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Defense Expenditures, Allocations For Development and Debt Servicing: An Analysis of Pakistani Budgetary Priorities, 1976-1992

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In Pakistan, allocations to the military account for nearly one third of the government expenditures. While common sense suggests that the country's high military burdens have largely retarded allocations to development, there may be other budgetary items that have produced a similar effect. In particular the country's rising indebtedness is now forcing the government to commit ever increasing shares of the budget to debt servicing. Because of its rising share of the budget interest payments may have had an even stronger negative influence on economic allocations than that associated with increased defense burdens.

The purpose of this paper is to examine these possibilities. Have allocations to defense come largely at the expense of development? Do increased defense expenditures systematically reduce the share of the budget received by other major expenditure categories? What types of defense expenditures affect the strongest-anticipated increases or those that were unplanned? Do budget deficits offset some potentially negative impacts that increased defense expenditures might entail? What other budgetary categories appear to impact negatively on allocations to development?

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Background

In Pakistani[1] as indicated in Pakistan, Afghanistan Country Profile, 1992-93 (London: EIU, 1993), pp. 37-40. The federal budget has two main parts – the ordinary budget covering current expenditure and the development budget or Public Sector Development Programme (PSDP) which covers capital investment and development programs. Some federal income is passed on as statutory and discretionary grants to the provinces, which have their own budgets and also raise some of their own resources.

In recent years current expenditures have averaged round 65-75 percent of expenditures. The proportion of spending devoted to social items is low and as noted above is under pressure from the demands of defense and debt servicing which together accounted for 80 percent of current expenditure in the 1992/93 budget. The PSDP has regularly been revised downwards in light both of reduced flows of foreign aid on which it depends heavily and of local resources.

The 1987/88 budget initially provided for substantial increases in taxes and administered prices to reduce the size of the resources gap. Widespread protests forced the government to rescind most of the increases and a revised budget was issued in which cuts were made in both current and development expenditure. The 1988/89 budget, produced by a caretaker government made only limited changes to tax and expenditure levels. The result was a substantial fiscal deficit. At this time the budget tried to introduce significant measures to reduce tax evasion by the business and trading classes, but these had to be watered down in the face of opposition.

The 1989/90 and 1990/91 budgets introduced by the PPP government were cautious on both the fiscal and expenditure sides. Mr. Nawaz Sharif's first budget projected increases in current expenditure of only 8.1 percent in 1991/92. The largest increases were scheduled for spending on defense (11.6 percent) and debt servicing (26.5 percent) and subsidies were cut. Despite reducing the maximum rate of income tax, the government expected an increase in revenue to reduce the fiscal deficit to 5 percent of GNP compared with 5.8 percent in 1990/91. In the event the resources gap (the deficit after utilization of external funds) was revised upwards to three times that originally envisaged, because of

1 The following draws heavily on: *Pakistan, Afghanistan Country Profile,* 1992-93 (London: Economist Intelligence Unit, 1993), pp. 37-40.

unanticipated spending increases while internal receipts were expected to fall short.

The budget for 1992/93 projects a modest increase in spending with both subsidies and development spending scheduled to fall, while tax revenue is expected to rise, although below the rates originally projected for 1991/92. As a result the resources gap is forecast to narrow.

The successive deficits reflect the fragility of the resource base that underpins the budget. Tax collections have historically represented a low proportion of GDP and continue to do so; total tax revenues were 13.3 percent of GDP in 1980/81 and were at the same level in 1991/92. Moreover, indirect taxes were overwhelmingly the main source of revenue. Evasion of income and corruption tax is widespread and the agricultural sector is totally exempt from income tax.

In a three year (1991/92-1993/94) macroeconomic and structural adjustment policy framework paper circulated to the World Bank and IMF in December 1991 the government committed itself to a major overhaul of the fiscal system. The objectives include improving the structure of taxation, by extending the narrow base of both direct and indirect taxes, making it more equitable and elastic, and by taking administrative measures to increase receipts of income and wealth taxes and general sales taxes and federal excise taxes as a proportion of GDP.

The Economics of Austerity

Clearly until these reforms are in place the country will continue to operate as it has in the past under severe budgetary constraint with cuts likely in the more vulnerable sections of the budget. Intuitively, one might expect the analysis of budgetary tradeoffs between defense and allocations to socioeconomic programs to be fairly straightforward. That is a given budgetary increase in military expenditure will crowd out an equivalent amount of all other spending, and these programs will be reduced according to their proportion of the total. However recent research has shown that this view of the budgetary process is simplistic and does not conform with the manner in which governments often chose to prioritize expenditures.[2]

2 See for example Saadet Deger, "Human Resources, Government Education Expenditure and the Military Burden in Less Developed Countries," *Journal of Developing Areas* (October 1985), pp. 37-48.

A related issue is the manner in which austerity-driven budgetary cuts are allocated. Anecdotal evidence suggests that officials often follow rather *ad hoc* rules for making large contractions in a short time – cutting new rather than ongoing projects, new rather than present employment, and materials and travel expenses rather than personal; and favoring Ministries that are politically powerful, or reducing those that have expanded most rapidly in the past.[3]

Operationally, several methods have been used to establish whether tradeoffs exist.[4] First, using cross-section data it should be possible to discern whether relatively big spenders on the military are small spenders in areas such as education and health (and vice versa). Recently a study by Harris, Kelly and Pranowo found:

> *1. Based on one year's data (1983), countries that allocate relatively high proportions of their central government expenditure (CGE) to defense do not commonly allocate relatively low proportions to education and health (and the converse applies).*
>
> *2. Defense expenditure has a low vulnerability during times of general CGE cuts, but so do health and education expenditures. If anything, defense is more vulnerable than the other two, particularly in low income countries.*
>
> *3. During times of CGE expansion, defense expenditure in low income countries expands at a rate comparable with education and somewhat more than health. In middle income countries, health expenditures increase more proportionally than defense and education.*
>
> *4. For 12 Asian countries between 1967 and 1983, multiple regression analysis confirmed that tradeoffs between defense expenditure and education/health were rare.*[5]

Second, and again following Harris, the effect of central government expenditure increases or cutbacks on, say, defense, health, and education allocations may be examined. If a tradeoff existed, it might

3 Cf. the discussion in N. Caiden and A. Wildavsky, *Planning and Budgeting in Poor Countries*, (New York: John Wiley, 1974).

4 The following draws heavily on G.T. Harris, "Economic Aspects of Military Expenditures in Developing Countries: A Survey Article," *Contemporary Southeast Asia* (June 1988), pp. 95-96.

5 Goffrey Harris, Mark Kelly and Pranowo, "Tradeoffs Between Defense and Education/Health Expenditures in Developing Countries," *Journal of Peace Research* (1988), pp. 1-14.

be expected that defense expenditure would gain with respect to other expenditure categories during years of CGE cutbacks.

As to the choice of which sectors to cut back, it is often felt that some sectors are more "vulnerable" than others. The defense sector, particularly, is usually considered difficult to reduce, while social sectors, such as health, education and rural development, are considered vulnerable. The alleged vulnerability of the social sector in developing countries is evident in World Bank documents:

> *In the difficult past few years, budgetary crises have often meant that social services were cut back, in the process unraveling carefully designed programs.*[6]
>
> *Since many human development programs are publicly funded, they are especially vulnerable when growth is threatened and budgets are under pressure. The recurrent costs of social programs, especially salary cuts, tended to make them a permanent and, therefore, vulnerable part of Government budgets.*[7]
>
> *'Quick Fix' relief through disproportionate cutbacks – in, for example, education or rural development – may well have negative consequences for the entire economy.*[8]
>
> *Many member countries have had to reduce and reorient investment programs to curtail recurrent expenditure and to delay the completion of high priority developments projects. Programs in health, education and other social sectors have been particularly vulnerable.*[9]
>
> *In the crisis situations confronting African Governments, education, training and health programs are continuously in danger of becoming the residual legatees of both resources and attention by policy makers.*[10]

6 *IDA in Retrospect* (Washington: World Bank, 1983), p. 52.

7 The World Bank, *World Development Report, 1981* (New York: Oxford University Press, 1981), pp. 97-98.

8 *Focus on Poverty, 1983* (Washington: World Bank, 1983), p. 5.

9 *World Bank Program on Special Assistance to Member Countries* (Washington: World Bank, 1984), p. 1.

10 *Sub-Saharan Africa: Progress Report on Development Prospects and Programs* (Washington: World Bank, 1983), p. 30. See also Robert McKinlay, *Third World Military Expenditure: Determinants and Implications* (London: Frances Pinter, 1989)

In the first comprehensive study of relative vulnerability Kicks and Kubisch examined 37 cases of budgetary reductions. These were defined as occurring in countries where real expenditure declined in one or more years. According to Hicks and Kubisch, a sector was defined as:

> *Well-protected*, if expenditure on it was reduced by less than the percentage reduction in total expenditures.
>
> *Vulnerable*, if its percentage of reduction exceeded the average.

In brief, a simple ratio of percentage change in each sector's expenditure relative to total spending served as the measure of vulnerability. Where the ratio had a greater value than one, it suggested that the sector was highly vulnerable; a value between zero and one suggested low vulnerability, with less than proportional reduction in the relative sector. A negative value showed that, despite general expenditure reductions, the sector was allowed to expand.

Hicks and Kubisch's main findings suggest that the countries examined experienced an average decline of 13 percent in real Government expenditure. Associated with this decline was a contraction of only five percent in the social sectors (producing a vulnerability index of 0.4). By contrast, the index was 0.6 for the administrative/defense sectors and over one percent for production and infrastructure. In short, the various social sectors were less vulnerable to cuts than defense and administration, which in turn were considerably less vulnerable than production and infrastructure. This pattern is contrary to the generally accepted view.

The fact that social sectors and defense were both relatively protected suggests that there were high political costs associated with reducing them. On the other hand, countries appeared to have been more willing to cut spending on infrastructure and production that, of course, are likely to have adverse implications for longer term growth, but few early, direct and immediate costs.

This picture was confirmed by Mckinlay who found that there was no evidence that Third World military expenditures are responsive to government financial constraints of a short or long term variety: "In this respect, then, we infer that military expenditure has a life largely independent of central financial constraints, indicative therefore on its part of a substantial degree of autonomy."[11]

11 McKinlay, *op. cit.*, p. 35

Regarding budgetary priorities, McKinlay found that while a substantial commitment was made by Third World countries to the growth and expansion of education and health expenditure, that commitment was not nearly as high as in the area of military expenditure. In this respect military expenditure was generally taken to be a higher priority.

Finally McKinlay found that Third World countries as a whole move their education and health expenditures in a much narrower band than their allocations to defense. He found that military expenditure had greater independence or autonomy of movement. The greater harmony or synchronization between budget size and education/health expenditures could not be explained in terms of the size of education/health as opposed to military expenditures. From this he concluded:

> *We are inclined to the argument that the lower level of synchronization of military expenditure with the budget is a reflection of the greater independence of military expenditure. Third World governments are more inclined to move education and health expenditures in line with general budget expansions and contractions. This leads us to infer that education-health expenditure is a rather more stable component of general government expenditure than military expenditure, which though of course ultimately entirely constrained by budget expenditure does show greater freedom or latitude in its movement...Although military expenditures do seem to attract some special priority and enjoy a greater degree of autonomy, our conclusion suggests that military expenditure is not detrimental to education or health expenditures.*[12]

Similarly De Masi and Lorie found that military spending in developing countries has tended to exhibit resilience during adjustment programs that have emphasized fiscal tightening, particularly in cases were the program levels of expenditure were below average.[13] The authors warn however that:

> *In adjustment programs that were accompanied by fiscal accommodation, the evidence suggests that the non-military sector tends to be given priority in the allocation of additional resources. Both the scarcity and uncertain quality of data, however, mean that the above conclusions must be interpreted with great caution.*[14]

In a related study Harris and Kusi found that in the African context, countries involved with the IMF were more likely to cut defense expenditures than those who were not undergoing the Fund's stabilization programs: "Possibly the economic weakness that drove some countries to the IMF also caused them to cut military expenditures."[15]

Based on data for Venezuela between 1950 and 1983, it appears that defense expenditure was reduced by far less than total central government expenditures (CGE) in the six years when general real CGE fell.[16]

Finally, in their examination of defense/education tradeoffs, Hess and Mullan found that:

> *1. An increase of 1 percent in the average annual growth rate in per capita real GNP from 1960 to 1982 was associated with an increase of from 0.5 to 0.8 percent in the military burden.*
>
> *2. Significant political violence since 1960 was associated with an increase of from 1.8 to 2.8 percent in the military burden.*
>
> *3. North African and Middle Eastern nations spent significantly more of GNP on the military (from 2.5 to 4.6 percent more).*
>
> *4. A rise of 1 percent in the military burden was associated with an increase of from 0.2 to 0.4 percent in the share of GNP going for public expenditures in education.*
>
> *5. Military controlled governments spent 0.7 to 0.8 percent less of GNP on public education.*
>
> *6. Mineral rich nations used 0.8 to 0.9 percent more of GNP for public expenditures on education.*[17]

12 McKinlay, *op. cit.*, p. 37.

13 Paula de Masi and Henri Lorie "How Resilient are Military Expenditures?" *International Monetary Fund Staff Papers* (March 1989), pp. 130-165.

14 De Masi and Lorie, *op. cit.*, p. 159. See also Geoff Harris and Newman Kusi, "The Impact of the IMF on Government Expenditures: A Study of African LDCs" *Journal of International Development* (1992), pp. 73-85.

15 Harris and Kusi, *op. cit.*, p. 73.

16 Robert E. Looney "Austerity and Military Expenditure in Developing Contraries: The Case of Venezuela" *Socio-Economic Planning Sciences* (1986), pp. 161-64.

17 Peter Hess and Brendan Mullan, "The Military Burden and Public Education Expenditures in Contemporary Developing Nations: is there a Tradeoff? *Journal of Developing Areas* (July 1988) pp. 497-514.

Again following Harris scheme a third method of examining budgetary tradeoffs involves the use of time series data.[18] For example, education expenditure as a proportion of CGE (as the dependent variable) could be regressed against other variables including defense expenditure as a proportion of CGE. A significant negative coefficient would provide support for the view that a tradeoff existed. That is it "suggests that a rise (fall) in the defense expenditure causes a fall (rise) in the education expenditure variable."[19]

Here several studies have come up with rather inconclusive results. In the first study, Vene examined 18 Latin American countries between 1948 and 1979, while in a second Harris, et al examined twelve Asian countries between 1967 and 1982.[20] In neither case was there evidence of important tradeoffs between education/health and defense expenditure.

> *Of the 24 possible tradeoffs between defense/education and defense/health for the twelve Asian countries only four negative tradeoffs were identified. Of the remaining, twenty-nine had positive relationships and eleven indicated no relationship.*[21]

This same general pattern appears to exist in the UAE where defense has not expanded its share of the budget at the expense of education.[22] Instead the observed decline in the educational share of the budget in recent years appears to be more related to general budgetary considerations than any explicit set of priorities involving defense.

Broadening the analysis to include budgetary tradeoffs between defense and all other budgetary categories Looney found that in the case of Latin American countries (roughly over the period 1970-1983) that:

> *1. Those countries with negative tradeoffs appear to have them for all the social expenditures – public services, education and social security welfare. Thus with the exception of a positive tradeoff in Chile between defense and health, all the statistically significant tradeoffs for Venezuela, Brazil, Argentina, Chile, Ecuador, Dominican Republic, Mexico, Peru, and El Salvador were negative between this category of government expenditures and defense.*
>
> *2. With the exception of a negative tradeoff for Costa Rica between defense and health, Bolivia, Paraguay, Uruguay and Costa Rica all had positive tradeoffs between defense and public services, education, health and social security, welfare.*
>
> *3. Countries that tended to have negative tradeoffs between defense and social services (public services, education, health, social security-welfare) tended (with the exception of Chile) to have a positive tradeoff with economic services.*[23]

A closer examination of the Latin American countries reveals that (leaving out El Salvador because of its civil war during most of this period) they fall into two general groups: (Venezuela, Brazil, Argentina, Chile, Ecuador, Dominican Republic, Mexico and Peru) – and – (2) Bolivia, Paraguay, Uruguay and Costa Rica. Each group has one common element – whether or not it was an arms producer. Countries that experienced negative tradeoffs between defense expenditures and social welfare expenditures tended to be the arms producers. Those countries that experience positive relationships between defense and social expenditures tended to be the non-arms producers.

This finding suggests some modification of the Hicks Kubisch thesis may be necessary. Apparently, there is pressure on the governments of arms producing industries to maintain and expand supporting economic facilities and infrastructure as defense expenditures (and the local industrial component) increase.

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18 G.T. Harris, "Economic Aspects of Military Expenditure in Developing Countries: A Survey Article" *op. cit.*

19 Harris, *op. cit.*, p. 96.

20 Joel Vener, "Budgetary Trade-offs between Education and Defense in Latin America: A Research Note" *Journal of Developing Areas* (October 1982), pp. 77-92. Also G. Harris, M. Kelley & Pranowo, "Tradeoffs Between Defense and Education/Health Expenditures in Developing Countries," *op. cit.*

21 Harris, *op. cit.*, p. 96.

22 Robert E. Looney, "Human Capital Development in the UAE" analysis of Budgetary Conflicts in an Era of Relative Austerity" *Public Budgeting and*

23 Robert E. Looney, "Military Expenditures in Latin America: Patterns of Budgetary Tradeoffs" *Journal of Economic Development* (July 1986), pp. 69-103. Also Saudi Arabia was not included in the present study because its data is not strictly compatible with that of the other countries examined – the country does not publish its budget in the International Monetary Fund *Government Finance Statistics Yearbook.* The country's budgetary published in the Saudi Arabian Monetary Agency, *Annual Report* includes some categories not used by the

A recent examination of Saudi Arabians budgetary priorities estimated a model of the form:

SHARE = [DEFENSE(?), AFS(+), UFS(?)] where:

SHARE = the share of government expenditures budgeted for major categories of expenditure

AFS = the actual fiscal surplus (as a share of government expenditures) during the current budgetary year.

UFS = the unexpected fiscal surplus (as a share of government expenditures) during the current budgetary year. The unexpected fiscal surplus was defined as the difference between actual revenues and expenditures and budgeted revenues and expenditures.[24]

This formulation facilitated the direct tradeoff between defense expenditures and other budgetary categories, while at the same time controlling for any possible austerity affects associated with the government's short run fiscal position. The main findings from this analysis were that:

1. In the Saudi Arabian context, defense expenditures appear to be quite complementary with increased allocations to human resource development. In fact, of the various government budgetary categories, the link to human resource development was the strongest associated with defense expenditures.

2. Defense expenditures were also complementary with allocations to health.

3. The major negative budgetary tradeoffs involving defense were concentrated in the economic areas: (a) transportation and communications, (b) economic resource development and, to a much lesser extent, (c) infrastructure.

4. Defense expenditures also tended to come at the expense of a number of administrative allocations including (a) payments to municipalities, and (b) subsidies for government lending institutions.

5. On the other hand, areas such as general administration and the direct government subsidies program (largely agriculture) did not suffer a reduction in their relative share of the government budget stemming from the government's commitment to high levels of military expenditure.

24 Robert E. Looney "Deducing Budgetary Priorities in Saudi Arabia: The Impact of Defense Expenditures on Allocations to Socio-Economic Programs *Public Budgeting and Financial Management* (1992), pp. 311-326.

From these patterns it was concluded that while defense has retained its leading share of the budget during a period of relative fiscal austerity, the country does not appear to have fallen into a guns versus education dilemma. In fact, the two types of expenditure appear to compliment each other in the minds of the Saudi budgetary authorities. While not as complementary, education and defense do not appear to have competed for resources in Iran during the same period.[25]

Summing up these recent studies, Hicks and Kubisch found that governments consider a wide range of factors when faced with difficult choices in reducing public expenditures. These include political and economic costs, present versus future consumption and the potential impact on employment, distribution and welfare. Their empirical results suggest that when governments in developing countries implement austerity programs, they do not apply across-the-board reductions in expenditures. Generally, capital expenditures are reduced more than recurrent expenditures. Within both capital and current budgets, the social and administrative/defense sectors appear to be relatively protected, while infrastructure and production absorb disproportionately larger reductions. That social sectors do not appear to be highly vulnerable to expenditure reductions in times of austerity was the novel finding of that study.

Subsequent to Hicks and Kubisch's study several additional patterns have been identified. Without necessarily making a distinction as to current versus capital expenditures, these studies suggest that these countries tend to make selective cut in non-defense categories, focusing either on social or economic programs. These patterns are further modified by the manner in which countries choose to selectively fund high priority sectors through running larger fiscal deficits.

This pattern was found to be present in several arms producing countries where a fairly close link exists between the government budget deficit, public consumption and military expenditures. These countries show defense expenditures linked to budgetary deficits. That is defense expenditures often increase along with government deficits. Other expenditures may be cut back during

25 Robert E. Looney "War Revolution, and the Maintenance of Human Capital: An Analysis of Iranian Budgetary Priorities" *Journal of South Asian and Middle Eastern Studies* (Fall 1991), pp. 1-17.

periods of high deficits. With budgetary surpluses, defense expenditures often decline in percentage terms.[26]

The next section attempts to identify the differential budgetary effect in the Middle East. That is, do sub-groups of countries tend to respond differently and selectively in cutting economic or social programs as defense expenditures increase their share of the central government budget? If this is correct, what are the common characteristics of these groups of countries? How are these patterns of budgetary tradeoff modified by the willingness or unwillingness to run higher fiscal deficits?

Operational Methods

Drawing on a model developed for Saudi Arabia, equations of the form:

SHARE = f[DEFTSE, DEFTSU, MILXSU, MILXSE]

were estimated.

Here:

DEFTSE = the expected government budgetary position (- =

DEFTSU = the unexpected government budgetary position

MILXSU = Unexpected defense expenditures.

MILXSE = Expected defense expenditures.[27]

In subsequent analysis similar terms for development expenditures and interest payments were used in place of the defense variables. All the variables are defined in terms of their share of government expenditures.

In this formulation, we assume the expected deficit reflects a structural imbalance between revenue and expenditure. Similarly, transitory Government deficits are assumed to be depicted by that component of the public deficit that was unanticipated. Admittedly, this may occur because of a revenue shortfall. In those circumstances, however, the expected deficit could be attained simply by cutting expenditures accordingly. If an unanticipated deficit occurs, therefore it is assumed that it reflects the decision to fund priority sectors. Similarly, if a sector's budgetary share falls with an increase in the unanticipated deficit, it is assumed that sector's funding was reduced to support other programs of a higher priority.

This form of prioritizing is consistent with (although not proof of) some form of lexicographic ordering of budgetary priorities.[28] That is, the Government acts as if it attempts to maintain certain budgetary categories at pre-defined levels. When these levels are met, the authorities are then willing to provide additional funding for categories and programs of lower priority. The expected and unexpected military expenditure terms can be interpreted in a similar manner.

Two sets of regressions were estimated: The first of the form noted above, reflects short run budgetary adjustment to changes in the deficit and defense expenditures. The second set examines longer term budgetary adjustment to year-to year changes in the deficit position and military shares. These longer term adjustments are assumed to follow a distributed lag and thus were estimated by including the lagged value of the dependent variable as one of the regressors.[29]

In the case of defense, several patterns (Tables 1 and 2) stand out:

1. For the short run (Table 1), there do not appear to be any budgetary conflicts between defense and interest payments. That is increases in the expected budgetary share of the military impact positively on the share devoted to interest payments. Unexpected increases in the deficit however create pressure to reduce interest payments.

2. The picture concerning subsidies is somewhat mixed: on the one hand increases in both the expected and unexpected share of the budget allocated to defense reduce allocations to these activities. On the other hand, subsidies are funded in part through larger fiscal deficits. Here increases in both the

26 Robert E. Looney, "Military Expenditures in Latin America: Patterns of Budgetary Tradeoffs" *op. cit.*, p. 101.

27 Expected values were estimated by regressing each years actual figure on that of the previous year. The predicted value for each year was assumed to be that expected. Unexpected values were calculated as the difference between what actually occurred in a given year and that which was expected. See Robert Looney "Budgetary Priorities in Saudi Arabia: The Impact of Relative Austerity Measures on Human Capital Formation" *OPEC Review* (Summer 1991), pp. 133-152 for a more detailed explanation of this method.

28 Cf. J. Encarnacion, "Some Implications of Lexicographic Utility in Development Planning" *The Philippine Economic Journal* (Second Semester, 1970), pp. 231-240.

29 First formulated in L.M Koyc, *Distributed Lags and Investment Analysis* (Amsterdam: North Holland, 1954). See M. Nerlove, "Lags in Economic Behavior" *Econometrica* (1972, pp. 221-251 for the economic interpretation of this phenomenon.

expected and unexpected deficits are used to expand this category's budgetary share. In this regard, unexpected deficits have a somewhat greater impact.

3. Administrative categories of the budget are not directly affected by changes in defense. There is however a weak tendency for the government to increase the expected size of the deficit.

4. Defense expenditures do not increase at the expense of payments to social security and welfare. Both increases in the expected and unexpected shares of the budget increase the size of the budgetary share received by social security and welfare. On the other hand unexpected increases in the fiscal deficit cause reductions in allocations to these activities.

5. Other (current) expenditures are reduced somewhat by unexpected increases in defense. This is offset somewhat by the government running a deficit somewhat larger than anticipated. There is also a weak positive link between increases in the expected deficit and funding for these activities.

6. Finally the negative relationship between defense and development is again confirmed. Increases in the expected share of the budget allocated to defense take a heavy tool on development expenditures. Development also suffers during periods of increasing deficits (both expected and unexpected).

In summary, the strongest relationship between defense and other budgetary items is the large negative impact on development expenditures. However, at the same time the government is expanding the expected share of defense, unexpected increases in the deficit appear to be used to initiate and/or maintain key development programs.

Table 1

Pakistan: Key Budgetary Tradeoffs Involving Defense, 1976-1992 – Short Run Impacts

(standardized regression coefficients)

Interest INTS (budgetary share of interest payments)

(1) INTS = 0.23 DEFTSE - 0.55 DEFTSU + 0.86 MILXSE - 0.07 MILXSU
(1.51) (-3.21)*** (5.10)*** (-0.44)
r^2(adj) = 0.629; F = 7.36; DW = 1.80

Subsidies SUBS (budgetary share of subsidies)

(2) SUBS = 0.31 DEFTSE + 0.48 DEFTSU - 0.57 MILXSE - 0.41 MILXSU
(2.40)** (3.33)*** (-4.11)*** (-3.06)***
r^2(adj) = 0.745; F = 11.95; DW = 2.08

Administration ADMS (budgetary share of administrative allocations)

(3) ADMS = 0.48 DEFTSE + 0.423 DEFTSU + 0.05 MILXSE + 0.36 MILXSU
(2.03)* (0.87) (0.19) (1.44)
r^2(adj) = 0.153; F = 1.67; DW = 2.13

Social Security SSTS (budgetary share of social security expenditures)

(4) SSTS = 0.22 DEFTSE - 0.58 DEFTSU + 0.74 MILXSE + 0.32 MILXSU
(1.78) (-4.32)*** (5.60)*** (2.57)**
r^2(adj) = 0.774; F = 13.84; DW = 1.89

Other Current Items OTS (budgetary share of other current expenditures)

(4) OTS = -0.83 DEFTSE + 1.14 DEFTSU - 0.01 MILXSE - 0.65 MILXSU
(-1.90)* (4.31)*** (-0.01) (-2.64)**
r^2(adj) = 0.374; F = 3.09; DW = 2.20; -0.60 $\hat{}rho_1$ (-2.94)**

Development DEVS (budgetary share of development expenditures)

(6) DEVS = -0.37 DEFTSE - 0.44 DEFTSU - 1.13 MILXSE + 0.19 MILXSU
(-4.42)*** (-4.54)*** (-13.40)*** (1.81)
r^2(adj) = 0.833; F = 18.51; DW = 2.30;-0.58 $\hat{}rho_1$ (2.80)**

Notes: Data from: Government of Pakistan, *Economic Survey* (Islamabad: Finance Division, Economic Adviser's Wing) various issues. Estimation procedure used was ordinary least squares with a Cochraine-Orcutt correction factor for first and second degree autocorrelation of the residuals. See: *SORITEC Integrated Econometric and Statistical Analysis Language, Version 6.6 Reference Manual*, (Springfield, VA: Sorites Group, Inc., 1993); r^2(adj) = adjusted coefficient of determination; F = F statistic; DW = Durbin Watson Statistic; $\hat{}rho_1$ = first order serial correlation correction factor; ( ) t test of statistical significance with: *** significant at the 99% level, ** significant at the 95% level and * significant at the 90% level. Variables ending in E are expected values; Variables ending in U are unexpected values – DEFTSE = the expected deficit as a share of government expenditures; DEFTSU = the unexpected deficit as a share of government expenditures; MILXSE = expected military expenditures; MILXSU = unexpected military expenditures.

Table 2

Pakistan: Key Budgetary Tradeoffs Involving Defense, 1976-1992 – Long Run Impacts

(standardized regression coefficients)

Interest INTS (budgetary share of interest payments)

INTS = 0.94 INTSL + 0.37 DEFTSE - 0.18 DEFTSU + 0.36 MILXSE + 0.22 MILXSU
(8.05)*** (0.82) (-0.42) (0.72) (0.80)
r^2(adj) = 0.949; F = 53.50; =0.47 ^rho (-2.06)**

Subsidies SUBS (budgetary share of subsidies)

SUBS = -0.06 SUBSL + 0.32 DEFTSE + 0.48 DEFTSU - 0.62 MILXSE - 0.42 MILXSU
(-0.22) (2.24)** (3.1 6)** (-2.43)** (.2.85)**
r^2(adj) = 0.721; F = 8.75

Administration ADMS (budgetary share of administrative allocations)

ADMS = -0.26 ADMSL + 0.60 DEFTSE + 0.28 DEFTSU + 0.11 MILXSE + 0.34 MILXSU
(-0.91) (2.21)** (1.03) (0.42) (1.38)
r^2(adj) = 0.140; F = 0.27

Social Security SSTS (budgetary share of social security expenditures)

SSTS = 0.61 SSTSL + 0.80 DEFTSE - 0.90 DEFTSU + 0.41 MILXSE + 0.31 MILXSU
(3.25)*** (1 .77)* (-2.63)** (0.82) (1.33)
r^2(adj) = 0.879; F = 22.87

Other Current Items OTS (budgetary share of other current expenditures)

0T5 = -0.06 OTSL - 0.43 DEFTSE + 1.13 DEFTSU + 0.02 MILXSE - 0.61 MILXSU
(-0.19) (-1.29) (3.04) (0.10) (-2.53)**
r^2(adj) = 0.565; F = 4.38; -0.78 ^rho_1; -0.46 ^rho_2

Development DEVS (budgetary share of development expenditures)

DEVS = 0.49 DEVSL - 1.23 DEFTSE + 0.73 DEFTSU - 2.94 MILXSE + 0.19 MILXSU
(3.10)*** (-1.12) (1.06) (-3.09)** (0.43)
r^2(adj) = 0.909; F = 29.26; -0.53 ^rho_1 (-2.44)

Notes: Data from: Government of Pakistan, *Economic Survey* (Islamabad: Finance Division, Economic Adviser's Wing) various issues. Estimation procedure used was ordinary least squares with a Cochraine-Orcutt correction factor for first and second degree autocorrelation of the residuals. See: *SORITEC Integrated Econometric and Statistical Analysis Language, Version 6.6 Reference Manual,* (Springfield, VA: Sorites Group, Inc., 1993); r^2(adj) = adjusted coefficient of determination; F = F statistic; DW = Durbin Watson Statistic; ^rho_1 = first order serial correlation correction factor; ^rho_2 = first order serial correlation correction factor; ( ) t test of statistical significance with: *** significant at the 99% level, ** significant at the 95% level and * significant at the 90% level. Variables ending in E are expected values; variables ending in U are unexpected values – DEFTSE = the expected deficit as a share of government expenditures; DEFTSU = the unexpected deficit as a share of government expenditures. MILXSE = expected military expenditures; MILXSU = unexpected military expenditures. Variables ending in L are values lagged one year.

Regarding the longer term budgetary impacts of defense (Table 2) several notable patterns occur:

1. Three budgetary categories – interest payments, social security/welfare and development exhibit long run distributed lag adjustment patterns. That is for these items in the budget short run shocks cause a period of budgetary adjustment extending into the future.

2. In the longer run, allocations to interest payments appear to be independent of changes in the deficit (both expected and unexpected). Also there is no apparent long run impact on these allocations stemming form changes in the defense budget.

3. On the other hand, defense continues over the longer term to have a negative impact on subsidies. As in the short run, the effects of defense are blunted somewhat by the government's willingness to expand the deficit to fund these programs. Here both increases in the expected and unanticipated deficits tend to augment the amount of funds earmarked for these activities.

4. As in the short run, administrative categories in the budget are somewhat immune from changes in the government's fiscal position and its decision to expand defense expenditures. Increases in the expected deficit still help maintain these expenditures, however as in the short run this effect is rather weak.

5. The strong short term complementarity between defense and social security/welfare fades over time, with defense expenditures having a neutral impact on these programs. As in the short run periods of budgetary crisis (increases in the unanticipated deficit) cause the government to reduce these categories funding. This effect is however rather weak given the positive (albeit low statistical significance) sign on the expected deficit term.

6. The short run patterns involving other budgetary categories hold up over the longer term – unexpected increases in defense come at the expense of these categories. Again this is offset somewhat by the government's willingness to expand (increase the unexpected deficit) the deficit to fund these activities.

7. Finally, the negative impact of defense expenditures on development extends into the longer term. The government does not appear (in the longer term) willing to expand the deficit to offset this effect.

The patterns associated with development expenditures provide an interesting contrast to the defense related budgetary linkages noted above:[30]

1. The link between interest payments and development is negative (as opposed to the positive one found for defense). This impact is considerably stronger for increases in the expected share of the budget allocated to defense. While unanticipated increases in development impact negatively on interest, the size of the coefficient on this term is small (0.11 versus 0.82 for expected shares). Also the unanticipated development term is only marginally significant.

2. Development expenditures are somewhat neutral in their affect on the share of the budget allocated to subsidies. In contrast to defense expenditures neither of the measures of development were statistically significant in affecting the shares allocated to subsidies.

3. The patterns found for administration were fairly similar to that characterizing defense – administrative expenditures are somewhat autonomous not affected by either the capital (development) budget or the government's fiscal (deficit) strategy.

4. Development expenditures also have a somewhat neutral link to social security/welfare payments. Here, neither of the measures of development's share of the budget were statistically significant in affecting the share of these programs.

5. As with defense, unanticipated increases in development expenditures tend to come at the expense of "other" programs. However the size of this impact is about one half of the magnitude associated with unanticipated increases in the size of the defense budgetary share.

6. As might be expected, development and defense interact negatively. From the development perspective, both increases in the expected and unexpected budgetary shares reduce the share of defense in the overall budget.

As with defense (and over time), several of the main short run linkages between development and other budgetary items weaken. In particular:

30 Due to space limitations, the results for development and interest payments are not presented in detail. These results are in the same form as those Tables 1 and 2, and are available from the author upon request.

1. Regarding interest payments, while still negative and statistically significant the size of the coefficient on the expected budgetary share of allocations to development is about one half that found in the short run.

2. The negative impact of unanticipated development expenditures on "other" current items holds up in the longer term. Again however developments in the capital budget do not appear to carry over in to the longer term for subsidies, administration, and social security.

3. Finally the short term negative impact of development on defense does not extend into the longer run either. Defense expenditures experience a longer term distributed lag adjustment pattern, but development is not one of the shocks that affect this pattern into the medium term future.

In summing up, the main linkages of development allocations to other budgetary items it appears that this category's links to the rest of the budget are somewhat weaker than those associated with the defense budget. Also of significance is that while defense impacts negatively on development in the longer term the reverse is not the case. This leads us to conclude that defense has a somewhat higher budgetary priority than that associated with the capital budget.

Finally, the tradeoff patterns associated with interest payments provide additional insights to the government's budgetary priorities. In the short term:

1. Increases in expected interest payments have a strong negative impact on the capital accounts. This impact is somewhat stronger for expected increases in interest payments.

2. Allocations to "other" current programs are also affected negatively by unanticipated increases in interest payments.

3. While defense expenditures had a short run positive impact on interest payments, the reverse is not the case. There are no statistically significant links between the share (expected or unexpected) of the budget allocated to interest and movements in the relative share of the budget allocated to defense.

4. Again, these patterns extend into the longer term with somewhat weaker impacts as the period is extended. In general interest payments continue to detract from development programs. There is also some evidence that social security/welfare payments may suffer as a result of the country's increased debt servicing burdens. Military expenditures, however appear unaffected by the country's increasing indebtedness.

Conclusions

While the development of a sophisticated model for analyzing budgetary priorities is beyond the scope of this paper, the results above suggest an ordering of preferences – that is, it is possible to roughly deduce the relative importance the Pakistani government attaches to each of the main budgetary categories.[31]

The principles used here in priority ordering are stated as a series of self- evident rules:

1. If one budgetary item impacts negatively on another and the second category does not in return impact negatively on the first, then the first is of higher priority.

2. Impacts stemming from unexpected increases in a budgetary item reveal more about budgetary priorities than a corresponding change in expected magnitudes. Intuitively this rule assumes that governments reveal their true priorities more in times of uncertainty and or emergency.

3. Deficit changes are of less significance than budgetary share changes, with unexpected changes in the deficit of greater significance in this regard than expected changes.

4. Long run impacts provide greater insights as to priorities than that obtained from an examination of shorter run patterns. Intuitively long run patterns reflect continuity in government decision making, whereas short run patterns may be affected by random, exogenous events.

Based on these rules, several general conclusions emerge from the empirical results presented above:

1. Since long run defense expenditures impact negatively on development and development does not reduce defense over time, defense has a higher priority than development.

2. Defense has a positive short run impact on interest payments with increased shares of the budget allocated to interest neutral (in both the short and long run) with regard to the share of the budget allocated to defense. Again this is a clear cut case of defense having the higher priority.

3. Priorities between development expenditures and interest payments are much more difficult to deduce: development expenditures reduce (in both the short and long run) the budgetary share going to interest payments. In turn, increased interest payments reduce (again in both the short and long run) the shares of the budget going to the capital account.

4. Complicating establishment of the development/interest priorities is that in both cases the expected and unexpected deficit terms are negative – both are reduced with increases in the deficits. Furthermore these patterns occur in both the short and longer run. However, since the deficit terms are stronger in the case of development (together with a higher level of statistical significance), it appears that interest payments have a slightly higher priority than that afforded development.

While the budgetary shares of the other main items of the budget were not directly tested against each other, it is probably safe to conclude that subsidies are next in priority. While they suffer from increased defense expenditures, they are immune from cuts due to expanded interest payments or development allocations. In addition the government appears willing to run higher deficits to fund these programs. Administration has the next highest priority – it is immune to cuts stemming from increases in defense, interest or development. In addition this category does not seem to face cuts during periods of increased deficits.

In conclusion, one may quibble over the importance of administration, social security/welfare and other expenditures. However, the overall picture of Pakistan's budgetary priorities is fairly clear. Defense expenditures have by far the highest priority. While the government may cut these programs when deficits expand more than anticipated, the government is inclined to cut other programs rather than reduce the budgetary share going to the military.

31 For example, along the lines proposed in J. Encarnacion "Some Implications of Lexicographic Utility in Development Planning" *The Philippine Economic Journal* (Second Semester 1970) pp. 231-240.