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Looney, R.E.

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# Recent Research on Defense Spending and Growth and Implications for Third World Disarmament

ROBERT LOONEY AND P. C. FREDERIKSEN

*Even if political and nationalistic obstacles to disarmament were overcome, proposals to disarm might be challenged on purely economic grounds. A significant number of countries might experience declines in growth if military budgets were cut. Disarmament might also be hindered if leaders choose only to recognize the positive effects of defense budgets.*

## INTRODUCTION

Since 1960, the United Nations has been concerned with identifying the links that exist between disarmament and social and economic development. This concern has focused especially on developing countries (LDCs).<sup>1</sup> There has been relatively little attention—at least at the intergovernmental level—paid to the possibility of disarmament in LDCs.<sup>2</sup> Among the reasons often cited for the lack of enthusiasm for disarmament in LDCs is that they (1) spend considerably smaller absolute amounts on defense than industrialized countries, and (2) resist cutbacks in military expenditures when industrialized nations are themselves engaged in arms races or refuse to cut defense budgets first.<sup>3</sup> In short, disarmament advocates presume that all countries—whether industrialized or not—would obtain benefits in terms of growth if disarmament took place. However, developing countries are unwilling to cut back without the industrialized countries taking the first step.<sup>4</sup>

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Although there is undoubtedly some truth to this line of argument, here we shall maintain that there may be another, more fundamental reason for the apparent unwillingness of governments in LDCs to promote disarmament. Some recent empirical work investigating the effect of defense expenditures on economic growth indicates that a number of LDCs have environments where military expenditures tend to promote economic growth. As will be noted below, the countries that tend to exhibit positive effects from military expenditures are the larger, richer, and more dominant Third World countries. Although the debate is still unresolved as to whether defense does in fact help or hinder growth, here we suggest that the LDCs that apparently derive a net benefit from defense may be unwilling to disarm. This in turn becomes a major impediment to broad disarmament efforts in Third World nations.

If, on the other hand, leaders in LDCs believe the other side of the debate, i.e., that defense spending and economic growth are negatively related, then too they may hesitate to cut military budgets. First, leaders might choose to recognize only the positive effects stemming from defense expenditures (e.g., education) and ignore the dominant negative effects. Second, if a defense hierarchy exists, special interest groups such as retired military officers or contractors might find it economically advantageous to maintain (or even increase) defense spending levels despite the effect on growth. Third, the presence of a regional arms race may make a defense cut politically infeasible.

We shall first examine some of the possible impacts of defense on economic growth. We shall then review some of the early studies in the debate; and then look at some recent papers that have broken LDCs into subgroups and that have reexamined the causality issue.

## THE ECONOMIC IMPACTS OF DEFENSE EXPENDITURES

Common sense tells us that military preparations are an economic burden: the larger the part of available resources devoted to the military area, the smaller the part available for nondefense items such as investment in technology and education—activities that are in a wider sense the underpinnings of economic and social development.<sup>5</sup> Since the modern defense establishment is often a large consumer of technical and managerial manpower and also of for-

eign exchange, one would expect the negative impact of the defense burden to be particularly evident in developing countries where these types of resources are particularly scarce.<sup>6</sup>

One can generally argue that defense expenditures can either promote or hinder economic growth. Proponents of the former position justify them not only on grounds of national security but also in purely economic terms. One of the first scholars to measure the positive link between military spending and economic growth was Emile Benoit.<sup>7</sup> He noted that military spending can contribute by:

- (1) feeding, clothing and housing a number of people who would otherwise have to be fed, housed and clothed by the civilian economy . . . (2) providing education and medical care as well as vocational and technical training . . . (3) engaging in a variety of public works—roads, dams, river improvements, airports, communications networks, etc.—that may in part serve civilian uses, and (4) engaging in scientific and technical specialities . . . which would otherwise have to be performed by civilian personnel.<sup>8</sup>

In addition, the military is often the first to learn new technological developments and often seems the most willing to train its personnel in the handling and use of such equipment. And spillover benefits filter into the rest of the economy.

The basic criticism against defense expenditures is that they represent a significant opportunity cost—if the same resources had been spent in other sectors of the economy there would have been a significant improvement in the growth rate.<sup>9</sup> Benoit recognized three possible negative effects: an income shift as increased military spending reduces the civilian domestic product, the productivity effect since government expenditures exhibit “negligible rates of measurable productivity increases,” and the investment effect where military spending crowds out civilian investment.<sup>10</sup>

Chan has summarized several other negative effects.<sup>11</sup> There may be a “balance of payments effect” if economic growth is primarily export-led. Military expenditures in this case might result in a significant movement of resources away from the most dynamic sectors of the economy, which are often involved in exports. Furthermore, defense spending is quite often import-intensive—further worsening the balance of payments effect by using up scarce foreign exchange or adding to the high external debt. In addition, Chan mentions the “technological displacement” effect of defense R&D budgets, which consume significant amounts of available resources.

All in all, no predominant or consistent pattern emerges as to the effect defense expenditures might have on economic growth. A logical and convincing case can be made for defense spending helping or hindering growth in LDCs. This dichotomy is further borne out by a review of some of the major empirical studies.

#### EARLY EMPIRICAL STUDIES

A number of scholars have attempted to measure the impact of defense expenditures on economic growth in LDCs.<sup>12</sup> Rothschild rank correlated growth, exports, and military spending for fourteen OECD countries from 1956 to 1969 and found a negative correlation—increases in defense were accompanied by reductions in exports and growth.<sup>13</sup> In a major study, Benoit used 1950-1965 data for forty-four developing countries and estimated a model that included investment, foreign aid, and defense as independent variables. He concluded that “contrary to my opinion, countries with a heavy defense burden generally had the most rapid rate of growth, and those with the lowest defense burdens tended to show the lowest growth rates.”<sup>14</sup>

Dabelko and McCormick grouped countries (personalist, centrist, and polyarchic) to assess the impact of defense expenditures on education and public health expenditures.<sup>15</sup> They concluded that (1) significant opportunity costs existed for education and health, (2) that the level of development had little or no impact on this cost, and (3) that personalist regimes tended to have the highest opportunity costs.

In 1983, Lim estimated a Harrod-Domar type model and found a negative relationship between defense and growth.<sup>16</sup> Furthermore, his regression equations were estimated for different regions of the world. He found a statistically significant negative relationship between defense and growth for the African and Western Hemisphere LDCs but no statistical relationship for the countries in Asia and Middle East/southern Europe. Smith and Smith hypothesized a positive relationship through the impact on growth of resource mobilization, equipment modernization conducted by the military, investment in infrastructure by the military, and the internal supply response to defense demand for goods and services.<sup>17</sup> Although they found a small direct positive effect of defense on economic growth, it was far outweighed by the indirect effect of mili-

tary expenditure on lowering the savings rate. These results were supported by a study by Deger and Smith,<sup>18</sup> who also found that any positive effect on growth was more than offset by the lower savings rate.

A negative relationship was also found by Taylor et al.,<sup>19</sup> who estimated a regression equation relating the output growth rate to changes in exports, population, the defense burden, capital inflows, and capital stock. The same general conclusion was reached by del Pano, who focused on just five South American countries.<sup>20</sup> He found that if military expenditures were reduced, the resulting reduction in demand was more than compensated by spending the same resources elsewhere in the economy. The 1984 study by Faini, Annez, and Taylor estimated that a 1 percent rise in the military's share of gross domestic product would lead to a 23 percent and 18 percent decline in the shares for investment and agriculture, respectively.<sup>21</sup>

Two recent studies continue to illustrate the differing results that scholars obtain in this area. For example, Biswas and Ram developed an "augmented model" and concluded that "military expenditures neither help nor hurt economic growth in LDCs to any significant amount."<sup>22</sup> On the other hand, in two 1986 studies,<sup>23</sup> Deger recognized that military spending can and does have economic benefits: effective demand, stability, interindustrial linkages, and major spinoffs. However, on balance she believes the negative effects are strongest and that defense spending significantly depresses growth and constrains development. She noted that "the empirical evidence goes against the findings of Benoit and others regarding the positive effects of defense and growth. . . . defense expenditure allocates scarce resources away from productive civilian investment and fails to mobilize or create any additional savings."<sup>24</sup>

## ALTERNATIVE EMPIRICAL STUDIES

Whereas some of the empirical studies described above have found a positive relationship between defense and growth (most notably Benoit), others have found no relationship (Biswas and Ram) and others have discovered a strong negative relationship (Deger). These studies were for the most part prompted by the seminal work of Benoit. There are many reasons for the rather mixed results

that have been obtained—different country samples, different model specifications, different time periods, different definitions of what an LDC is, and so on. Two specific areas have received close attention in recent years: namely, the splitting of LDCs into subgroups, and the issue of causality.

### *Empirical Testing Using Subgroups*

By and large, the empirical studies attempting to uncover the relationship between military expenditures and economic growth in LDCs “lump” all LDCs into one sample. By doing so, researchers implicitly assume a basic homogeneity in Third World environments—that, for example, the impact of military expenditures is the same in Saudi Arabia as it is in Bangladesh. It further assumes that the composition of military expenditure is similar across all countries. The cross-section analyses do not allow for differing impacts on growth from countries who spend a disproportionate amount on military education or sophisticated arms imports. Similarly, it is possible to argue that the impact of defense on growth will be different in those countries that have a well-established arms industry than in a country with no military-industrial complex. Furthermore, it can be hypothesized that the impact might be different according to the regime—civilian or military—given that budget priorities for both sets of regimes are likely to be quite dissimilar.

The early attempts to split the total sample into subgroups (described above) were by government (Dabelko and McCormick), by hemisphere (Lim), and by region (Taylor et al., del Pano). One of the possible reasons for the mixed results in the debate is because the resulting groups contained countries with extremely diverse environments. In our opinion, it is likely that had one or two countries been included or excluded the final result might have been quite different.

To overcome this problem, Frederiksen and Looney grouped countries according to resource constraints.<sup>25</sup> They hypothesized that a severely resource-constrained country facing a budget reduction is likely to sacrifice development projects to maintain defense budgets. The impetus for such a policy might be political expediency, or that special interest groups might find it more advantageous to maintain the status quo. In countries that have a relative abundance of resources, the reverse is true: these countries can af-

ford high-growth development projects concomitant with maintaining or even increasing defense programs. Using Benoit's model and sample, they found a positive relationship between defense and growth in the resource-abundant countries and a negative relationship in the resource-constrained countries.

Using Lim's model specification, they tested the relationship for a later period and larger set of countries but grouped according to national savings and balance of payments (both as a percentage of gross domestic investment).<sup>26</sup> The coefficient of the defense variable was positive (and statistically significant) in the richer group but statistically insignificant in the poorer group. A similar result was obtained after grouping countries based on access to foreign resources—exports, external borrowing, and the like.<sup>27</sup>

By and large, this research demonstrates a pattern whereby certain groups of Third World countries—usually the most important countries from an economic, political, or arms production point of view<sup>28</sup>—derive positive impacts from military spending. Those countries that are less successful economically or that lack a domestic arms industry fail to derive any positive impacts from defense and often experience negative economic growth.

#### *The Direction of Causality*

Another aspect of the debate that has recently received close scrutiny has been the causality issue. In his original work, Benoit noted that "the direct interaction between growth and defense burdens seems to run primarily from defense burdens to growth rather than vice versa. It seems clear that in the sample countries higher defense burdens stimulate growth."<sup>29</sup> The assumption that defense is the independent variable in any regression equation has recently been challenged by Joerding.<sup>30</sup> Using Granger causality methods, he tested for the assumed exogeneity of defense budgets. Using one sample of fifteen observations from each of fifty-seven different countries, he concluded that defense expenditures are not strongly exogenous and that previous studies were thus flawed.

Although noting that Joerding's paper was important, Frederiksen and LaCivita made two major criticisms: all countries are lumped together, and the time lag structure was the same for all countries.<sup>31</sup> While Chan noted that the search for a universal pattern applicable to all countries is likely to be disappointing,<sup>32</sup> Fred-

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eriksen and LaCivita found that for the Philippines causality runs from economic growth to defense. In another study that examined twenty-one countries, they found that the relationship between growth and defense differs among countries.<sup>33</sup> In four countries economic growth preceded defense, and in three countries defense preceded growth. There was no discernible relationship for four countries and there was feedback in the remaining ten countries. In addition, the lag structure was found to vary widely among countries.

## CONCLUSIONS

Recent empirical work on the impact of military expenditures on Third World economies, while not directly dealing with the issue of disarmament, nevertheless provides some insights as to why developing countries are perhaps reluctant to reduce defense budgets. The initial post-Benoit studies, which for the most part grouped all LDCs together, tended to find a negative relationship between defense spending and growth, that is, increases in military spending were associated with decreases in economic growth. Some of these early studies also attempted to group countries and reestimate the model for each subgroup. We have suggested that the resulting groups often contained countries with widely differing economic environments.

Later studies focused on (1) splitting the LDCs into more homogeneous groups using resource constraints, and (2) testing for causality and appropriate lag structure. Regardless of the division chosen, usually the same set of countries tended to experience positive impacts from defense expenditures. These countries were the larger, more economically successful, and thus more influential Third World states. These included Mexico, Brazil, South Korea, Argentina, Saudi Arabia, Malaysia, Algeria, Venezuela, Turkey, Spain, Egypt, Indonesia, Nigeria, India, Thailand, and Jordan. The empirical evidence casts at least some doubt as to whether disarmament might be in the best economic interests of these countries.

Although it is doubtful that we will ever know whether defense "causes" growth or whether growth "allows" defense, there are several interpretations stemming from the above studies. First, there may be an unwillingness on the part of some Third World countries to disarm because their leaders believe in a "Benoit effect": that the positive economic benefits from defense expenditures

outweigh the negative effects.

Another interpretation is that if the preponderance of the evidence suggests a negative impact of defense, leaders in Third World (and other) countries may choose to ignore the evidence; instead they might prefer to emphasize or to only "understand" the visible positive effects of military spending. Often, for political reasons or because a defense hierarchy exists, these leaders choose to yield to the pressure groups that will derive future benefits from military spending at the current or increased levels. In other words, leaders in LDCs tend to overlook the sometimes indirect and hidden costs for the whole economy and to concentrate only on the positive aspects of military spending.

While well-intended, proposals for disarmament would seem to face a number of well-known political and nationalistic obstacles. Even if these obstacles were to be overcome, proposals to disarm might be challenged on purely economic grounds. A significant number of developing countries could conceivably experience declines in economic growth rates if military budgets were to be cut. Added to the more traditional obstacles to disarmament, the economic argument is likely to make the United Nations' efforts toward disarmament even more difficult.

## NOTES

1. See, in particular, United Nations, *Economic and Social Consequences of the Arms Race and of Military Expenditures* (New York: United Nations, 1978); United Nations, *Disarmament and Development* (New York: United Nations, 1973).

2. N. Ball and M. Leitenberg, "Disarmament and Development: Their Interrelationship," *Bulletin of Peace Proposals* (1979): 247.

3. See K. Rothschild, "Military Exports and Growth," *Kyklos* (1973): 804-815; R. H. Bezdek, "The 1980 Economic Impact—Regional and Occupational—of Compensated Shifts in Defense Spending," *Regional Science* (1975): 70-82.

4. See Ball and Leitenberg, "Disarmament and Development." This theme is also developed to one extent or another in M. Lumsden, "Global Military Systems and the New International Economic Order," *Bulletin of Peace Proposals* (1978); N. Ball, "Military Expenditure and Socio-economic Development," *International Social Science Journal* (1983): 81-96. See also the essays in R. Jolly, ed., *Disarmament and World Development* (New York: Pergamon Press, 1978).

5. R. Hursken, "Armaments and Development," in H. Tuomi and

R. Vayrynen, eds., *Militarization and Arms Production* (New York: St. Martin's, 1983), p. 3.

6. *Ibid.*, p. 13.

7. E. Benoit, "Growth and Defense in Developing Countries," *Economic Development and Cultural Change* (1978): 271-280.

8. *Ibid.*, p. 277.

9. W. Leontief and F. Duchin, *Military Spending: Facts and Figures, Worldwide Implications and Future Outlook* (New York: Oxford University Press, 1983).

10. Benoit, "Growth and Defense."

11. S. Chan, "The Impact of Defense Spending on Economic Performance: A Survey of Evidence and Problems," *Orbis* (1985): 403-434.

12. A similar review of the literature can be found in R. E. Looney and P. C. Frederiksen, "Defense Expenditures, External Public Debt, and Growth in Developing Countries," *Journal of Peace Research* (1986): 329-338.

13. Rothschild, "Military Exports and Growth."

14. Benoit, "Growth and Defense," p. 271.

15. D. Dabelko and J. McCormick, "Opportunity Costs of Defense: Some Cross-National Evidence," *Journal of Peace Research* (1977): 145-154.

16. D. Lim, "Another Look at Growth and Defense in Less Developed Countries," *Economic Development and Cultural Change* (1983): 377-384.

17. D. Smith and R. Smith, "Military Expenditures, Resources and Development," paper prepared for the United Nations Group of Government Experts on the Relationship Between Disarmament and Development, 1980.

18. S. Deger and R. Smith, "Military Expenditures and Growth in Less Developed Countries," *Journal of Conflict Resolution* (1983): 335-353.

19. L. Taylor, R. Faini, and P. Annez, "Defense Spending, Economic Structure and Growth: Evidence Among Countries Over Time," paper prepared for the United Nations Group of Government Experts on the Relationship Between Disarmament and Development, 1980.

20. J. del Pano, "Declaration of Ayacucho: Analysis and Quantification of a Possible Agreement on Limitation of Military Expenditure in Latin America," paper prepared for the United Nations Group of Government Experts on the Relationship Between Disarmament and Development, 1980.

21. R. Faini, P. Annez, and L. Taylor, "Defense Spending, Economic Structure and Growth: Evidence Among Countries and Over Time," *Economic Development and Cultural Change* (1984): 487-498.

22. B. Ram and R. Ram, "Military Expenditures and Economic Growth in Less Developed Countries: An Augmented Model and Further Evidence," *Economic Development and Cultural Change* (1986): 370.

23. S. Deger, "Economic Development and Defense Expenditures," *Economic Development and Cultural Change* (1986): 179-196; S. Deger, *Military Expenditure in Third World Countries: The Economic Effects* (London:

Routledge & Kegan Paul, 1986).

24. S. Deger, "Economic Development and Defense Expenditures," p. 193.

25. P. C. Frederiksen and R. Looney, "Defense Expenditures and Economic Growth in Developing Countries," *Armed Forces and Society* (1983): 633-645.

26. P. C. Frederiksen and R. Looney, "Another Look at the Defense Spending and Development Hypothesis," *Defense Analysis* (1985): 205-210.

27. Looney and Frederiksen, "Defense Expenditures, External Public Debt."

28. For a discussion on arms production and economic performance, see R. Looney and P. C. Frederiksen, "The Impact of Latin American Arms Production on Economic Performance," *Journal of Social, Political and Economic Studies* (1986): 310-320.

29. Benoit, "Growth and Defense," p. 276.

30. W. Joerding, "Economic Growth and Defense Spending: Granger Causality," *Journal of Development Economics* (1986): 35-40.

31. P. C. Frederiksen and C. J. LaCivita, "Defense Spending and Economic Growth: Time Series Evidence on Causality for the Philippines, 1956-82," *Journal of Philippine Development* (1987): 354-360.

32. Chan, "Impact of Defense Spending."

33. P. C. Frederiksen and C. J. LaCivita, "Defense and Economic Growth: An Alternative Approach to the Causality Issue," unpublished ms., 1980.