.202** (–2.10)		0.285** (2.12)
Degrees of freedom	94	34	36
F-statistic	9.282	15.621	10.80
R squared	0.150	0.301	0.353
Sample	Full	High burden	Low burden

Turning to empirical analysis, we again regress the growth rate of per capita GDP on defense expenditures as a percentage of GDP and other measures of macroeconomic performance. Unlike the previous grouping, defense expenditures as a percentage of GDP does not statistically significantly influence economic growth in the sub-sample of high defense burden relative to progress in economic

liberalization and democratic governance countries. As we hypothesized previously, defense expenditures can promote economic growth if the institutional environment promotes technical efficiency. As noted above, defense expenditures appear to be positively and significantly related to economic growth for the sub-sample of countries that have a low defense burden relative to their progress in economic and democratic reform. Again, these results are suggestive of a much more involved relationship between defense expenditures and economic growth as previously examined in the literature.

#### 4. Conclusions and recommendations

Previously, much of defense economics' conventional wisdom left those countries facing declining economic growth combined with rising security problems with few attractive alternatives. Cutting defense expenditures to stimulate the economy may create a vicious cycle whereby increased security concerns begin negatively impacting the economy, requiring further military cut-backs and so on. Increasing defense expenditures were felt to harm the economy, perhaps in turn resulting in increased domestic discontent over time. The results presented here suggest that choices facing decision makers may not be this stark and that countries may have a wider variety of policy options than previously thought.

A recent IMF study<sup>16</sup> on armed conflict and terrorism in low and middle-income countries concluded that conflict is associated with lower growth and higher inflation. The study also found that conflict and terrorism also leads to higher government spending on defense. From this they conclude that there is a potential for a sizeable peace dividend for countries that are able to resolve conflict and terrorism. Our results don't dispute this. On the other hand, our results are consistent with the position that increased defense expenditures under certain conditions may be an effective means of staving off conflict and terrorism in the first place.

While the empirical work is still at the exploratory stage, the main finding of this study is that key combinations of reforms and governance measures likely exist and are capable of neutralizing many adverse economic effects often found associated with defense expenditures. Specifically, countries with low levels of defense expenditures, relative to their overall progress in economic liberalization and governance, appear to have the ability to create environments capable of actually obtaining a positive economic stimulus from defense allocations. The implementation of the right economic and governance reforms this might create a virtuous circle of improved security, leading to further growth and pressure for additional economic and governance reforms to sustain the expansion; this is an environment likely to lessen the attractiveness of domestic terrorism.

For countries with high levels of defense relative to their progress in reforms, improvements in some areas of economic freedom and governance appear sufficient to neutralize many of the negative impacts often found associated with defense expenditures. While it is unlikely that these countries will be able to obtain net positive effects from defense expenditures, they are not necessarily condemned to defense budgetary cuts as their sole means of obtaining a peace dividend. Selective economic liberalization and improved governance in key areas may be sufficient for this purpose. For these countries, security sector reform is best thought of in a broad context with coordinated reforms in the economic and governance

<sup>16</sup> Sanjeev Gupta, Benedict Clements, Rina Bhattacharya, and Shamit Chakravarti, "Fiscal Consequences of Armed Conflict and Terrorism in Low- and Middle-Income Countries," (Washington: International Monetary Fund, August 2002).

areas are equally as important as developments in the defense area in attaining security objectives, particularly those of combating the pull of terrorism.

Finally, a major element of democratic civil–military relations, defense efficiency seeks to understand whether military and security establishments can accomplish roles and missions at the least possible cost to society. Economic liberalization always entails a number of paradoxes; free trade, from a mercantilist perspective, is thought to weaken national economic strength when, in actuality, it enhances national economic power. To those primarily concerned with security issues, the wave of economic liberalization and neoliberal policies in the Washington Consensus of the 1990s, appeared to give the international financial agencies, as well as domestic reformers, a rationale for cutting allocations to the military. These same reforms, however, may create an environment minimizing many of the disruptive economic effects often responsible for dampening necessary build-ups in security budgets. The key is to coordinate economic liberalization and governance reforms in the civilian sector, with the requirements for improved security in the defense sector.

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