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CONVENTIONAL WISDOM VS. EMPIRICAL REALITY: THE
CASE OF THIRD WORLD DEFENSE EXPENDITURES AND
ARMS PRODUCTION

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INTRODUCTION

Currently the world is expending vast amounts of resources, both physical and human on defense. Although in total the bulk of defense expenditures are accounted for by the industrialized countries, over the last twenty years military expenditures have grown more rapidly in the Third World than in the NATO or Warsaw Pact countries. The net effect of these trends is increased military burdens on a per capita basis or on the basis of the share of defense in total national income. The Third World is also the major market for weapons exported by the industrialized countries. For many developing countries, the surge in arms imports in the late 1970s and early 1980s has left a legacy of growth impairing external indebtedness[1].

While these rates of growth have slowed down in recent years--the non oil developing countries spent \$60,174 million and the OPEC countries \$54,624 million in 1985, there is still great concern over the tendency of developing nations to devote significant proportions of their national resources on non-developmental activities. These arguments are usually phrased in terms of opportunity costs of other public priorities foregone or of the direct deleterious effects of military spending on other social and economic goals[2]. Support for this perspective has been heightened by growing concern over the consequences of population growth, environmental decay and ecological balance--especially when seen in the context of global resource constraints. Despite this widespread concern, until quite recently, analysis of the determinants and impacts of

defense expenditures has been largely confined to the NATO or WARSAW pact nations.

What research has been undertaken in this area for the developing countries has been largely confined to five broad areas:

1. Studies on the economic impact of defense expenditures. The main concerns here are the manner in which defense expenditures affect: (a) economic growth, (b) the balance of payments and external debt, (c) productivity, (d) the distribution of benefits of growth (basic human needs/quality of life), and the distribution of income.
2. Analysis of budgetary trade-offs between defense and socio-economic allocations. Here interest has focused on the manner in which budgetary priorities are set and whether regime type (usually depicted by military/non-military dichotomy) affects the ordering of budgetary priorities.
3. Determination of the main factors that led to the rapid spread of arms industries throughout the third world in the 1960s and 1970s, and the environments most conducive to successful indigenous production.
4. identification of factors effecting the levels of arms transfers to the developing countries; and
5. examination of the major determinants of the level of defense spending.

Perhaps because of the dearth of quantitative work in the area, a qualitative conventional wisdom dealing with each facet of third world militarization has evolved over time. More often than not this conventional wisdom has been anecdotal and biased towards the standard "guns vs. butter" analogies in assessments of the likely impacts of defense expenditures. Similarly, strategic-political variables and explanations: (a) external threats, alliances, and regional arms races have been the standard explanations given for the level of third world military expenditures and arms imports. Finally, independence of major suppliers, emulation of neighbors and fear of arms boycotts have dominated the discussion as to why third world countries are increasingly turning to indigenous arms production.

Until quite recently, economic analysis has played only a tangential role in explaining these key issues. However, in recent years and beginning with attempts to quantify the impacts associated with defense expenditures, there has been an explosion of economics based empirical analysis. Much of

this work has consisted of testing of many of the widely held standard interpretations of the causes and consequences of third world militarization. In contrast to the rather intuitive and straightforward conventional wisdom associated with each of the main issues outline above, a number of surprising and somewhat counterintuitive findings have been reported in the empirical literature.

The primary purpose of this paper is to survey: (a) the initial attempts at estimating the economic impact of defense expenditures, (b) assess the direction research in this area has taken in recent years, and (c) indicate the key areas in which these findings challenge conventional wisdom.

Based on this assessment, several observations will be made concerning the applicability of empirical models for programming assistance, monitoring performance and forecasting future impacts of military expenditures.

THE IMPACT OF DEFENSE EXPENDITURES ON GROWTH

Common sense tells us that allocations to the military impose an economic burden on the civilian economy. Clearly, the more resources devoted to military preparations the less are available for such things as investment in technology and education--activities which produce economic growth and which are the underpinnings of economic and social development in a wider sense[3]. Since the modern defense establishment is a heavy consumer of technical and managerial manpower and foreign exchange, resources that are especially scarce in the third world, the conventional wisdom is that the negative aspects associated with defense expenditures should predominate.

Chan[4] has summarized the four main negative effects. First is the modernization effect which was also noted by Benoit. The result may be an income shift (as civilian GDP is reduced), a productivity effect as government expenditures exhibit 'negligible rates of measurable productivity increases,'[5] or a 'crowding out' of civilian consumption and investment. Second, Chan suggests a balance of payments effect if growth is export-led: military expenditures could lead to a "chronic and serious displacement of capital and talent from the most dynamic sectors of civilian production to military production." [6] Third, Chan notes the use of R & D resources in defense may hurt the country's technological and productivity base. A final criticism is that defense expenditures are often import-intensive[7].

On the other hand it is possible to argue that defense expenditures by creating a more stable environment tend to stimulate higher rates of investment and hence increased overall growth. This position has been best articulated by Charles Wolf[8] of the Rand Corporation. In addition, the military sector is often the first to come in contact with modern technology and can train its personnel in handling sophisticated equipment. This experience can then be transmitted to other sectors of the economy. Of course, demand led "Military Keynesianism" may be attractive to some governments as a way of stabilizing their domestic economies i.e., the government through expanding and contracting orders from the domestic arms industry may be able to offset fluctuations in private sector activity. If successful, the net result would most likely ceteris paribus be higher overall rates of growth.

In short, while the conventional wisdom is that defense expenditures hurt growth in the third world, a somewhat counter intuitive case can be made that under certain circumstances it is possible to obtain a net positive impact. Clearly, whether defense expenditures impact positively, negatively or neutrally on economic growth in Third World countries is an issue only empirical research can resolve.

Empirical Studies

Benoit[9] used 1950-65 data for 44 developing countries and estimated a model which included investment, defense and foreign aid. 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." [10]

Deger and Smith[11] examined the interaction of military expenditures, savings and growth and found that military expenditures had a small positive effect on growth through modernization but a larger negative effect on savings.

More recent work by Deger[12] shows that higher spending on the military does have economic benefits: it can provide effective demand stability, inter-industrial linkages and spin-offs. But the negative effects are shown by her to far outweigh the positive ones, i.e., her empirical tests indicate that defense spending significantly depresses growth and constrains development.

In summary, some empirical studies on Third World defense expenditures have found positive impacts, while others have found negative or no net impacts. The empirical literature

treating Third World countries as a group has, therefore, largely failed to resolve the defense growth debate.

Obviously, one reason for the mixed results stems from the fact that different researchers have used different country samples, different time periods, and different model specifications for measuring the impact of defense. More importantly, however, most researchers by aggregating all less developed countries together for cross section analysis in their research design implicitly assume a basic homogeneity in Third World environments.

Are we to assume that the impact of military expenditures in Saudi Arabia is similar to that in Bangladesh? Clearly, the composition of military expenditures varies from country to country. Are countries who spend a disproportionate amount on military education likely to have the same negative economic impacts as countries spending similar amounts on sophisticated arms imports? Are countries with large indigenous military industries likely to derive the same benefits (positive or negative) from defense expenditures as countries with no military-industrial complex? Are military regimes likely to experience the same impact from military expenditures as civilian regimes given the fact that the budgetary priorities for both sets of regimes are likely to be quite dissimilar? Are countries facing high levels of external or internal threat to their regimes likely to derive the same impact from military expenditures as regimes experiencing few internal or external threats?

According to the designers of the empirical studies summarized above, the answer is yes.

One way to avoid this problem is to examine the impact of defense expenditures on smaller, more homogenous groups or subgroupings of countries. Here, the assumption is that defense expenditures will produce different impacts depending on the economic structure in which allocations are made. In linear programming terms, defense expenditures may further strain binding constraints (reducing growth) in some countries, while augmenting certain scarce factors (increasing growth) in others. If, in fact, developing countries form a topology along these lines, we should expect defense impact studies to produce results of a much higher level of statistical significance than studies treating developing countries as a whole.

TABLE 1
SUMMARY OF EMPIRICAL WORK ON THE ECONOMIC IMPACT OF MILITARY
EXPENDITURES IN THE THIRD WORLD

| Classification of Countries | Macro Economic Impact | | | | |
|----------------------------------|-----------------------|------------|---------|---------------------|--------------|
| | Growth | Investment | Savings | Private Consumption | Productivity |
| Resource Constraint (A) | | | | | |
| Constrained | insig | | | | |
| Unconstrained | + | | | | |
| Resource Constraint (B) | | | | | |
| Constrained | - | | | | |
| Unconstrained | + | | | | |
| Resource Constraint (C) | | | | | |
| Constrained | insig | | | | |
| Unconstrained | + | | | | |
| Foreign Exchange Constrained (D) | | | | | |
| Constrained | insig | | | | |
| Unconstrained | + | | | | |
| Military Production (E) | | | | | |
| Producers | + | + | + | - | + |
| Non Producers | - | - | + | + | insig |
| Regime (F) | | | | | |
| Military | + | + | + | - | |
| Civilian | - | insig | insig | insig | |
| Legitimacy-Threat (G) | | | | | |
| High Legitimacy | | + | + | - | |
| Low Legitimacy | | - | - | insig | |

NOTES: (+) indicates positive impact and statistically significant at 99% level; (-) = negative impact and statistically significant at the 99% level; insig indicates insignificant at 99% level of confidence; (A) P.C. Frederiksen and R.E. Looney, "Defense Expenditures and Economic Growth in Developing Countries," *Journal of Economic Developing* (July 1982), pp. 113-126; (B) P.C. Frederiksen and R.E. Looney, "Defense Expenditures and Economic Growth in Developing Countries," *Armed Forces and Society* (Summer 1983), pp. 633-646; (C) P.C. Frederiksen and R.E. Looney, "Another Lock at the Defense Spending and Development Hypothesis," *Defense Analysis* (September 1985), pp. 205-210; (D) Robert Looney and P.C. Frederiksen, "Defense Expenditures, External Public Debt and Growth in Developing Countries," *Journal of Peace Research* (1986), forthcoming; (E) Robert Looney, "Impact of Arms Production on Third World Distribution and Growth," Naval Postgraduate School, 1986 (mimeo); and Robert Looney, "Macroeconomic Impacts of Third World Arms Production," Naval Postgraduate School 1986 (mimeo); (F) Robert Looney, "Military Regimes Defense Expenditures and the Quality of Life in the Third World," Naval Postgraduate School, 1986 (mimeo); (G) Robert Looney, "Why Third World Disarmament is so Hard to Attain," Naval Postgraduate School, 1986 (mimeo).

Table 2

SUMMARY OF RECENT RESEARCH ON THE IMPACT OF
MILITARY EXPENDITURES IN THE THIRD WORLD

Macroeconomic Variable

| | Growth | Debt | Imports | Income Distribution | Investment | Arms Imports |
|-----------------|--------|------|---------|------------------------|------------|-----------------|
| ARMS | | | | | | |
| Producers | + | + | ins | - | + | + |
| Non Producers | - | - | + | ins | - | ins |
| RESOURCE | | | | | | |
| Constrained | - | + | - | na | na | + |
| Unconstrained | + | - | ins | na | na | - |
| REGIME | | | | | | |
| Military | + | + | + | - | + | + |
| Civilian | - | - | - | ins | ins | ins |

Sources: Arms producers/non-producers: Robert E. Looney, "Impact of Arms Production on Distribution and Growth," Economic Development and Cultural Change (1988, forthcoming); Robert E. Looney "The Relative Importance of Internal and External Factors in Effecting Third World Military Expenditures," Journal of Peace Research (1988, forthcoming).

Resource constrained/unconstrained: Robert E. Looney, "The Influence of Arms Imports on Third World Debt," Journal of Developing Areas (1988, forthcoming); Robert E. Looney, "Economic Environments Affecting Third World Arms Imports," Paper presented at the California Seminar, Rand Corporation (February 26, 1988).

Military/civilian regimes: Robert E. Looney, "Impact of Regime Type on the Defense Allocation Process," Journal of Political and Military Sociology (1988, forthcoming); Robert E. Looney, "Economic Impact of Rent Seeking and Military Expenditures in Third World Military and Civilian Regimes," American Journal of Economics and Sociology (1988, forthcoming); Robert E. Looney, The Economics of Third World Military Expenditures (JAI Press: Greenwich, Conn, 1989, forthcoming).

1970-82 period, Third World military producers experienced positive impacts from military expenditures on growth, investment, savings and productivity, while non-producers experienced declines in growth and investment.

Groupings of Third World countries on the basis of regime type (military or civilian) also produced similar results with military regimes in general (Table 1, study F) obtaining positive impacts from military expenditures. The same pattern (Table 1, study G) emerged when countries were grouped on the basis of the legitimacy of government (and threat faced by the regime from internal or external sources).

In recent years, analysis has branched into more complex issues, utilizing simultaneous equation models estimated by two and three stage squares regression techniques. Here attempts are being made to incorporate the demand for military expenditures along with their impacts in an attempt to determine feed backs from one to the other.

Interestingly enough the results (Table 2) produced by these techniques tend to confirm the results obtained from simpler, more naive models.

In short, the research summarized above demonstrates a consistent pattern whereby certain groups of Third World countries--usually the more successful economically, the most stable politically, or those engaged in military production derive positive impacts from military spending. Those countries less successful economically, more politically unstable or lacking a domestic arms industry fail to derive any positive economic impacts from defense expenditures.

Having said this, it is important to note that a number of adverse effects may be associated with defense expenditures, even in those countries experiencing higher overall rates of growth from increased allocations to defense. In particular, countries with an indigenous arms industry may suffer a deterioration in the distribution of income from added defense expenditures (Background Paper #1). The same may also occur in military regimes as income is shifted by the government from urban consumers to industrial groups (Background Paper #5).

DIFFERENCES BETWEEN CIVILIAN AND MILITARY REGIMES

A second area of conventional wisdom concerns the economic behavior and socio-economic priorities of third world military regimes. Here the general stereotype of modern Third World military regimes is ultra-conservatism combined with military force to dismantle organizations of popular expression, to restrain real wages, to promote integration into world trade and financial markets, and to hold down social reform as well as mass consumption in the interest of favoring capital accumulation and upper class income[14]

Everything else equal, conventional wisdom holds that third world military regimes will have both a higher defense burden (in terms of the percent of GNP allocated to defense) and a larger share of the central government budget allocated to defense than in the case of their civilian counterparts. It turns out, however that military and civilian regimes tend to have a number of superficial similarities with regard to defense allocation--similar military burdens, armed forces per capita, and the share of the budget allocated to defense. These similarities extend to the determinants of military expenditures per capita and the military burden i.e. both regime types exhibit a fairly similar linkage between the share of the budget allocated to defense and the tax burden. (Background Paper #11).

If civilian and military regimes differ with regard to defense expenditures therefore, it must be in the timing in and manner in which military expenditure decisions are made and in the means through which resources are mobilized for defense uses. This may in turn affect the economic impacts associated with military expenditures in both types of regimes:

1. While it appears that increased defense (Background Paper #2) expenditures tend to increase economic growth in military regimes, civilian regimes experience reduced growth with added allocations to defense.
2. In terms of the impact of military expenditures on the quality of life, several significant differences (Background Paper #3) exist between military and civilian regimes:
 - a) Civilian regimes suffer reduced levels of human capital attainment with increased levels of total military expenditure whereas no statically significant relationship is present in the case of military regimes.

- b) Civilian regimes increase public expenditures per capita and military expenditures as a share of GNP simultaneously with increased allocations to defense. In this regard, military regimes show no apparent pattern.
- c) Military regimes experienced higher levels of nutrition with increased levels of military expenditure, whereas their civilian counterparts experienced reductions (but not statistically significant) in nutritional levels with added military expenditures, and
- d) Military regimes tend to increase the number of physicians per capita and teachers per school age population with added military expenditures, while there is no apparent relationship in the case of civilian regimes.

In short, of the four major measures of the quality of life, military regimes experience improvement in two with added military expenditures and no declines in the other two. On the other hand, their civilian counterparts experience reduced levels of human capital, population per professional and perhaps nutrition with increased levels of military expenditures.

In part it is likely that a good proportion of these differences stem differences in the budgetary priorities between military and civilian regimes:

1. In terms of its impact on growth, civilian regimes appear much less likely to reduce social programs during period of expanded defense expenditures than their military counterparts. In fact civilian regimes tend to increase a number of social programs--total social expenditures and welfare expenditures are both expanded in line with defense. These expanded budgetary shares tend to come at the expense of economic services, particularly funds allocated to agricultural development.
2. Since, economic allocations tend to bear the bunt of expanded military budgets under civilian rule, increased military spending is likely to infringe on growth inducing allocations and hence ultimately growth itself.
3. In contrast, the military regimes, perhaps because they are not as constrained by civilian opinion and preferences, tend to be less inclined to maintain social programs during periods of military buildup. This in turn allows them the luxury of avoiding major

cuts in economic allocations (and perhaps even an expansion in some economic areas). Apparently, one aspect of this budgetary pattern is the avoidance of cut backs (and perhaps even expansion) in growth inducing allocations during periods of military build up.

Explaining the observed higher levels (relative to civilian regimes) levels of basic needs attainment with increased defense expenditures in military regimes is more difficult.

1. One factor that may be partially responsible for this phenomenon is the different patterns of external borrowing observed for civilian and military regimes. It appears that military regimes have financed a considerable part of their defense expenditures through external borrowing. Civilian regimes on the other hand show no statistically significant relationship between military expenditures and public external debt.
2. Finally because of the positive impact military expenditures may have on growth in military regimes, budget allocations can be made in an expanding sum environment i.e. there can be increases in both defense and in quality of life enhancing activities.

Clearly, military regimes are unlikely to experience only expanding sum situations associated with increases in military expenditures. Some groups and/or sectors in these countries are likely to suffer declines in their standard of living, particularly during periods of increased defense allocations. After examining a number of links with the civilian sector -- agricultural growth, employment and so on, it appears that defense expenditures are largely supported by reductions in personal consumption in the military regimes. Again this fact implies that increased growth stemming from military expenditures comes about in a manner that may significantly skew the income distribution towards increased inequality.

Perhaps because of their authoritarian nature, military regimes, through controlling organized labor groups and thus wages, are able to control private consumption to an extent not possible in civilian democratic regimes. This process undoubtedly frees up additional resources for both investment and defense activities.

The fact that public consumption in military regimes is more closely linked to government revenues than is the case in civilian regimes also indicates the degree of relative control over the economy possessed by these governments.

Several other differences (Background paper #4) between military and civilian regimes may contribute to the growth, budgetary and quality of life patterns outlined above:

1. Military regimes appear to be in somewhat better control of military expenditures than their civilian counterparts in the sense that defense allocations in these regimes can be timed and phased over time so as to not produce the generally adverse economic effects (such as a lowering in the share of investment in gnp, increased growth in imports and higher rates of inflation) found in civilian regimes.
2. While both military and civilian regimes experience rent seeking behavior, (as reflected in price distortions in financial, foreign exchange, and labor markets), different groups seem to be favored in each regime type, with civilians favoring urban consumers and military regimes favoring industrial groups.
3. While still conjectural at this point, it appears that military regimes may be able, through shifting income from agriculture to finance defense expenditures, to preserve and perhaps increase the level of high saving/high investment groups during periods of military buildup. This undoubtedly accounts for the increase in savings and investment associated with increased military expenditures in military regimes (but not civilian).
4. It follows that civilian regimes, having less control over rent seeking groups (and perhaps military pressures for additional equipment), do not appear to be able to combine rent seeking activity and military expenditures in a manner conducive to overall growth.

The results summarized for the impact of military expenditures in the three settings examined above also provide some insights as to why aggregate studies of third world economies have failed to find significant links between economic variables and military expenditures. Since the signs of the major economic variables affecting military expenditures are considerably different depending on whether a country has a civilian or military regime, aggregating all countries in a single regression tends to blur the impact of the individual economic variables.

DETERMINANTS OF MILITARY EXPENDITURES

A third major area where a long standing conventional wisdom prevails concerns the underlying factors responsible for third world military expenditures and arms imports. As noted above, while some differences in military expenditure levels can be accounted for by differences in regime type, the bulk of the literature in this area stresses external or strategic-political variables as critical in affecting arms imports, and total military expenditures. Examining countries as groups based on their relative degree of resource constraint, regime type, and production capabilities, it appears that large differences occur between different sets of countries:

Military and Civilian Regimes

In addition to the patterns identified above a number of differences exist in the manner in which resources are allocated to defense in military and civilian regimes (Background Paper #5). In general:

1. Defense expenditures are not related to overall economic activity in military regimes. This result suggests that a greater degree of budgetary flexibility exists in military regimes i.e. military regimes may be able to respond more rapidly to changes in perceived threat than their civilian counterparts. In civilian regimes there is a close association between military expenditures and gross domestic activity, perhaps indicating a target share of military expenditures in gross national product is established sufficient to retain support of the military.
2. As a result, public external debt has been highly significant in financing (directly or indirectly) defense expenditures in military regimes. Civilian regimes appear quite reluctant to go into further debt simply to support a higher level of arms imports and or military expenditures.
3. Increases in price distortions were used to mobilize resources for military expenditures in the military regimes, but these same increases had a negative impact on the military budget in civilian regimes.
4. Exports were statistically significant in contributing to increased military expenditures in the military regimes, but not in the case of civilian regimes.

In summary, the picture that emerges is one of military regimes being committed to developing the size of the defense sector to levels not warranted by economic size per se. They have done this through extensive use of externally borrowed funds. They have utilized increases in foreign exchange earnings to expand defense allocations and they have distorted their price systems in a manner that facilitated increased defense expenditures. It is interesting to note that well over eighty-five percent of the fluctuations in both military and civilian regimes can be accounted for by a limited number of economic variables. This fact holds irrespective of perceived threats, geographical location, or pressures from arms suppliers--factors often used to explain the level of military expenditures in the third world.

Arms and Non-Arms Producers

In terms of the producers and non-producers, the results of a small model linking arms production, resource constraints, military expenditures and arms imports (Background Paper #6), demonstrate that a high proportion of the various measures of resources allocated to the military in arms producing countries can be accounted for by internal (economic) factors. On the other hand, non producer environments are relatively more susceptible to external factors. Apparently, the possession of an indigenous arms industry places on going demands to maintain relatively high (and stable) levels of defense expenditures. The governments of non producing countries may not face the same political pressures to maintain high levels of defense expenditures during periods of low external threat simply to maintain employment in defense plants. As a result their military budgets tend to be relatively volatile. These patterns are reinforced by the fact that with several exceptions hardly any output from third world defense plants is absorbed by external markets. This places great pressure on internal sales to sustain efficient levels of production.

In short arms producers appear to apply some sort of "Military Keynesianism" based on stimulating demand in defense plants during deflationary periods. Clearly if the advanced countries are serious in their concerns over increasing defense burdens in the Third World, one way to reduce the level of military expenditures in these countries would be through much more stricter control of the licensing of arms production technology, and the restriction of financial credits to build additional plants.

In addition, the producing countries appear to finance a large part of their military expenditures with external debt

and therefore are not necessarily shifting domestic resources away from productive activities to produce arms. Tighter controls over over foreign lending to these countries would undoubtedly make arms production somewhat less attractive.

Resource Constrained and Unconstrained Countries

Resource constrained and unconstrained countries exhibit a number of similarities to the producer/non-producer dichotomy.

1. Third world countries are not homogenous with regard to the factors affecting arms imports, overall military expenditures, and arms production. It appears access to foreign exchange is the common thread in accounting for fundamental differences between these countries with regard to both the production and importation of arms.
2. Similarly, the use of public external indebtedness to finance arms imports does not appear to be universal among developing countries. In fact, it is possible that a large group of relatively debt-free (debt as a percent of GNP) resource unconstrained countries have contained arms imports within the limits imposed by self-financing rather than risk jeopardizing their overall credit worthiness.
3. On the other hand, it is possible that a large proportion of the debt accumulated by the resource constrained group of LDCs has stemmed from military expenditures. Apparently, the perceived need to expand defense expenditures by this group in the face of foreign exchange shortages has resulted in relatively high levels of external indebtedness measured either as a percent of exports or GNP for the group as a whole.
4. Indigenous arms production in the third world has tended to reduce the importation of arms. Again, however, the extent of this reduction may vary by country type with the most significant reductions occurring in countries with relatively abundant supplies of foreign exchange.
5. Finally, it appears that arms imports most likely will not reach levels attained in the late 1970s due not so much to a general spirit of constraint on the part of suppliers and recipients, but more to lack of foreign exchange on part of many of the third

world countries, and the development of indigenous production capabilities on the part of others.

In sum, it is possible once the environment is defined to account for a large proportion of military expenditures and arms imports by resorting to internal (economic factors). External (threat) factors seem to be marginal in affecting these variables.

FACTORS CONTRIBUTING TO INDIGENOUS ARMS PRODUCTION

The conventional wisdom as to why some third world countries produce arms while others do not usually stresses factors such as economies of scale i.e. arms producers are most likely to be those countries with the biggest militaries and GNPs. Of course there are several "special cases" such as Israel, South Africa and Taiwan--countries which for purely political reasons find it expedient to be somewhat independent of the whims of the major arms suppliers.

Recent empirical analysis of third world arms production (Background Paper #8) tends to put these issues in a somewhat different light:

1. There is a sharp contrast between the environments in which Latin American arms production takes place and the conditions in which it is present in the rest of the world.
2. The conditions facilitating Latin American arms production seem to have been established largely in the 1960s, and involved the creation, through export growth and external borrowing, of a high import capacity. Presumably, this import capacity was necessary to facilitate the high level of technology transfer, capital equipment, and so on needed to establish an indigenous arms industry.
3. It should be noted that the only new Latin American arms producers between 1969/70 and 1979/80 were Mexico, Ecuador, and Venezuela, all of which were oil exporters whose access to foreign exchange was enhanced during the period.
4. The non-Latin American arms producers appear to be highly dependent on a steady infusion of public external borrowed funds. Overall export and import performance does not appear to be critical in the establishment or maintenance of an indigenous arms industry. Instead, the ability to finance existing

current account deficits though publicly guaranteed loans appears critical. It follows that the non-Latin American arms industries may be less viable than those in Latin America.

5. Interestingly enough, for both the Latin American and non-Latin American countries, economic size, per capita income, military capabilities or associated economies of scale in production do not appear to be either a necessary or sufficient condition for undertaking indigenous arms production. Instead, access to foreign exchange presumably required to facilitate imported inputs--both technical and material--for actual arms production appear to be the main factors determining whether arms production will be established and viable over time.
6. Foreign exchange availability by and of itself itself is a multi-dimensional factor, and not associated with one specific index such as export growth or inflows of external borrowed funds.

The explanation for these results probably stems from the fact that Third World arms producers are not yet completely self-sufficient in either the technical or material inputs required for arms production. Instead, the establishment of an indigenous arms industry places high and continuous demands on a country's foreign exchange reserves. This fact has a number of implications for the future:

1. If the above analysis is correct, there should be no new Latin American arms producers in the foreseeable future. Given the poor export prospects for most of the non-producers together with their high levels of external debt, it is extremely unlikely that any of these countries will have sufficient surpluses of foreign exchange to allocate toward the development of an indigenous arms industry.
2. The situation is somewhat less apparent for the non-Latin American countries, since this group of countries continuous access to publicly guaranteed external capital inflows appears to be critical for the establishment and survival of a domestic arms industry. Clearly however, if the major First World arms producers wanted to restrict the spread of new indigenous production to this area of the world, denial of credits at past levels would be the most efficient way to proceed.

CONCLUSIONS

The results presented above are suggestive of the importance of economic variables in affecting the pattern of defense allocations and their impact on third world economies. Perhaps the lack of attention given to economic variables in the past stems from the fact that rather weak relationships exist when these factors are regressed on various aspects of militarization in developing countries as a whole. This is not the case, however, when third world countries are examined as more homogenous groups. Here at least three major groupings have produced interesting and at times exciting results: (1) political groupings--the civil/military dichotomy; (2) groupings based on industrial structure--the producer/non producer dichotomy; and (3) groupings based on relative resource constraint. It should be noted here that analysis of military expenditure impacts or the determinants of the various facets of military expenditures using groupings based on income level (rich vs. poor), or geographic location (Africa vs. Latin America) does not produce results that are very significant statistically, or interesting conceptually.

In choosing between the three groupings surveyed here, it appears that groupings along civilian/military lines, while yielding some useful insights, do not consistently produce results with as high a level of statistical significance as those obtained on the basis of relative resource constraint or the producer non-producer dichotomy. This applies for the various impacts of military expenditures well as those factors affecting arms imports, overall military expenditures, and budgetary patterns.

In choosing between the resource constraint and producer/non producer groupings, it appears access to foreign exchange is the common thread accounting for fundamental differences between the third world countries with regard to both the causes and consequences of military expenditures. The most direct approach at capturing this effect is through the identification and grouping based on relative resource constraint. This fact is borne out by the consistently higher correlation coefficients and t values using the constrained/ non constrained groupings.

In this regard it is clear that past forecasts of world military expenditures that emphasized arms race dynamics or bureaucratic momentum while ignoring resource constraints, produced systematically biased results whenever financial markets and the level of threat perception moved in opposite directions. For example, these models often predict that countries scale down defense expenditures during periods of relatively low external tensions. The major build up of defense expenditures in the late 1970s and early 1980s in

many peaceful (albeit increasingly credit worthy) areas of the world, clearly calls this framework into question.

Given the fact that economic variables appear much more adept (and themselves easier to forecast) than political or threat type considerations at identifying both the impact and the amount of resources allocated to defense, it may be more feasible than previously thought to develop models for predicting and monitoring the various aspects of third world performance. Put differently, the results obtained above suggest that it is possible to develop out of existing economic data bases relatively inexpensive models capable of predicting the likely impact of defense expenditures and/or foreign aid on various aspects of different third world economies. Perhaps more importantly these models can be updated and countries reclassified as economic conditions change so that estimates can be made of the added (or reduced) assistance needed to attain specified targets of economic performance.

- [1] Cf. Robert E. Looney, "Impact of Military Expenditures on Third World Debt," Canadian Journal of Development Studies (1987), pp. 7-26; Martin Shubik and Paul Bracken, "Strategic Purpose and the International Economy," Orbis (Fall 1983), pp. 567-91; and Michael Brzoska, "The Military-Related External Debt of Third World Countries," Journal of Peace Research (1983), pp. 271-77.
- [2] R. Tullberg, "World Military Expenditures," Bulletin of Peace Proposals (1986), pp. 217-228.
- [3] Ron Hursken "Armaments and Development," in H. Tuomi and R. Vayrynen, eds., Militarization and Arms Production (New York: St. Martin's Press, 1983), p. 3.
- [4] Steve Chan "The Impact of Defense Spending on Economic Performance: A Survey of Evidence and Problems" Orbis (1985), pp. 403-434.
- [5] E. Benoit, "Growth Effects of Defense in Developing Countries," International Development Review (1972), p. 3.
- [6] Chan, op. cit., p. 417.
- [7] R. Looney and P.C. Frederiksen "Profiles of Current Latin American Arms Producers," International Organization (Summer 1986), pp. 745-52.
- [8] "Economic Success, Stability and the 'Old' International Order," International Security (1981), pp. 75-92.
- [9] E. Benoit, Defense and Growth in Developing Countries (Lexington, Mass: Lexington Books, 1973), and E. Benoit, "Growth and Change in Developing Countries," op. cit.
- [10] E. Benoit, "Growth and Change in Developing Countries," op. cit., p. 271.
- [11] Saadet Deger and Ron Smith, "Military Expenditures and Growth in Less Developed Countries," Journal of Conflict Resolution (1983), pp. 335-53.
- [12] Saadet Deger, Military Expenditure in Third World Countries: The Economic Effects (London: Routledge and Kegan Paul, 1986).

- [13] Cf. P.C. Frederiksen and R.E. Looney, "Defense Expenditures and Economic Growth in Developing Countries: Some Further Empirical Evidence," Journal of Economic Development (July 1982), pp. 113-25; P.C. Frederiksen and R.E. Looney, "Defense Expenditures and Economic Growth in Developing Countries," Armed Forces and Society (Summer 1983); P.C. Frederiksen and R.E. Looney, "Impact of Increased Military Expenditures on Mexican Economic Growth: A Preliminary Assessment" Journal Information-Comercial Espanola (December 1982); P.C. Frederiksen and R.E. Looney "Another Look at the Defense Spending and Development Hypothesis," Defense Analysis (1985); R.E. Looney and P.C. Frederiksen, "Profiles of Latin American Military Producers," International Organization (1986); R.E. Looney and P.C. Frederiksen, "Consequences of Military Rule in Argentina," Comparative Political Studies (1986); R.E. Looney and P.C. Frederiksen "Defense Expenditures, External Public Debt and Growth in Developing Countries," Journal of Peace Research (1986); and R.E. Looney and P.C. Frederiksen "The Future Demand for Military Expenditures in Argentina," Arms Control (1986).
- [14] For a recent analysis of this image see Robert E. Looney, "Failure of Argentinean Monetarist Experiments, 1976-82," Scandinavian Journal of Development Alternatives (December 1987), pp. 143-163.