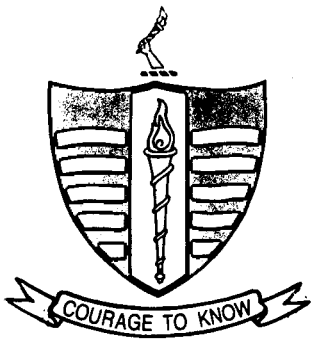

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DEFENSE EXPENDITURES IN PAKISTAN: A SOURCE OF STIMULUS FOR OR COMPETITION WITH THE PRIVATE SECTOR?

By

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Introduction:

Toward the end of 1988, Pakistan's deteriorating resource situation caused a financial crisis, many remnants of which still exist today. In 1988 the Government's budget deficit reached 8.5% of Gross Domestic Product (GDP), inflation accelerated, the current account deficit doubled to 4.3% of Gross National Product (GNP), the external debt service ratio reached 28% of export earnings, and foreign exchange reserves fell in half to $438 million, equal to less than three weeks of imports.[1]

These developments have eroded the ability of the government to affect the country's development process. In fact, the encouragement of private sector activity, particularly investment, is the only viable option open to the authorities. It follows that for policy purposes the most important issue involves restructuring government expenditures and their financing in a manner that would provide the maximum inducement to private sector capital formation, especially in manufacturing. Operationally, this means finding an optimal balance between the government's three most important budgetary items: defense, public consumption and infrastructural development. More importantly because there is

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abundant evidence[2] that the government's deficits have crowded out a certain amount of private investment, the authorities must achieve this balance within the context of a reduced level of expenditures and/or tax increases.

Defense expenditures are a logical area for budgetary cuts: current expenditures account for the major part of government budgetary allocations, averaging 65-75 percent in recent years. In fact, in recent years defense expenditures together with debt servicing have accounted for around 80 percent of current expenditures.

While not necessarily arguing that reduced defense expenditures would free sufficient funds to restore the country's deteriorating capital stock,[3] the purpose of this paper is to examine whether defense expenditures have affected the private sector's willingness and ability to invest in manufacturing. Has the general impact of defense expenditures on private investment in manufacturing differed significantly from that associated with other categories of Government expenditures? If so, in what regard? Are these differences associated with the manner in which defense and expenditures in other areas are funded?

Background:

As noted, previous studies have suggested that government expenditures in Pakistan have been a mixed blessing. On the one hand, these expenditures have the potential to increase private sector profitablity either through increases in aggregate demand (the Keynesian effect) and/or cost reductions (the infrastructural effect). On the other hand, public expendtiures appear to compete for funds with the

private sector, thus reducing ceteris paribus the total volume of private capital formation.

Apparently these effects vary by expenditure category. For example, infrastructure investment has played a passive role in stimulating follow-on private investment[4]. Surprisingly, there is little evidence that government investment in manufacturing crowds out private investment. Instead there is a much greater likelihood that other forms of government investment may be responsible for the private sector's funding difficulties. In particular government investment in public enterprises and general government investment seem to be more responsible for the country's increasing fiscal imbalances.

Little can be said on these issues until the issue of causation is adequately resolved:

Often in studies of this type the direction of causation has implicitly been assumed to go from government deficits to expanded domestic borrowing to interest rate increases and ultimately reduced private investment. One could just as easily argue that increased levels of private investment have placed pressure on the government, wishing to aid private investment while simultaneously lacking adequate funding for major infrastructural programs, may first grant the private sector various forms of relief such as tax holidays followed by modest increases in public investment. The outcome of this process would be expanded deficits, but not necessarily the crowding out of private investment in the classical sense. The causation issue must be addressed before any definitive conclusion can be made concerning crowding out.

2. As a related issue, the timing of these impacts needs to be identified. Many effects associated with government deficits are likely to have a delayed impact on private investment decisions. Again because the timing of these effects has not been identified, the patterns of causation are unclear.[5]

3. If we assume that interest rate effects are only one factor associated with the government deficit as it pertains to private investment, the theory of crowding out becomes unclear as to the relevant form of the budgetay deficit. If the interest rate mechanism is not perfect, are private investors more concerned or affected (through perhaps credit rationing) by the actual deficit, some sort of expected deficit, unanticipated changes in deficit, or even deviations in the deficit from some longer run budgetary trend?

4. The environment in which deficits exist needs to be identified. Obviously, if deficits stem largely from increased government consumption or defence, their negative impact on private investment will be greater than if they had stemmed simply from increased infrastructural investment.

5. The financing of the public sector deficit and government capital formation needs to be examined in detail. Have the deficits been associated with government investment or consumption? How have the deficits been financed as betweeen domestic and foreign borrowing? Do the impacts of domestic versus foreign borrowing vary with regard to their effect on private industrial investment?

The Issue of Causation

Ultimately any statistical test for causation will be based on a number of arbitrary assumptions. Still, using a number of alternative specifications for the key variables it is possible to make some credible inference concerning the timing of say government expenditures and public sector deficits: do some types of government expenditure tend to generate a stream of defifcits (and associated public borrowing) over time (soft budgetary constraint[6]) or are selected budgetary allocations constrained by past deficits (hard budgetary constraint). Similarly, which types of expenditures are more likely financed (or constrained) through the domestic capital markets and which are more reliant (or constrained) by foriegn borrowing?

The original and most widely used causality test was developed by Granger[7]. According to this test (again using the example of public expenditures and deficits), deficits affect growth of public sector expenditures if this series can be predicted more accurately by past values of deficits than by past (expenditure) growth patterns[8]. To be certain that causality runs from defictits to public expenditures, past values of the public deficit must also be more accurate than past values of public expenditures at predicting increases in the deficit[9].

Four cases are possible: (a) **Government Deficits cause Public Expenditures** when the prediction error for public expenditures decreases when the government deficits is included in the expenditure equation. In addition, when public expenditures are added to the deficit equation, the final prediction error should increase; (b) **Public Expenditures cause Government Deficits** when the prediction error for public expenditures increases when government deficits are

added to the regression equation for public expenditures, and is reduced when public expenditures are added to the regression equation for government deficits; (c) **Feedback** occurs when the final prediction error decreases when government deficits are added to the public expenditres equation, and the final prediction error decreases when public exenditures are added to the govenrment deficits equation; and (d) **No Relationship** exits when the final prediction error increases both when government deficits are added to the public expenditures equation and when public expenditures are added to the deficit equation.

Operational Procedures

The government expenditure data used to carry out the causation test[10] was derived from data provided by the World Bank[11]. Figures on Gross Domestic Product and the GDP price deflator is from various issues of the International Monetary Fund, Inernational Financial Statistics Yearbook. All variables were deflated by the GDP deflator and are in constant 1985 prices. For best statistical results,[12] the variables were transformed into their logarithmic values[13].

To determine the robustness of our findings and whether the results were sensitive to the definition of key variables various measures of the deficit were examined. These included the actual or realized deficit, the expected deficit (the predicted value obtained by regressing each year's deficit on its value for the previous year the unexpected deficit (the difference between each year's actual deficit and that anticipated based on past patterns) and finally deviations of the deficit from its longer run growth path (the actual deficit minus the exponential trend in the deficit). The same definitions were used in deriving series for public domestic borrowing.

Results

Two sets of causality tests were performed. The first set examined the interaction of the three broad categories of goverment expenditures: (a) defense,(b) consumption, (c) general goverment investment and (d) infrastructure: (a) private sector investment in large scale manufacturing and (b) private investment in small scale manufacturing enterprises.

The second set of estimates examined the interrelationships between these four types of government expenditures and movements in the fiscal deficit. Since previous studies have suggested that it is not the deficits **per se**, but rather the method by which they are financed (domestic versus foreign) that determines whether crowding out occurs, the second set of tables also takes the analysis a step further by examining the corresponding link between public sector expenditures and the pattern of public sector domestic\foreign borrowing. Put differently even though public expenditures in certain areas may lead to increased budgetary deficits, crowding out might not occur if the authorities are able to fund this expenditure through foreign borrowing.

The analysis produced a number of interesting patterns. In particular those for public expenditures and private investment in manufacturing provide an interesting contrast in the manner in which public sector spending has provided a stimulus to private sector capital formation. Specifically:

1. The impact of defense expenditures (Table 1) on investment in large scale manufacturing appears consistently strong across all measures of this category of expenditures. Also, in all cases the impact lag appears quite short, averaging only a year.

2. In contrast to the case for large scale manufacturing, defense expenditures have no appreciable effect on private investment in small scale manutacturing.

3. As a basis of comparison, public sector expenditures on consumption does not provide a stimulus to private investment in large scale manufacturing. Here, the pattern is largely one whereby expanded private sector activity induces the government to provide additional services. For public services (consumption), this process occurs over a fairly long period with an average lag of three years.

4. While one might anticipate that general government investment, especially in the areas of infrastructural expansion, would provide a stimulus to private investment in manufacturing, this does not appear to be the case. In fact, causation is generally from private investment to public. For actual pubic investment (including both infrastructural and non-infrastructural components) the lag is rather short-a year. For longer term infrastuctural investment (here proxied as expected investment) the lag tends to be about three years. Interestingly deviations of public investment from its historical exponential trend tend to impact negatively on private investment in manufacturing.

5. Private investment in small scale manufacturing is again affected differently than that in larger scale firms. In this case (Table 2) public consumption expenditures provide a weak stimulus to the private sector. This lag is short, averaging about a year.

6. Private investment in smaller scale industrial ventures interacted with public investment in a manner somewhat similar to that found in larger scale enterprises. However several minor differences do appear to characterize investment by the private sector. First, the lag between private investment and the government provision of infrastruture (anticipated investment) was shorter (one year) in the case of small scale firms. Secondly, while investment impacted negatively (not shown here) on private investment in smaller scale firms, there were no statistically significant patterns between private investment and deviations from the exponential trend in public investment.

As noted above, in looking for an explanation for these patterns, several previous papers have indicated that public sector crowding out of private investment may be occurring as a result of stepped-up government borrowing in the domestic financial markets. To examine this possibility, an analysis similar to that performed above was used to identify the linkages and causality patterns between the different broad types of public expenditures (defence, consumption, and general government investment) and potential sources of funding (deficits, domestic borrowing, and foreign borrowing).

Again several interesting patterns appeared:

1. Of the three types of government expenditures, those allocated to defense appear to have the most complex budgetary linkages. In one sense the military faces a hard budgetary constraint in the sense that increases in past deficits tend to suppress the expansion in allocations to the military. On the other hand, increased

defense expenditures do force an expansion in future deficits.

2. This same general framework carried over to the borrowing patterns associated with military expenditures. For most measures of domestic borrowing, higher growth rates in funding from the domestic markets tends to suppress the expansion in future military expenditures. These suppressing effect are most important in cases where the rate of borrowing (domestic or foreign) expands over its anticipated (or longer term) growth rate. Still, feedback effects are present whereby military expenditures are in turn generally funded in part through both domestic and foreign borrowing.

3. Since a large portion of public consumption consists of allocations to the military, the budgetary patterns of this expenditure category are a bit similar to that characterizing defense, particularly consumption's relationship to the fiscal deficit.

4. Several important differences do occur however. The major difference between defense expenditures and public consumption is associated with the manner in wich each is actually funded. Increased growth in public consumption definitely contributes to expanded domestic borrowing requirement over time. Also the expansion in public consumption appears to be more constrained than defense during periods of expanded foreign borrowing.

5. Of the three types of government expenditures examined here, general government investment tends to have the strongest impact on the public sector deficit.

6. For all four measures of the deficit, increases in general public investment tends to result in expanded fiscal imbalance. While expanded deficits (actual and deviation from the exponential trend) facilitate a future expansion in public investment, this effect is weak relative to the impact of investment on the deficit.

7. A clear link also exists between expanded public sector investment and increased future domestic borrowing requirements. Interestingly enough few links exist between the growth in public investment and the country's pattern of external public borrowing.

Summary

While the results presented above do not provide a definitive proof of the existence of the cowding out mechanism in Pakistan, they are quite consistent with what one might find if the phenomena were present. Public investment and infrastructural development appear to have the least stimulating (and sometimes negative) effect on private sector investment. This is ironic given that a major purpose of these allocations is to provide a stimulus to follow-on private investment. Clearly this effect stems from the large demands placed on the domestic capital market by this type of expenditure.

At the other extreme is defense. Again a somewhat ironic pattern exists by which expanded military expenditures provide a generally strong stimulus to private investment in large scale private manufacturing. While the analysis does not let us identify the cause of this stimulus (general Keynesian demand expansion and/or direct linkages to the country's military procurement program) the fact remains that the

goverment has shown restraint in funding defense expenditures once domestic borrowing begin to accelerate.

General public consumption falls somewhere between defense and investment in affecting the private sector's willingness (or ability) to commit capital to manufacturing. While the government does fund increased consumption through expanded domestic borrowing, the magnitudes involved are not as great as with investment. Thus government consumption is still able to provide a net positive stimulus to small scale private investors (who presumably are not as reliant on the domestic capital markets as are their larger scale counterparts).

A Macro-Economic Framework

The possible presence of crowding out resulting from increases in government investment and infrastructural development is important for policy design and as such warrants further analysis. For this purpose a small macroeconomic model based on the causality findings was developed.

In constructing the model, our main concern was to capture the main areas in which defense and other government expenditures might conceivably affect private investment. Specifically the model attempts to capture the impact of public expenditures by type on the deficit, the impact of the deficit on the composition of public borrowing (domestic versus foreign) and domestic savings. Ultimately these links modify the private sector's decision to expand or contract capital formation in manufacturing.

Concerning the more important individual relationships:

1. Growth is affected mainly by employment lagged military expenditures and private investment.[14] Interestingly, non-defense expenditures were not statistically significant in affecting GDP. The same was also true for government investment.

2. Defense expenditures were found to be a function of lagged GDP. In addition allocation to the military were found to compete with other forms of public expenditures and were reduced with increased funding of government investment. As noted in the causality analysis, an expansion in the public deficit also depresses the rate of increase in follow-on allocations to the military.

3. Private investment in manutacturing follows a standard[15] distributed lag pattern. Funds allocated to this sector are reduced with increased levels of public sector borrowing in domestic markets. Some of the pressure on capital markets is reduced with increased foreign borrowing. As in the causality tests, military expenditures provide a stimulus to investment in large scale manufacturing (while non-defense expenditures provide a stimulus to investment in smaller scale plants). As noted by Khan and Iqbal[16] private investment is largely influenced by the country's pattern of savings.

4. Gross National Savings[17] expand with the general growth of the economy. However these funds are preempted (or crowded out) by the fiscal deficit.

Historical Simulations

To test the general accuracy of the model, a historical simulation was performed i.e. using the actual values for each variable, how well would the model have predicted each of the major variables over the period 1974 to 1991. The results (Table 1) were encouraging, particularly for the all-important GDP, and total private investment. The largest error for GDP was only 3.76 percent in the year of political crisis (1977).

Because of their smaller, absolute values, however the errors were often high for private investment in manufacturing. Still, during the last several years the predicted figures for private capital allocations to this sector were close to the actual figures.

Roughly the same picture emerges when general government investment was treated as exogenous i.e. when actual rather than estimated values were used in the model solution (Table 2).

The next step was to get an idea of the quantitative magnitudes of impact produced by changes in government investment. In the first set of simulations, government investment was increased (Tabe 3) by 2.5% and 10% over its historical values (with the other behavioral equations left endogenous). As a basis of comparison, the base figures are those derived (in Table 2) from the actual (realized) levels of government investment.

The results (Table 3) of this simulation provide interesting insights to the dynamics of the Pakistani ecomomy. In particular, increased levels of government investment tend to reduce GDP. The suppression in GDP occurs through the

Table 1

Macroeconomic Simulation I, Endogenous Model, 1974-1991

(billions of 1985 rupees)

Year	Gross Domestic Product			Total Private Investment		
	Actual	Est	% Dif	Actual	Est	% Dif
1974	264.0	245.5	0.2	15.7	17.0	7.7
1975	256.8	259.8	1.2	17.5	17.9	2.3
1976	268.8	270.4	0.6	19.3	18.4	5.8
1977	278.9	290.2	3.9	20.9	19.1	9.5
1978	301.4	305.6	1.4	21.7	21.0	3.6
1979	315.9	324.6	2.7	22.4	22.4	0.0
1980	343.4	341.4	0.6	26.4	24.1	9.6
1981	367.0	363.7	0.9	28.5	26.1	9.4
1982	391.0	383.6	1.9	28.1	28.4	0.9
1983	417.9	408.2	2.4	30.7	30.6	0.2
1984	438.7	432.5	1.4	32.8	33.3	1.3
1985	472.2	460.4	2.6	35.8	36.1	0.7
1986	498.1	481.4	3.5	38.7	39.2	1.3
1987	530.1	523.3	1.3	41.1	41.9	2.0
1988	570.9	549.2	3.9	43.8	46.5	6.0
1989	611.9	588.5	4.0	51.0	49.8	2.4
1990	630.9	624.4	1.0	56.0	54.2	3.3
1991	672.0	670.4	0.3	60.1	59.1	1.8

P.T.O.

Year	Private Non-Manuf Inves			Private Manuf. Invest		
	Actual	Est	% Dif	Actual	Est	% Dif
1974	12.8	13.3	4.2	3.0	3.7	20.5
1975	14.0	14.6	3.7	3.4	3.3	3.9
1976	15.5	15.1	2.4	3.9	3.2	22.4
1977	16.9	15.8	6.6	4.1	3.3	23.3
1978	17.9	17.3	3.4	3.9	3.7	4.7
1979	18.6	18.2	2.2	3.8	4.2	7.6
1980	21.8	19.1	14.6	4.6	5.0	9.4
1981	22.5	20.0	12.5	6.0	6.0	0.5
1982	21.5	21.2	1.7	6.6	7.2	8.5
1983	22.9	22.1	3.4	7.8	8.5	8.1
1984	23.9	23.3	2.6	8.9	10.0	10.5
1985	25.8	24.5	5.3	10.0	11.6	13.4
1986	26.8	25.9	3.7	11.9	13.3	10.8
1987	28.5	26.8	6.2	12.6	15.1	16.7
1988	29.8	29.2	1.9	14.0	17.3	19.2
1989	32.5	30.4	6.9	18.5	19.4	4.6
1990	34.3	32.1	6.7	21.7	22.1	1.5
1991	36.4	34.4	5.9	23.7	24.1	3.9

Table 2

Macroeconomic simulation II: General Government Investment Set at Historical Values, Foreign Public Borrowing Endogenous, 1974-1991

(billions of 1985 rupees)

Year	Gross Domestic Product			Total Private Investment		
	Actual	Est	% Dif	Actual	Est	% Dif
1974	246.0	245.5	0.2	15.7	17.0	7.6
1975	256.8	260.0	1.3	17.5	17.9	2.4
1976	268.8	269.9	0.5	19.3	18.2	5.9
1977	278.9	290.0	3.8	20.9	19.0	10.4
1978	301.4	306.8	1.8	21.7	21.5	1.0
1979	315.9	322.5	2.1	22.4	22.7	0.9
1980	343.4	342.4	0.3	26.4	23.6	11.8
1981	367.0	369.4	0.6	28.5	25.2	13.1
1982	391.0	393.1	0.5	28.1	27.1	4.0
1983	417.9	423.0	1.2	30.7	30.0	2.4
1984	438.7	445.9	1.6	32.8	33.6	2.3
1985	472.2	469.6	0.6	35.8	36.0	0.6
1986	498.1	491.5	1.3	38.7	38.6	0.1
1987	530.1	534.2	0.8	41.1	41.8	1.8
1988	570.9	557.0	2.5	43.8	46.9	6.7
1989	611.9	593.0	3.2	51.0	50.5	1.0
1990	630.9	625.6	0.9	56.0	54.9	1.9
1991	672.0	670.3	0.3	60.1	59.1	1.6

P.T.O.

Year	Private Non-Manuf Inves			Private Manuf Invest		
	Actual	Est	% Dif	Actual	Est	% Dif
1974	2.8	13.3	4.0	2.97	3.73	20.3
1975	14.0	14.6	3.9	3 41	3.32	3.0
1976	15.5	15.1	2.3	3.86	3.13	23.0
1977	16.9	15.7	7.6	4.06	3.28	23.9
1978	17.9	17.6	1.4	3.84	3.87	0.6
1979	18.6	18.5	0.5	3.84	4.15	7.3
1980	21.8	18.7	16.8	4.56	4.92	7.4
1981	22.5	19.5	15.2	6.00	5.65	6.2
1982	21.5	20.5	4.8	6.61	6.52	1.4
1983	22.9	22.0	3.8	7.81	7.92	1.4
1984	23.9	24.1	0.9	8.94	9.51	6.0
1985	25.8	25.0	3.3	10.02	11.04	9.3
1986	26.8	25.8	4.0	11.88	12.86	7.7
1987	28.5	27.1	5.3	12.57	14.73	14.7
1988	29.8	29.8	0.2	13.98	17.08	18.2
1989	32.5	31.1	4.5	18.51	19.42	4.7
1990	34.3	32.8	4.7	21.71	22.17	2.0
1991	36.4	34.4	5.7	23.73	24.70	3.9

Table 3

Macroeconomic Simulation III: General Government Investment 2.5% and 10% over Historical Values, Foreign Public Borrowing Endogenous

(Billions of 1985 rupees)

Year	Gross Domestic Product			Total Private Investment		
	2.5%	Base	10.0%	2.5%	Base	10.0%
1974	245.3	245.5	244.9	17.0	17.0	16.9
1975	260.0	260.0	259.8	17.9	17.9	17.9
1976	269.4	269.9	268.0	18.3	18.2	18.6
1977	288.5	290.0	284.7	19.1	19.0	19.4
1978	304.9	306.8	299.0	21.6	21.5	22.0
1979	319.8	322.5	311.6	22.8	22.7	23.3
1980	338.9	342.4	328.1	23.8	23.6	24.3
1981	365.1	369.4	352.2	25.4	25.2	25.8
1982	388.2	393.1	373.6	27.2	27.1	27.7
1983	417.5	423.0	401.0	30.1	30.0	30.7
1984	439.7	445.9	420.9	33.8	33.6	34.5
1985	462.6	469.6	441.6	36.2	36.0	36.8
1986	483.9	491.5	461.1	38.8	38.6	39.4
1987	526.0	534.2	501.2	42.0	41.8	42.7
1988	548.0	557.0	521.1	47.2	46.9	47.8
1989	683.3	593.0	554.2	50.8	50.5	51.5
1990	615.1	625.6	583.7	55.2	54.9	56.0
1991	659.0	670.3	625.3	59.4	59.1	60.2

P.T.O.

Year	Private Non-Manuf Inves			Private Manuf Invest		
	2.5%	Base	10.0%	2.5%	Base	10.0%
1974	13.3	13.3	13.2	3.7	3.7	3.7
1975	14.6	14.6	14.5	3.3	3.3	3.4
1976	15.2	15.1	15.3	3.2	3.1	3.3
1977	15.7	15.7	15.9	3.3	3.3	3.5
1978	17.7	17.6	17.7	4.0	3.9	4.3
1979	18.5	18.5	18.6	4.3	4.2	4.7
1980	18.7	18.7	18.7	5.1	4.9	5.6
1981	19.5	19.5	19.4	5.9	5.7	6.5
1982	20.5	20.5	20.3	6.7	6.5	7.4
1983	22.0	22.0	21.8	8.2	7.9	8.9
1984	24.0	24.1	23.8	9.8	9.5	10.6
1985	24.9	25.0	24.6	11.3	11.0	12.3
1986	25.6	25.8	25.2	13.2	12.9	14.2
1987	26.9	27.1	26.5	15.1	4.7	16.2
1988	29.7	29.8	29.2	17.5	17.1	18.6
1989	30.9	31.1	30.4	19.8	19.4	21.1
1990	32.6	32.8	32.0	22.6	22.2	24.0
1991	34.2	34.4	33.6	25.2	24.7	26.6

associated reduction in defense expenditures (given the insensitivity of private investment to changes in the levels of public capital formation).

Upto now the simulations have assumed that the pattern of public external borrowing is largely passive, that is determined by the endogenous equation[12] in Table 6. If instead, it is assumed that the government is constrained (to some pre-assigned level) in its borrowing in foreign capital markets the results of the simulations change dramatically (Table 4).

Again as a basis of comparison, three separate values are given for each of the key macroeconomic aggregates: (a) the endogenous values are those obtained by letting public foreign borrowing increase as in Table 9;(b) stet refers to the results obtained when public foreign borrowing was constrained to its realized values over the 1974-1991 period; and (c) actual plus 10% are the values obtained on the assumption that the government could not increase foreign borrowing at will i.e, the government could increase its foreign borrowing at most up to 10% over its actual borrowing levels for any one year.

On the basis of these assumptions, it can be easily seen that even with modest increases (2.5%) in government investment the ecomomy would come under severe strains (Table 4). In particular:

1. With no increase in public external borrowing in 1991, GDP would decline from 659 billion rupees to 570.7 billion.

2. The ecomomy's extreme dependence on external borrowing to offset the public sector's crowding out of private investment appears to have developed around

1984/85 (as evidenced by the widening gap between the values obtained in actual and endogenous simulations).

3. This extreme dependence is evidenced by the fact that in recent years a 2.5 percent increase in government investment would have to be matched by an increase in public foreign borrowing of over 10 percent simply to preserve levels of investment and GDP that would have occurred in the absence of these increases in government investment.

Conclusions

While a complete explanation of the reasons the government has chosen to fund certain expenditures in certain markets is beyond the scope of this study, it is clear that if the Pakistani authorities wish to play a more productive role in the country's development, they will have to devote just as much attention to the financial impacts of public investment as they have to the direct economic impacts.

Table 4

Macroeconomic simulation IV: General Government Investment 2.5% over Historical Values, With Varying patterns of Foreign public Borrowing

(billions of 1985 rupees)

Year Borrow	Gross Domestic Product			Totla Private Investment		
	Endogen	Actual	Act.+10%	Endogen	Actual	Act.+10%
1974	245.3	245.5	245.9	17.0	17.0	17.2
1975	260.0	259.3	260.6	17.9	17.7	18.1
1976	269.4	272.4	277.2	18.3	19.3	20.0
1977	288.5	294.7	299.2	19.1	21.1	22.2
1978	304.9	311.2	317.6	21.6	23.1	24.4
1979	319.8	325.9	334.6	22.8	23.3	25.0
1980	338.9	346.6	358.2	23.8	24.4	26.4
1981	365.1	373.1	387.4	25.4	26.3	28.7
1982	388.2	299.6	414.3	27.2	28.2	31.0
1983	417.5	424.4	445.8	30.1	30.5	33.8
1984	439.7	442.1	468.7	33.8	32.8	36.6
1985	462.6	459.7	489.9	36.2	33.7	38.2
1986	483.9	472.7	508.3	38.8	34.5	39.6
1987	526.0	503.8	545.6	42.0	35.8	41.8
1988	548.0	511.0	560.0	47.2	38.4	45.4
1989	583.3	530.2	587.8	50.8	39.7	47.9
1990	615.1	545.7	613.6	55.2	42.4	52.2
1991	659.0	570.7	650.5	59.4	44.6	56.1

Year Borrow	Private Non-Manuf Inves			Private Manuf Invest		
	Endogen	Actual	Act.+10%	Endogen	Actual	Act.+10%
1974	13.2	13.2	13.2	3.7	3.7	3.9
1975	14.6	14.6	14.5	3.3	3.1	3.5
1976	15.2	15.1	15.2	3.2	4.2	4.9
1977	15.7	15.9	16.1	3.3	5.2	6.2
1978	17.7	18.0	18.2	4.0	5.1	5.3
1979	18.5	18.7	18.9	4.3	4.7	6.0
1980	18.7	18.9	19.2	5.1	5.5	7.2
1981	19.5	19.0	20.3	5.9	6.4	8.3
1982	20.5	20.8	21.4	6.7	7.4	9.7
1983	22.0	22.2	22.9	8.2	8.2	10.8
1984	24.0	24.3	25.1	9.8	8.6	11.5
1985	24.9	25.0	26.0	11.4	8.8	12.2
1986	25.6	25.4	26.6	13.2	9.1	13.0
1987	26.9	26.4	27.8	15.1	9.4	14.0
1988	29.7	28.8	30.4	17.5	9.7	15.0
1989	30.9	29.4	31.3	19.8	10.3	16.6
1990	32.6	30.4	32.7	22.6	12.0	19.5
1991	34.2	31.5	34.2	25.2	13.1	21.9

Notes:

1. Pakistan: Current Economic Situation and Prospects, Report No. 9283-PAK (Washington: The World Bank March 22, 1991), p.ii.

2. See for example A.R. Kemal, "Fiscal Imbalances as an Obstacle to Privatization Effort"

The Pakistan Development Review, vol. 28, no,4, Part II (Winter 1989), pp.1009-1019; Nadeem Burney and Attiya Yasmeen, "Government Budget Deficits and Interest Rates: An Empirical Analysis for Pakistan, "*The Pakistan Development Review* (Winter 1989), Vol.28, No. 4, Part II pp.971-980; and A.H, Khan and Z.Iqbal, "Fiscal Deficit and Private Sector Activities in Pakistan, "*Economina Internazionale* (May-August 1991), vol.XLIV, no-2-3, pp. 182-190.

3. As Richards and Waterbury note: "We may estimate, counterfactually, the returns on alternative uses of the moneys devoted to defense, but practically nowhere in the world is there any assurance that reduced defense budgets would result in increased outlay on say, social welfare or infrastructure. Defense outlays are laden with the symbols and sentiments of national pride and survival. People seem prepared to accept disproportionate public investment in defense. They and their leaders find less justification in using equivalent resources to reduce adult illiteracy or line irrigation ditches."Alan Richards and Johb Waterbury, a Political Economy of the middle East: State Class, and Economic Development (Moulder, Colorado: Westview Press 1990), pp.360-61.

4. See Robert E. Looney, "Infrastructure and Private Sector Investment; The case of: Pakistan's Transportation and Communications Sector, 1972-1990 "*Rivista Internazionale di Scienze Economiche e Commerciali*, vol.XXXIX, no. 9 (september 1992), pp.771-792; Robert E. Looney "Infrastructural Constrains on Transport and Communications: The Case of Pakistan" *International Journal of transport*

Enonomics, vol. XIX no.3 (October 1992), pp287-306 ; and Robery E Looney "Infrastructural constraints on Energy Development: The Case of Pakistan "*The Journal of Energy and Development* Vol.XVI, no.2 (Spring 1991), pp.267-286.

5. Gupta does make an attempt to identify the relevant lag structure, but these are arrived at in a somewhat arbitrary manner.

6. Janos Kornai, "The Soft Budgetary Constraint" *Kyklos*, vol.39, no.1, pp.3-30.

7. C.W.J.Granger, "Investigationg Causal Relations by Econometric Models and Cross-Spectral Methods, *Econometrica* (1969), pp.424-438.

8. More formally, Granger defines causality such that X Granger causes (G-C)Y if Y can be predicted more accurately in the sense of mean square error, with the use of past values of X than without using past X.

9. As is well known however, the results of Granger causality tests depend critically on the choice of lag length. If the chosen lag length is less than the true lag length, the omission of relevant lags can cause bias. If the chosen lag is greater than the true lag length, the inclusion of irrelevant lags causes edtimates to be inefficient. While it is possible to choose lag lengths based on preliminary partial autocorrelation methods, there is no a priori reason to assume lag lengths equal for all types of deficits. To overcome this problem the estimates reported below uses a Hsaio method to systematically identify the optimal lag. Cf. C. Hsiao, "Autoregressive Modeling and Money-Income causality

Detection," *Journal of Monetary Economics* (1081) pp.85-106 and C. Hsiao "Causality Tests in Econometrics," *Journal of Economic Dynamics and control* (1979), p.326.

10. Causation test were performed using a program written in **RATS386 Version 4.0.** Cf. Thomas A. Doan, RATS User's Manual Version 4 (Evanston, Illinois: Estima, 1992).

11. World Bank, Pakistan: Current Economic Situation and Prospects--Report No.10223-PAK (March 16, 1992). World Bank, Pakistan:Current Economic Situation and Prospects--Report No. 9283-PAK (March 22, 1991) World Bank: Pakistan: Progress Under the Sixth Plan (1984).

12. The reasons underlying involve the assumption of stationary conditions. Se C. Hsiao, "Autoregressive Modeling and Money-Income Causality Detection" *Journal of Monetary Economics* (1981), pp.85-106 and W.Joerding, "Economic Growth and Defense Spending: Granger Causality, *Journal of Development Enomomics* (1986),pp.35-40

13. Dickey-Fuller tests for unit roots indicated that none were present when the variables were transformed to logarithms. See Jurgen A.Doornik and David F.Hendry, PC Give, Version 7: An Interactive Econometric Modelling System (Oxford: Institute of Economics and Statistics, 1992) for a description of this test and its interpretation.

14. Ideally one would have liked to use a neo-classical formulation of the type developed by Mintz and Huang and adopted successfully by Ward et al to the Indian situation. Unfortunately in the case of Pakistan several

of the key variables (in particular no-defense expenditures and government invesment were not statistically significant. See Alex Mintz and C. Huang "Defense Expenditures, Economic Growth and the peace Dividend "*American Political Science Review*, vol.84(1990), pp.1283-93; and Michael Ward et al., Economic Growth, Investment and Military Spending in India, 1950-88" in Steve Chan and Alex Mintz eds., Defense, Welfare, and Growth: Perspectives and Evidence (London: Routledge, 1992), pp. 119-36.

15. See Robert Pindyck and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts (New York: McGraw Hill, 1976) for a description of this model and its theoretical rationale.

16. A.H. Khan and Z. Iqbal, "Fiscal Deficit and Private Sector Activities in Pakistan" *Economia Internazionale* (May-August 1991), vol XLIV, no. 2-3, pp.182-190.

17. It should be noted that Gross National Savings is used here. Due to the large component of worker remittances Gross Domestic Savings fluctuates erratically. These remittances are no doubt purely exogenous and as such tend to mask the relationship between government expenditures, the deficit and the change in savings.

FORESTRY AND ENVIRONMENTAL DEGRADATION IN PAKISTAN

By

Mahmood Iqbal Sheikh*

Introduction

Pakistan with an area of 87.89 million hectares and a fast growing population of more than 126 million people is afflicted with a serious problem of land degradation due to wind and water erosion on the one hand and the twin menace of waterlogging and salinity in the fertile Indus basin on the other. Apart from climatic and edaphic factors, removal of vegetation and over-grazing are the two crucial biotic pressures which have played a very significant role in bringing the land mass of Pakistan to a vulnerable position. The prevalent state of degradation in some important physiographic regions; i.e. the arid and semi-arid areas, the uplands and the Indus basin will be focussed upon in the present study.

Environment Scenario:

(i) Arid and Semi-arid areas: In Pakistan about 57.10 million hectares are arid while 17.11 million hectares are classified as semi-arid. This is based on relative severity of climatic

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elements such as precipitation and temperature, availability of moisture, type of vegetation etc. The degraded soil, mobile sand dunes, over-browsed sparse vegetation, scorching winds, and high temperature combine to form the vast desert canvas. The landscape becomes complete with emaciated livestock, ill-fed, ill-clad pastoral population and medieval habitations. This is not entirely due to the action of the desert. Man is also responsible for this state of affairs due to unwise land use practices. Other factors include less than normal water availability caused by high evaporatranspiration rate, absence of humid air streams, high temperature, reduced ground water recharge and decreased river flows. Additionally, the high velocity sand laden winds cause physical damage to crops, life and property. The sand storms block the roads and rail tracks, choke the irrigation channels, engulf the villages and encroach upon rich agriculture lands. The process of desertification is on carrying in its wake misery and poverty (Sheikh, 1986 b).

The socio-economic conditions obtaining in these lands have played a very significant role towards deterioration of the forest and range resource. Communities living here have largely agricultural and pastoral economy. The need of the people and the vegetation conservancy plans have always clashed. Due to faulty agricultural practices and incessant grazing, production potential of these soils has deteriorated. The people eke out a living from their meager agricultural resource and pastoral activity. The situation is becoming even worse with the heavy increase in population, both human and cattle. Nevertheless, people living in these arid and semi-arid areas require at least some necessities of life to survive. They need fuel for cooking and heating, fodder trees in times of scarcity as livestock feed, material for thatching, some timber for agricultural implements, some household items, doors, windows, and persian wheels etc. Apart from that, they need

trees for shade and shelter around their dwellings. Vegetation cover is also needed for the wildlife for its protection and promotion. A very important factor to be taken note of is the constant migration of the people of these areas to the cities in search of better jobs and comfortable living conditions. (Sheikh 1986 C, 1987 b).

(ii) Northern & Western moist and dry up-lands:- There is no denying the fact that the vast watersheds in the north and northwest of Pakistan are the only source of perpetual supply of water. Unfortunately, it has gone unappreciated that the forests make an enormous contribution to environmental stability on the one hand and play a very significant role in food security for millions of people, on the other. Due to arid and semi-arid conditions and erratic rainfall, the agricultural and industrial economy of Pakistan is entirely dependent on a sustained supply of water from its rivers, reservoirs, and the efficient working of the canal system which is the biggest in the world. If the level of water goes down beyond certain levels in the reservoirs, sufficient water cannot be released for power generation and productive agriculture. Without the hydro-electric power which is required to run the tubewells and the industrial units all over the country, the whole system could come to a sudden halt. Due to shortage of water in the reservoirs, the government has to resort to load-shedding for long periods resulting in colossal loss in industrial and agricultural production and has in addition to face protests from the affected people. (Sheikh, 1985 b, 1986 a, 1987 a).

On the other hand, in areas where the trees have been removed and pastures over-grazed and there are no dams or similar structures to regulate the flow of water, flash floods cause very severe damage to the vast infrastructure in the country. The communication systems such as roads, railway

lines, telegraph and electricity poles are damaged putting the food delivery system in total disarray. There is unlimited loss of human and cattle population. The major floods in Pakistan have caused losses worth US$ 5,000 million and are responsible for insufficiency of food and subsequent higher import bills in the years to follow. The Tarbela catchment erosion has been measured at the rate of 2-4 kg/sq meter. Soil at the rate of 4-7 thousand tonnes/sq mile is carried annually by the rivers Chanab and Jhelum. The reservoir of Mangla is being silted at the rate of 48.27 million m^3 per year and that of Tarbela at the rate of 167.75 million m^3/year. Due to sedimentation in the two most vital reservoirs of the country, the nation is losing some US$130 million every year. This estimated loss is due to reduced storage capacity, erosion of fertile soil, slowing down of industrial wheel, reduction in agricultural production and heavy expenditure on maintenance of the infrastructure. This of course does not include the opportunity cost and social cost which would be worth much more. (Khan, 1984)

(iii) Waterlogging and salinity in the Indus Basin:- Yet another phenomenon which is turning agricultural land into unproductive wastes is water logging and salinity. The rapid expansion of an intricate irrigation system inspite of its blessings, has taken a heavy toll. Water table has risen to 1.8 m of the surface over 25% of the entire Indus basin. According to available reports from different agencies, 1.5 and 5.5 m.ha. are waterlogged and salined respectively. (chaudhry, et al; 1989). Almost all traces of vegetation have disappeared from such lands due to removal of wood for heating and cooking, over-grazing and degradation of site conditions. Biological amelioration of these sites is considered a highly possible and desirable approach. Afforestation projects in such areas would not only provide the much needed fuel for heating and cooking but also improve the socio-economic conditions of the people

living close by. They would get job opportunities as well as enough wood and fodder from trees, shrubs & grasses planted there. (Sheikh, 1987b)

The Forests and Forestry in Pakistan:

(i) Area and Kinds:- Forest area under the control of the forest department is 4.26 m ha. Per-capita forest area is less than 0.028 ha as compared to the world average of one ha. The main reason for such a meager forestry resrouce is that 70-80% of Pakistan falls in arid and semi-arid zone where precipitation is too little and extremely erratic to support the existing vegetation and to enable to plan afforestation/reforestation measures. Due to diverse ecological conditions a vast variety of forest types exist in the country. While some of these are natural forests and are located in the moist temperate, dry temperate zones and low foot hills in the north, on the other extreme are the mangroves in the mouth of Indus delta and the Arabian sea. The man-made forests are the irrigated plantations and to a major extent the riverain forests. Out of 4.26 m ha only 1.12 m ha i.e. about 26% produce timber and fire wood; the rest are the protection forests to keep the watersheds and erodable lands intact.

(ii) Depletion of the Forest Resource:- *The Main Factors:* The forest resource has been eroded gradually over a period of time. Starting with the invasion of this sub-continent by the Central Asians, a chain of battles and wars pushed the people of the plains to the distant areas for refuge where they made heavy inroads in the forests for their dwellings, agriculture, grazing, etc. The scientific management of the forests in the Himalayas was started more than a century ago. Had the requisite silvicutlural and management treatment been given, the forest cover would have been in a much better shape. During the first

and second world wars, the accessible forests were over-exploited to feed the war machine. Also at the time of land settlement certain rights of the local population were admitted for timber, fuel-wood, grass cutting and grazing. Since these demands have multiplied with the growth in population, they are no more compatible with the resource potential. Thus, when Pakistan was created, the forests in this part of the subcontinent had already been depleted to a very large extent. The situation was further aggravated by mass migration of people from across the border in 1947. The meager resrouce had to bear the pressure of an accelerated construction boom to cater for housing, schools, colleges, universities, hospitals, offices and shopping plazas, etc. The development of modern infrastructure has reduced the distance between the markets and the hinter land, whereby the once virgin forests became approachable and trees could be cut and transported without much difficulty. The axe fell more heavily on private forests. In need of ready cash and driven to despair due to long delays in the departmental action they sold the trees at rock bottom price, much to the delight of the purchaser who minted money on account of increasing prices of timber at the cost of the poor needy consumer and, of course, the resource. Working jointly, all these climtic, biotic and socio-economic factors have very adversely affected the status of the country's forests leading to serious environmental degradation. (Sheikh, 1987, a, c).

Table - 1

Forest Statistics By Provinces/Territories (1989/90)

(million hectares)

Province/ Territory	Total land area	Forest area		Production forests		
		Area	% of total	area total forest	% of forest area	Per capita
NWFP	10.17	1.40	13.8	0.26	18.6	0.080
Punjab	20.63	0.57	2.8	0.12	21.0	0.009
Sindh	14.09	0.68	4.8	0.16	23.5	0.027
Balochistan	34.72	0.30	0.9	--	--	0.053
Northern Area	7.04	0.95	13.5	0.22	23.1	1.284
Azad Kashmir	1.33	0.36	27.1	0.36	100.0	0.138
Total	87.98	4.26	4.8	1.12	26.3	0.037

Spirce: PFI Peshawár. (1992)

The picture becomes even more alarming when we compare the forestry statistics usually compiled by the PFI Peshawar and collected from the provinces and the figures indicated by the forestry Sector Master Plan (FSMP) based on satellite imagery interpretation.

Table - 2

Forest Area by vegetation type/Provinces and Territories (1989-90)

(Thousand hectares)

Vegetation type	NWFP	Punjab	Sindh	Balushitan	Nor thern Areas	Azad Kashmir	Total
Coniferous	1105	29	--	131	285	361	1911
Irrig. plantations	--	142	82	--	2	--	226
Riverain	--	51	241	5	--	--	297
Scrub	115	340	10	163	658	1	1287
Coastal	--	--	345	--	--	--	345
Mazri lands	24	--	--	--	--	--	24
Linear plantations	2	4	--	--	--	--	6
Private plantations	159	--	--	--	--	--	159
Total	1405	566	678	299	945	362	3535
Rangeland	150	2683	490	787	2104	195	6409
Grand Total	1555	3249	1168	1086	3049	557	10664

Sources: PFI Peshawar 1992.

Table - 3

FSMP Estimates of Land Use Based on Satellite Imagery Interpretation

('000 ha)

Forest Cover/ Land Use Class	AJK	Baluch-istan	Nor thern Areas	NWFP	Punjab	Sindh	Total
Forest/Trees							
Conifer	241	42	660	940	30	--	1913
Scrub	16	504	--	539	132	--	1191
Riverain	1	20	--	13	27	112	173
Mangrove	--	2	--	--	--	205	207
Irrig. Plantation	--	1	--	--	79	23	103
Farmland trees	7	23	6	70	306	54	466
Linear planting	--	--	--	2	14	--	16
Misc. planting	10	--	--	120	20	5	155
Total	275	592	666	1684	608	399	4224

There are huge blanks in the irrigated plantations as well as riverain forests. Against 566,000 ha of Punjab in th PFI data, the FSMP shows 608,000 ha and that too has been made up by adding 306,000 ha of farmland trees.

The Emerging Scenario:-

How the things are going to shape up in future? The following table shows that a current population of 126 million people is using 3.5 mm^3 of timber. By the turn of century it would be 5.2 mm^3.

Table - 4

Estimated Demand for Industrial Wood-based Products, by End-use

(in '000 m^3)

	1993	1998	2003	2008	2013	2018
Construction	995	1159	1351	1574	1834	2139
Crates and boxes	720	876	1066	1297	1578	1920
Furniture	403	508	639	804	1012	1272
Village carpentry	313	351	391	433	476	519
Mining timber	297	375	476	599	756	958
Matches	197	273	377	521	720	996
Trains	6	6	6	6	6	6
Trucks and buses	171	213	266	322	414	517
Boats	14	14	14	14	14	14
Particle board	105	156	231	343	509	754
Sports goods	52	77	113	166	244	358
Plywood	26	28	31	34	38	42
Fibreboard	22	22	22	22	22	22
Railway ties	7	7	6	5	5	4
Industrial fuelwood	208	233	266	306	357	422
Total	3536	4298	5255	6456	7985	9943
Population (millions)	126.8	147.7	172.1	200.4	233.5	272.0
per capita used (m^3)	0.028	0.029	0.031	0.032	0.034	0.037

Source: Forestry Sector Master Plan 1993.

Similarly the present consumption of fuel wood which is 26 mm3/annum would soar to 35 mm3 if we continue to use

substitutes like farm waste, kerosene oil etc; otherwise it would be double of that.

Forestry Development - Major Constraints:

The major constraints to develop and protect the tree cover are:

- Excessive tree cutting including theft.
- Allocation of forest land for purposes other than forestry.
- Heavy incessant pressure of grazing as well as lopping for fodder.
- Loss of forest quality and continuous decline of commercial species.
- Failure or partial succes of development projects.
- Site deterioration due to misuse and mismanagement of forest lands.
- Lack of funds. There are not only across the board cuts even after annual allocation but also there is no provision of funds for maintenance and management of areas planted under devvelopment projects.
- Poor management especially water management of irrigated plantation leading to reduced output.
- Weak, ineffective, ill-equipped extension services and absence of effective monitoring and evaluation.

- Lack of awareness of the problem inspite of heavy use of forest resources and the rural population's heavy dependence on them.

- Lack of basic data hampering departmental management.

- Difficulty in user-oriented approaches and their association in forest management including lack of provision of alternative products or source of livelihood.

Blue-print of An Action Plan:-

(i) Hill and foot hill forests and watersheds: The following measures are considered essential to save the upland forests and watersheds covering 3 million hectares:

Introduction of intensive management in hill forests using modern scientific methods of planting, management, mechanized harvesting, keeping a fair natural mixture of conifers and broad leaved species; revision of the current working plans to ensure multiple and integrated land uses keeping in view the wildlife and environmental aspects as well as to make the executive changes more manageable; adoption of a coordinated approach in association with the related departments for scientific management of watersheds; introduction of erosion control measures keeping in view the pastoral requirements of the local population; preparation of inventory of denuded watersheds on the basis of their susceptibility to erosion and landslides; provision of incentives to land owners to establish tree and horticultural crops on lands exceeding 30% gradient.

(ii) Irrigated plantations: Irrigated plantations started in 1864 are a very important source of firewood and hardwood

timber. Due to several ailments such as defective irrigation system, rise in ground level due to deposition of silt, lack of sufficient canal water and administrative failures, 0.226 m hectares are producing much lower than their potential. To make the best use of fertile land and precious water, following measures are considered essential: (Sheikh, 1985 a)

- Remodelling of the present obsolete irrigation system and relevelling of land where necessary and enhancement of water supplies, where required, by installation of tube wells; planting of fast growing trees; management of plantations primarily for production of timber; banning transfer of plantation lands to non-tree production use; exploring the possibilities of leasing sick plantations to wood based industrial units; practicing model agroforestry or introducing agro-sylvo-pastoral activity for optimum land use.

(iii) Riverain forests: The patchy blocks of 0.300 m ha, mainly located in the provinces of Sindh and Punjab have deteriorated due to excessive gazing pressure and progressive decrease in the frequency and depth of inundation because of construction of upland reservoirs. It is, therefore, necessary to rehabilitate this important source of wood on the one hand and as live barriers against floods on the other by: spreading flood water through small channels; installation of tube wells at suitable sites; practicing agroforestry to reduce the expenses on lift irrigation; and planting of fast growing multipurpose species.

(iv) Expansion of Social Forestry: No new state lands are being allocated to the forest department due the need for growing more food crops. There has been however a breakthrough in social forestry. Farmers are coming out in much larger numbers to plant trees on marginal as well as

agricultural land. In order to further encourage social forestry, following measures may be adopted:

making available planting stock to the farmers through "Kissan (farmer) nurseries" raised by the farmers themselves, rehabilitating degraded, salt infested, waterlogged and other categories of marginal lands; encouraging women to adopt forestry as a profession and involve them in all appropriate activities associated with social forestry program; streamlining pricing and marketing structure ensuring reasonable returns to the tree farmers and private entrepreneur. Additionally, new end uses of various tree species should be found out to ensure marketing of otherwise poor species; launching of outreach/extension programs featuring social forestry concepts, ideas and opportunities at the relevant audience; training of staff, motivators, NGOs and PVOs in outreach and extension techniques and methods; development of a system for monitoring and evaluation of the outreach programs; establishment of demonstration areas serving as visit points for farmers' tours/workshops and on-farm research trials in collaboration with research institutions to attract active participation of the farmer community.

(v) Rehabilitation of mangroves: Mangrove forests are located along the coastal belt of Sindh and Balochistan. These are under heavy pressure for fuelwood, fodder and grazing. This peculiar ecosystem most suitable for fish, shrimp, lobster and other useful aquatic life has undergone degradation over a period of time. The latest destructive element is the toxic effluents from the industrial estates. Consequently, 0.345 m ha. of mangroves have to be saved by: development of regeneration techniques with indigenous and exotic species; enforcement of

strict protection measures; and recycling/diversion of industrial wastes.

(vi) Management of rangelands: In conjunction with tree culture, range management is an important land use by itself. Unfortunately, adequate attention has not been given to this sector in the past. In order to overcome this lag an appropriate development program may be undertaken with emphasis on: development of fodder tree planting programs to increase availability of green fodder; creation of grazing allotments on experimental basis to induce private investment by livestock owners in rangeland management; reseeding of depleted rangelands with nutritious and high yielding grasses; encouragement of production of fodder for stall feeding to reduce pressure on rangelands and encouragement of programs which shift the emphasis from open grazing to stall feeding; promotion of livestock feeds from agroindustrial wastes and by-products; and encouragement and support for range research and its utilization through extensive service.

(vii) Management of wildlife habitats: Pakistan has a rich and varied flora and fauna. Plants and animals, both wild and domesticated are the living entities of the ecosystem. Hence, their co-existence contributes immensely towards the welfare of human beings since they provide the material basis for life, food, clothing and fuel for nutrition, warmth and maintenance of health and genetic knowledge to avoid wide spread regression to more primitive conditions and is a source of man's enjoyment of his environment. Over the years due to population pressures for development of agriculture, industry and to meet other essential human needs, wildlife habitats; i.e. forests, rangelands and wetlands have been disturbed. Activity in this field will aim at:

periodic surveys of the country's wildlife and its habitats to monitor ecological changes; conservation of all nationally endangered and endemic species of wild fauna and flora in particular by ensuring the survival of the critical ecosystems that support such wildlife and vegetation; developmet of habitat management plans, species recovery plans and habitat improvement programs for conservation and improvement of species of wild animals and plants; expansion of the existing conservation education programs of govt organizations and NGOs and create public awareness to gain support for wildlife conservation; and provision of federal assistance for national parks and nationally important endangered species of wild plants and animals and for the national parks. (1987, a)

(viii) Harvesting, marketing and utilization of forest produce: Traditional methods are used in timber harvesting causing considerable waste and damage. Inefficiencies are apparent in primary and secondary end uses. The distributional marketing systems are inadequately developed.

(ix) Financial Allocations: Paradoxically, the forestry sub-sector which has important backward and forward linkage with other sectors of the economy and whose development is essential for protection of the fragile eco-system has never been given its rightful place in the national development plans. The allocation made to the forestry sub-sector in various 5-year plans is given in the following table (Sheikh and Jan 1988).

Table - 5

Allocation for forestry sub-sector under various Plans & Utilization

(Million Rupees)

Plan	Allocation to Agri. sector	Allocation to Forestry sub-sector	%	Actual utili-zation	% utili-zation
First 1995-60	689	39	6.7	35.0	89
Second 1960-65	897	87	9.7	72.0	83
Third 1965-70	1622	140	8.7	92.0	66
Fourth 1970-75	1601	216	13.5	212.0	98
Fifth 1978-83	15000	1223	8.1	418.0	40
Sixth 1983-88	12100	1571	12.9	840.0	47
Seventh 1988-93	12310	1927	12.7		

Source: Pakistan Eco. Survey 1986; Planning Division; 7th 5-year plan. (US$ 1.00 = Rs.5 - 25 from 1955-1993)

A more disturbing feature is that amount allocated is not fully utilized/released. The investment needs of forestry sector are enormous. Building up of infrastructure, establishment of new tree crops, intensification of management training of manpower, research and education development all require sizable sums of money. The limited allocation has inevitably produced limited results. The outcome is the over-exploitation of the available capital stock which has depleted the resource base.

According to estimates made by the mensurationists yield from forest areas can at least be doubled by introducing modern scientific establishment, management, harvesting and utilization techniques.

Epilogue

Due to its physical setting and location in a predominantly arid and semi-arid region, Pakistan could never boast of a high forest resource. Whatever little is available, it is under extreme stress. Excessive vegetation removal, incessant grazing, indiscriminate lopping, rampant fires, continuous encroachments on govt forest land, conversion of potential forest land to agriculture, habitations etc. have grievously interfered with fragile ecosystems in the mountains, valleys and deserts. Additionally, ineffective forest policies constrained by several factors and century old protection-oriented legislation with punitive clauses all the way have contributed adversely to the present state of affairs. Of course all this quagmire can be traced back to overly poor rural populations trying their best to salvage some thing out of what is around for their mere survival. Rather casual approach towards conservation, lack of awareness of the magnitude of the problem by the people, the administrative machinery as well as the political echelon has played its own role to the detriment of the resource.

However all is not yet lost. Creation of Pakistan Environmental Protection Council, the Environmental Protection Agencies, the formulation of National Conservation Strategy, preparation of the Forestry Sector Master Plan, World Bank's environmental Protection & Resource Conservation Project, the commitments by UNDP, IUCN and several other bodies augers well for improvement of environment in Pakistan.Intensive management in the form of large scale afforestation/reforestation effort, application of sustained yield principles, scientific harvesting practices and better utilization would improve the situation to some extent but the non-availability of requisite inputs leaves much to be

desired. A real impact could be made only if the planting program is fully supported by substantial funding to be utilized by a dedicated corps of foresters. In order to stop further degradation, proper land management is required to be introduced in the watersheds, the flood plains and the deserts. Furthermore, tree planting has to be taken to the farm and marginal lands with a much bigger thrust through motivated involvement of the people assuring them reasonable returns and marketing facilities through provision of incentives, establishment of cooperatives and use of societies. A major effort is necessary to remove imbalance by providing alternate sources to stabilize the socioeconomic condition of the people entirely dependent on forests and rangelands for their livelihood to these communities. The researchers have to find out human-forest interactions such as how to manage a declining resource increasingly used by people.

A policy directive has to clearly identify the national priorities emphasizing that in case hitherto much neglected fabric of environmental profile is not mended with a sound multidisciplinary approach, the half hearted, haphazard, unscientific efforts would be an un-productive exercise pushing the solution out of reach. Moreover it has to be understood that further degeneration of the landscape cannot be stopped with diffused administrative approach, and without requisite political support which could be translated into financial help needed to tackle the problem. The issue must, therefore, be taken to the political forum where policy matters are fully debated and decided. Public awareness of the interdependence of forests and environmental issues has to be taken to a high pitch through a well coordinated extension program and transfer of available information. A problem oriented research program in forestry and ancillary disciplines requires a

comprehensive and well organized complementary outreach effort.

Most of the work done till now clearly indicates the importance of having a fairly good carpet of vegetation in the watersheds and the arid and semi-arid areas to reduce erosion, to regulate the flow of water and to chain the expanding deserts. The country is faced with a time limit. Sheer size of the task is daunting. If the writing on the wall is ignored, the vast Indus Basin food production system which is already suffering from several ailments such as waterlogging, salinity, low inundation and desertification could become a dust bowl.

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THE PROCESS OF BUDGET MAKING IN PAKISTAN

By

ARIF SULTAN*

Introduction

Budget is primarily a forecast of government income and expenditure for the ensuing fiscal year. Its significance, however, goes far beyond its being an accounting device. It is, in fact, the presentation of the government' s plan of action in financial terms. As such,it sets out the objectives of government policies, the resources needed to achieve those objectives, the sources from which these would be raised, and the manner and ways by which they would be collected.

"A budget is not simply an annual financial ritual;it is an index of the socio- economic objectives of the government, a framework for rational policy decisions, a tool of effective economic and financial management and an instrument for translating its ideals and priorities into concrete programmes backed by financial sanctions.

It is also a complex exercise of allocating scarce resources anong competing claims in order to make their optimum use. The level and pattern of receipts and

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expenditures, therefore. reflect fiscal, economic and social policies of Government which have far reaching implications for the state and the people.

Stages of Budget

The fiscal year in Pakistan starts from 1st of July and ends on 30th of June The budget making is not a seasonal exercise rather it is a process which remains in operation whole the year. The budget process in Pakistan has four distinct stages, namely,

(a) Budget Formulation
(b) Budget Authorization
(c) Budget Execution and
(d) Accounting

Budget formulation means collection. scrutiny and consolidation of all estimates of receipts and expenditure. Budget authorization denotes its approval by the competent authority. while, budget execution and accounting involve the undertaking of various activities and implementation of the programs and projects included in the approved budget and the maintenance of proper accounts of the expenditure incurred on them.

These accounts and the Auditor General's audit report thereon, are examined by the standing committee of the National Assembly known as the Public Accounts Committee which is composed of elected members of the National Assembly. The audit report brings out the extent to which the expenditure has kept pace with the approved grants and appropriations, and how far the administrative authorities have

been vigilant in the observance of financial rules and regulations.

Budget Call Circular

The first step towards preparation of fiscal budget taken by the Budget Wing of the Finance Ministry is the issuance of of budget call circular. The procedure applicable to the preparation of the budget estimates for a financial year is indicated by the Ministry of Finance every year in a Budget Call Circular issued to administrative Ministries / Divisions and Departments of the Federal Government. The circular contains comprehensive instructions for the preparation and scrutiny of the budget estimates. It also sets out the target dates by which the various stages of budget formulation are to be completed. Since time factor is important, emphasis is laid, among other things, on the strict observance of the budget time table at all stages of budget making. The budget call circular issued by Finance Ministry is for the consolidation of current expenditure only.

The Budget Wing of Finance Ministry with consultation of Planning Commission, however, issues instructions in the same budget call circular to its respective administrative units, which contains the schedule for estimates and consolidation for development expenditure. (The budget call circular released by Finance Ministry for 1994-95 budget is reproduced in appendix.)

Budget Formulation

The precess of budget formulation starts at the lowest level of the Government and is completed at the top after various checks and exercises. The original estimates are framed in minute detail by the agencies and departments, which collect

the receipts and incur the expenditure, keeping in view the past actuals, current trends and future expectations and commitments. These estimates are submitted by the estimating authorities to their administrative Ministries and Divisions who in turn, examine and pass them on to the Financial Adviser (who is stationed at each ministry and represents Finance Ministry.) and Ministry of Finance with their recommendations. The estimates, as recommended by the Administrative Ministries and Divisions, are subjected to detailed scrutiny by the Financial Adviser and Ministry of Finance before they are finally accepted for inclusion in the budget.

Budgeting has become a continuous and a lengthy process. The administrative Ministries /Divisions. therefore, start formulating their budgetary proposals for expenditure for the ensuing financial year quite early so that they can get the requisite clearance from their Financial Adviser well in time

Preparation of Estimates

The budget estimates for the ensuing year are formulated separately in respect of Part 1- Standing Charges, and Part II- Estimates of Fresh Charges including development expenditure. The estimates are supported by such details as nominal rolls and calculations of allowances etc. Standing charges include all the existing heads of expenditures which an administrative unit has been incurring and these need no documentary support or evidences for its legitimacy. While in case of fresh charges which a unit claims to be included in its budget, details and documentary support is required for their legitimacy.

The revised estimates for the current year, prepared simultaneously, include provision for such expenditure as has been duly authorised and for which there is reasonable expectation that it will be incurred before the close of the year. In all cases where revised estimates for the year exceed the authorised grants and appropriations they are to be supported by documentary evidence to show that the increase has been duly authorised by the competent authority, and also the manner in which this excess is to be met i. e. , whether by reappropriation of savings in the existing grants/appropriations or by allocation from other items. In case the revised estimates are less than the authorised grants/appropriations, the reasons for short utilisation of the grants are to be invariably stated.

As the budget is essentially based on the 'Cash' accounting system, the estimates are required to be prepared on the basis of what is expected to be actually received or paid for during the ensuing year and not merely the revenue demand or the liability of expenditure falling due in that year. The transactions are to be recorded on gross basis and shown in full, even their receipts are subsequently to be treated as reduction of expenditure.

Revenue Side of the Budget

According to the conventional classification, the budget is divided into two main sections, namely,

(a) Revenue Budget
(b) Capital Budget

Revenue Budget

The revenue budget presents the current or day-to-day expenditure on defence, debt servicing, administration, law and order, social services, economic services and other activities which are financed from current revenues derived through taxes (direct and indirect taxes), duties, non-tax revenue and other miscellaneous receipts. In other words, this division deals with the proceeds of taxation and other non-tax receipts classed as revenue and the expenditure met therefrom, the net result being the revenue surplus or deficit for that year which is transferred to the capital budget.

Capital Budget

The capital budget is designed to create material assets which add to the economic potential of the country. Its main features are that it must involve construction of a work or acquisition of a permanent asset of public utility such as irrigation and industrial projects. It is, basically devised for the growth and development of an economy. with ever increasing investment to promote economic development, the capital budget is assuming increasing importance. The capital expenditure is generally met from the revenue surplus, reserve funds, miscellaneous capital receipts, and borrowing for specific or general purpose (Details of capital receipts is given in appendix).

Also forming part of the capital budget are the debt and deposit transactions comprising of receipts and payments in respect of which government becomes liable to repay the money received or have claim to recover the amounts paid such as unfunded debt (The receipts and payments relating to small savings, Provident fund balances of employees, postal life insurance, etc.) and the reserve funds created for specific purposes by debit to the revenue budget and the remittance

transactions embracing all transactions pertaining to abjusting heads, such as remittances from one treasury to another and items in transit between different branches of Accounts Department.

The aforesaid two divisions of the Government budget, are merged together to work out the ways and means estimates which indicate the cash balance position at the beginning and end of the financial year.

Expenditure Side of the Budget

The budget exhibits the public expenditure under two broad categories, namely, current and Development:

(a) Current expenditure comprises administration expenditure and other expenditure which is non-productive in nature, like defence, law and order, social services, community services, subsidies, debt servicing and the like (Details are given in appendix).

(b) Development expenditure includes expenditure that has been projected in the Annual Development Program (ADP) as part of the Five- year plans. Annual plan for the forthcoming year embodies economic framework and public sector development program. This document is also released along with budget document of that year. It includes annual development programs of Federal Government, federal autonomous bodies and all the four provinces.

Annual Development Program

Provision for development expenditure is included in the budget on the basis of the Annual Development program, prepared by the Planning Commission in consultation with the

Ministry of Finance and the provincial Governments and approved by the National Economic Council. It is the top most economic forum of the country and is presided over by the Prime Minister.

The formulation of the Annual Development program is one of the most important aspects of budget-making. By introducing flexibility in the execution of the programs, this instrument has proved extremely useful for the implementation of the Five-year plans. Emphasis is laid on drawing up the Annual Development Programs so that only approved projects, which have gone through careful technical scrutiny by the Development Working Party and approved by the Executive Committee of the National Economic Council, or have otherwise received the approval of the competent authority, are included in the Annual Development Program. Care is also taken that there is no overlapping between the scope and nature of various schemes included in the Annual Development Program. The program, as finally approved by the National Economic Council, is reflected in the budget.

The exercise for the preparation of the Annual Development Program starts some time in early November when keeping in view the overall requirements of the economy and plan targets, the size of the Annual Development Program is fixed and communicated sector-wise to the executing agencies and the Provincial Governments by the Planning Commission. Within the overall allocations so intimated by the Planning Commission, the detailed sector-wise development programs are formulated by the sponsoring agencies and finalised after detailed discussion with the Planning Commission. These allocations are then discussed and finalized in the meetings of the priorities Committee in March/April. The Annual Development Program, as finally approved by competent

authority and incorporated in the budget, presents the blue-print for action by the Federal and the Provincial Governments and indicates the financial allocations along with physical targets in respect of various development schemes.

Resource Estimates

Development outlays of the Federal and Provincial Governments have been constantly rising, so that they now by far exceed the revenue budget in scope and quantum. The size of the development budget is an index of the tempo of economic growth of an economy. Since the successful implementation of the Annual Development Program as an instrument of economic development largely depends upon the availability of resources, the determination of the size of the program is preceded by a thorough exercise in resource estimation. This is done well before the budget drill is started and the Ministry of Finance undertakes this exercise in coordination with the concerned Government agencies, particularly the Central Board of Revenue, the Planning Commission and the Provincial Finance Departments.

The components of resource estimates are : (i) public savings, i.e. the excess of revenue receipts over current expenditure of the Federal and Provincial Governments; (ii) net capital receipts of the Federation and the provinces; and (iii) the Federal Government's estimates of (a) foreign economic assistance and (b) deficit financing, to the extent the latter is warranted by the state of the economy. As the development outlays in the provincial field have increased and the provincial resources for this purpose are not adequate, the Federal Government renders financial assistance to the provincial Governments for implementation programs.

Foreign Exchange Component

Side by side with the finalisation of the Annual Development Program, endeavour is made to estimate the foreign exchange component of the program as realistically as possible. In view of its importance as a very scarce factor the expenditure in foreign exchange is shown separately from the expenditure in local currency, both in the revenue and capital budget. This also serves as an indication to the administrative authorities that the budgetary allocation for foreign exchange expenditure is not available for expenditure in local currency.

New Taxation Proposals

The proposals for new, enhanced or revised taxation conceived as a part of the budget are given effect by means of a distinct legislation. This legislation is an integral part of the budget presentation and without it no tax can be levied, enhanced or revised. (The details of the taxation are provided in Finance Bill, released abreast the budget.)

Schedule of Authorised Expenditure

After the budget has been approved by competent authority, an authenticated Schedule of Authorised Expenditure is drawn up in the same form as the Annual Budget statement, in so far as it relates to expenditure. This schedule constitutes the sole authority for withdrawal of money from the Federal Consolidated Fund to meet expenditure specified to be met from that Fund in the annual budget statement and the corresponding Demands for Grants and Appropriations. A document containing complete details of current and development expenditures is released along with budget document as a part of budget document which contains full details of current expenditure of each Ministry/Division

with various small heads of expenditures. This document is also used by Auditor General of Pakistan at the time of release of funds to respective unit.

Budget Execution and Accountability

The responsibility for controlling expenditure from the grants and appropriations placed at the disposal of the Ministries/Divisions of the Federal Government, their Attached Departments, and subordinate offices, devolves on the administrative head of the Ministry/Division who is the principal Accounting Officer. He exercises this control through the drawing and disbursing officers appointed by him and subordinate to him. He is guided in this matter by the executive orders of and the procedure prescribed by the Federal Government in the General Financial Rules, suplemented by special instructions issued by the Ministry of Finance from time to time. Stress is laid in these rules on two main principles, namely, economy and regularity. Economy means getting the full value for money and by regularity is meant the spending of money for the purposes and in the manner prescribed by law. The two are not necessarily the same thing, for it is conceivable to spend money without legal irregularity and yet wastefully.

It is the responsibility of the head of Ministry /Division that all payments are correctly classified under the appropriate heads of account and the departmental accounts are reconciled every month with the figures communicated by the Accounts Department. He is required to keep himself well-informed not only about the actual expenditure but also of the liabilities which have been incurred and must ultimately be met. Any anticipated excesses and savings are to be readjusted by reappropriation within the relevant grants to the extent they are permissible under the law and are within his powers. Any

unspent balance out of the available grants lapses with the close of the financial year and cannot be utilized in the following year.

Keeping of accounts of expenditure of the Federal Government is the statutory responsibility of the Auditor General which is discharged by him in addition to his audit function. He is required to submit to the Government the appropriation accounts of the expenditure during financial year vis-a-vis the budgetary allocation given in the Schedule of Authorised Expenditure, together with his audit report thereon.

The audit report is required to contain his comments on the regularity and propriety of the expenditure reported in the appropriation accounts and also to bring out the results of audit of profit and loss accounts and balance sheets of Government commercial and quasi commercial undertakings, as also of accounts of trading, manufacturing and stocks. The heads of Ministries/Divisions are enjoined under the rules, firstly, to deal promptly with all reference from the Audit Department regarding causes of variation between the budget grants and actual expenditure pertaining to their departments when the appropriation accounts are being prepared by the Audit Department and, secondly, to appear before the public Accounts Committee and to furnish such information as may be required of them.

APENDIX - I

DETAILS OF REVENUE RECEIPTS

A) TAX REVENUE

a) Direct Taxes (on income and wealth)

b) indirect Taxes (on commodities and transactions)
- customs
- sales tax
- federal excise
- federal excise on natural gas
- provincial excise
- sale of opium
- stamp duties
- motor vehicles
- others

B) NON-TAX REVENUE

a) Income from property and enterprise
- profits
- state trading schemes
- interest
- dividends

b) Receipts from civil administration and other functions
- general administration receipts
- defence services receipts
- law and order receipts
- community services receipts
- social services receipts
- economic services receipts
- miscellaneous receipts

APPENDIX-II

CAPITAL RECEIPTS

Recoveries

- Irrigation receipts
- Sterling pensions Annuity Receipts
- State Trading schemes Receipts (net)
- Investment Receipts
- Works

Recoveries of Loans and Advances

- From provinces, local bodies, financial institutions, non-financial institutions, private sector and others.

APPENDIX-III

CLASSIFICATION OF CURRENT EXPENDITURES

- General administration
- Defence
- Law and order
- Community services (works, public health services, sanitation, broadcasting and TV services and other municipal services
- social services (education, health, population planning, manpower and labour, housing etc.)
- Economic services (agriculture and food, irrigation, land reclamation, fuel and power, rural development etc)
- Subsidies
- Debt Servicing etc.

APPENDIX - IV

BUDGET CALL CIRCULAR - 1994-95

Issued by: Finance Division (Budget Wing)

Budget Immediate

No.....
Government of Pakistan
Finance Division
(Budget Wing)

Islamabad, the 10th October, 1993

OFFICE MEMORANDUM

Subject: Procedure for Submission of Revised Estimates 1993-94 and Budget Estimates 1994-95 in respect of Receipts of the Federal Government

The underisgned is directed to state that the following time-schedule has been fixed for the submission of Revised Estimates 1993-94 and Budget Estimates 1994-95 in respect of Receipts of the Federal Government.

Heads of Receipts	Estimating Authorities
A. Principal Heads of Revenue	Revenue Division
B. Other Revenue Receipts	
C. capital receipts	Administrative
D. Foreign Aid	Economic Affairs Division
E. Debt, Deposits and Remittances Heads	Financial Advisers, Ministries of Communications and Defence; State Bank of Pakistan (Central Directorate); Central Directorate of National Savings; Audit and Accounts Offices and Administrative Ministries/Divisions.

DATES OF SUBMISSION

1. First Preliminary Estimates together with reasons for variations to be submitted by 01-12-1993. Final Estimates together with explanatory notes thereon to be submitted by 01-03-1994

2. The finance Division intends to formulate, by the 1st December, 1993, an estimate of overall resources likely to be available in the year 1994-95 for financing the public Sector Developient program (PSDP). The estimate will include both internal and external resources and will form the basis for determining the size of PSDP. All estimating authorities are, therefore, requested to furnish by the 1st December, 1993, positively, their preliminary estimates of receipts as indicated in the time-table above. These estimates are to be followed up with final estimates which should reach the Finance Division by 1st March, 1994. It is to be ensured by estimating authorities that these estimates are acompanied with necessary details of revised estimates 1993-94 and actuals for the past three years i.e. 1990-91 to 1992-93. This requirement should be carefully compiled with.

Signed
Project Director (Budget)

Similarly, office memorandums in respect of development expenditure, and current expenditure along with other instructions are issued by the project director (Budget)to the concerned units. All these are included in the Budget Call Circular. One more office memorandum is produced below.

No..... Islamabad, the 10th October, 1993

Copy forwarded to all Financial Advisers and Deputy Financial Advisers for information and necessary action. Their attenion is particularly drawn up to the following requirements:

a) BO/NIS should be prepared with rounded figures. Provision up to Rs 499 should be taken as zero and figures of Rs 500 and above as Rs 1000.

b) Utmost Economy has to be exercised in the budget. A scientific basis has to be evolved to scrutinise the budget proposals. The past level of actual expenditure /provision is no doubt by and large is usually the yardstick for determining the provision for the next year but it has its limitations when it comes to abnormal expenditure and justification therefor which need to be examined on merits. Pay and allowances can be subjected to straight arithmatical calculations. In providing for stores and equipment it is necessary to ensure that the estimates are based on approved and workable norms for the supply and replacement of consumable stores and spare parts, as well as for the supply of new equipment, and that they are properly tied up with their price schedules. The estimates in all cases should take into account the items already in stock. The aim is that the budget provision should have a rational basis and should be worked out with prudence and all precaution.

c).....
d)..... and

e) Fair copies of all New Items Statements should be sent to the Finance Division (Budget Wing) as well as to the Accountant General Pakistan Revenues, Islamabad, accompanied by a copy of the memorandum explaining the variations between (a) the Budget Estimates and the Revised

Estimates for the current year and (b) the Budget Estimates for the current year and the admitted part-I Budget Estimates for the next year. It may be noted that no Budget order or NIS would be accepted without the approved Memorandum explaining the variations.

Signed
Project Director (Budget)

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ESTIMATION OF PRODUCTION FUNCTION FOR WHEAT CROP

By

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Introduction:

The purpose of this study is to derive a production function for wheat crop for the Rabi season (1993-94) in Pakistan. Such an exercise is necessary for several reasons; to provide a systematic analysis of the forces that govern the production for wheat in Pakistan and to make it possible to provide a reasonably probable basis for planning future production targets in wheat.

The data for the estimation of this production function has been obtained from (10) ten different farmers who cultivated ten or more acres of wheat crop. The cluster sampling technique for this purpose has been used. Later on for these selected farmers each farm was averaged to one acre, so as to reflect properly the quantities of each input and output per acre. All these different patches of land were selected from Chak Nizam Din, Tehsil and Distt. Pakpattan Sharif.

Major phases involved from cultivation to harvesting of wheat crop are (a) Irrigation (b) Ploughing (c) Seed, Spray & Fertilizer (d) Harvesting (e) Threshing (f) Land utilization.

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In order to differentiate between labour and capital intensity for the production function, inputs of labour and capital were separated in all the above mentioned steps. Labour input has been measured in man hours work at farm, while the capital input has been measured in rupee.

EXPLANATION OF DATA COLLECTION PROCEDURE

(a) Irrigation:

Different farmers have different sizes of installed tubewell pipe diameter e.g. 4", 5" or 6". All farmers used electric tubewells except one who had a diesel. The canal water in this area is not available for 'Rabi' season. The irrigation time consumed by farmers for each irrigation was inquired. It was also inquired that how many times they have irrigated their crops including pre-sowing irrigation, if any (as wheat crop which is cultivated after rice crop does not need this). The farmers stated to have irrigated their crops between five to six times. The time consumed in a single irrigation ranged between 2 to 3 hours per acre from a 5" diameter tubewell pipe. The time consumed for a single irrigation by farmers whose lands were situated at a distance from tubewells was enhanced by about half an hour per acre. Time consumed in irrigation in man-hours was taken to ascertain the quantity of labour input, while for ascertaining capital input, market price of water per hour was multiplied by total hours irrigated.

(b) Ploughing

The market price of single ploughing by tractor was used for ascertaining the input of capital. This is the major capital intensive step in farming. Different farmers ploughed

variantly. Some farmers had used drill machines while most farmers had spread seed manually.

(c) Seed, Fertilizer and Spray:

Different farmers used different quantities and varieties of seeds & fertilizers. Price per bag and quantities were computed for estimation of capital and the time required to distribute fertilizer was computed for etimation of labour units in this process. It was also observed that farmers who had used good quality of seeds and sprayed herbicide in their farms, had an higher output, about 3 to 5 quintals.

(d) Harvesting and Threshing:

The next major step in wheat crop cultivation is its harvesting and threshing. All the farmers had manually harvested. The time to harvest per acre was computed by ascertaining, on average, the number of hours a single man working on an acre requires. Contrary to ploughing the mechanised step this is the step where only labour was utilized.

The market price of threshing 100 Kgs of wheat was multiplied by the total output for computing capital utilization. The time used in threshing an acre of land and number of persons employed were used for ascertaining labour input.

(e) Land Utilization:

The land utilization was added to capital input in the process of wheat production. The market price of renting the land was computed carefully. Some farmers had their own lands while the others had obtained land on lease.

(f) Output:

The output was measured in kilograms per acre. This per acre yield was simply averaged by dividing total output of all acres by total numbers of acres of wheat a farmer had cultivated.

The Estimation of the Cobb-Doughlas Production Function:

Method of ordinary least square (OLS) was used to estimate the Cobb-Doughlas production function. All other variables which also influence the yield per acre were ignored such as soil fertility, sowing time, irrigation timing, weather etc.

The Cobb-Doughlas production function used is stated as under:

$$Q = \beta_1 K^{\beta_2} L^{\beta_3}$$

where:
Q = output (in Kgs.)
β_1 = constant
K = capital
L = Labour
β_2 = capital parametric coefficient
β_3 = labour parametric coefficient

This production function is non-linear. It cannot be estimated directly because it does not have the BLUE property of linearity. Therefore, this production function is transformed into Logarithmic format as follows:

$$Q = \beta_1 K^{\beta_2} L^{\beta_3}$$

Taking Ln

$$LnQ = \beta_1 + \beta_2 LnK + \beta_3 LnL$$

where $LnQ = Y$

$\beta_1 = A$

$LnK = X_2$

$LnL = X_3$

Thus $Y = A + \beta_2 X_2 + \beta_3 X_3$

Following parameters are calculated from the appendix table 2.

$$Y = -4.12 + 1.09644\ X_2 + 0.51286\ X_3$$

$$LnQ = -4.12 + 1.09644\ LnK + 0.51286\ LnL$$

Now taking anti log we get the estimated function as :

$$Q = 0.0162.\ K^{1.09644}.\ L^{0.51286}$$

$R^2 = 0.89$ Corrected or adjusted $R^2 = R^{-2} = 0.865$

$F = 22$

The table value at α=0.1 i.e. the level of significance and 2.7 degrees of freedom of 'F' test, is 9.55 which is far less than our computed value of F = 22. Therefore, we conclude that our estimated Cobb-Douglas production function is the best fit for the 'Rabi' season of 1993-94.

Our computed value of adjusted R^2 which is about .86 indicates that 86% production of wheat is dependent on the

included factors, variables or steps such as irrigation, cultivation, seed, fertilizer, harvest and soil fertility, i.e. the endogenous variables in our model. While the other variables which also influence the wheat productivity such as sowing time, weather conditions, irrigation timing etc. were considered exogenous or "ceteris paribus" to our model. These account for 14% share in the estimated production function.

Average Gross Profit Earned by Farmers:

As the marginal rate of substitution for an hour of labour is equivalent to Rs. 7.78 of capital, so it is the labour cost per hour. Now the average profit can be ascertained as below.

Average profit = ATR-ATC.

= Price x Kilos − (ATC of capital + ATC of labour)

where ATR=average total revenue

ATC=average total cost (sum of capital and labour cost)

= 4 x 1450 − (1 x 2910 + 7.78 x 175)

= 5800 − (2910 + 1361.5)

= 1528.50

Average profit earned by each farmer by cultivating one acre of wheat crop for the 'Rabi' Season 1993-94, was Rs.1528.50 at the 1994 prices.

Limitations of The Study

1. Being a cross-sectional study it does not reflect the trend.

2. The data was collected from a limited areas Chak Nizam Din (Teh. & Distt. Pakpattan), where canal water is not available for 'Rabi' season.

3. The data was collected from the farmers who had cultivated about 10 acres of land. Due to absence of small farmers and big farmers coefficients β_2, β_3 may not exhibit true value on national scale, as small farmers use labour intensive and big farmers capital intensive technique such as use of combined harvestors.

Conclusion:

Despite these limitations and micro scale of the study, the analysis is fairly realistic in explaining the dominant factors or variables that determine the production of wheat. The identification of these factors should be helpful in policy formulation covering the staple crop of wheat.

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Appendix

TABLE - 1

Steps	Irrigation		Ploughing		Seed/ Fertilizes/ Spray		Harvest		Threshing		Land utilisation		Sowing dates	Total column 1+2+3+4+ 5+6		Output
Name of farmers	K	L	K	L	K	L	K	L	K	L	K	L		K Rupee	L Man Hours	Kgs.
1. M. Ramzan	500	39	450	8	600	14	–	90	250	26	1000		Nov. 20	2800	177	1400
2. Mahboob Farid.	400	40	460	8	700	16	–	92	280	24	1500		Dec. 10	3340	180	1600
3. Pir Akbar Ali.	250	32	400	8	600	14	–	82	250	23	800		Jan. 2	2200	159	1100
4. Amir Ali	270	33	300	8	600	14	–	84	225	23	1300		Dec. 25	2700	162	1220
5. Haji Ramz-an.	300	40	300	8	1050	17	–	94	420	26	1500		Nov. 30	3570	185	2200
6. Nawab Din	450	39	240	6	400	15	–	80	210	20	1080		Dec. 31	2380	160	1080
7. Hanif	500	39	240	6	550	15	–	90	280	24	1000		Dec. 5	2570	174	1360
8. Pir Ijaz	400	40	360	8	650	16	–	95	300	25	1500		Dec. 5	3210	184	1530
9. Ahmad Ali	400	40	300	7	600	16	–	95	280	25	1500		Dec. 10	3080	183	1450
10. Qasim Ali	450	39	300	8	700	17	–	96	300	26	1500		Dec. 1	3250	186	1560

Appendix Table - 2

S.No.	Y(output)	X_2(Capital)	X_3(Labour)
1.	1400	2800	177
2.	1600	3340	180
3.	1100	2200	159
4.	1220	2700	162
5.	2200	3570	185
6.	1080	2380	160
7.	1360	2570	174
8.	1530	3210	184
9.	1450	3080	183
10.	1560	3250	186
Averages	1450	2910	175

from the table above, the following parameters have been calculated in "Ln" form.

In normal form	In deviational Form
$\Sigma y = 72.59260991$	$\Sigma y^2 = 0.385972474$
$\Sigma y^2 = 527.3546734$	$\Sigma x_2^2 = 0.225796062$
$\Sigma x_2 = 79.64827966$	$\Sigma x_3^2 = 0.035424169$
$\Sigma x_2^2 = 634.6106413$	$\Sigma x_2 y = 0.268659798$
$\Sigma x_3 = 51.63036064$	$\Sigma x_3 y = 0.098927446$
$\Sigma x_3^2 = 266.6048382$	$\Sigma x_2 y_3 = 0.08013276$
$\Sigma x_2 y = 578.4563093$	
$\Sigma x_3 y = 374.8971904$	
$\Sigma x_2 y_3 = 411.3070731$	

The Actual Calculation of Coefficients:

The coefficients of multiple regression are calculated by the following formula.

$$\hat{\beta}_2 = \frac{\Sigma x_2 y \, \Sigma x_3^2 - \Sigma x_3 y \, \Sigma x_2 x_3}{\Sigma x_2^2 \, \Sigma x_3^2 - (\Sigma x_2 x_3)^2}$$

$$= \frac{0.268659798 \times 0.035424169 - 0.098927446 \times 0.08013276}{0.225796062 \times 0.035424169 - (0.08013276)2}$$

$$= \frac{0.00158972}{0.001577378} = 1.09644$$

$$\hat{\beta}_3 = \frac{\Sigma x_3 y \, \Sigma x_2^2 - \Sigma x_2 y \, \Sigma x_2 x_3}{\Sigma x_2^2 \, \Sigma x_3^2 - (\Sigma x_2 x_3)^2}$$

$$= \frac{0.098927446 \times 0.225796062 - 0.268659798 \times 0.08013276}{0.225796062 \times 0.035424168 - (0.08013276)2}$$

$$= \frac{0.000808976}{0.001577378} = 0.51286$$

$$R^2 = \frac{\beta_2 \, \Sigma x_2 y + \beta_3 \, \Sigma x_3 y}{\Sigma y^2}$$

$$= \frac{1.096440 \times 0.268659798 + 0.51286 \times 0.098927446}{0.385972472}$$

$$= 0.895$$

$$R^2 = 0.86$$

$$F = \frac{R^2/k - 1}{1 - R^2/N - K} = \frac{0.86/2}{1 - 086/7} = 22$$

BOOK REVIEW

The Political Economy of Israel - From Ideology to Stagnation. By yakir Plessner.

Published by State University of New York Press Albany, 1994, PP 328.

In the elevent chapters of this book, the author has, described the ways in which various obstacles to growth combined to produce Israel's political cum economic picture. He gives the ideological basis and origin for the capital market and investment trends in Israel and gives a historical tour of the achievements and problems of the business sector, and its dependence on the government. The author shows the cost of governmental policies and economic reforms, as well as the new official approaches to inflation and tries to provide a prognosis for the near future for Israel's economy and politics.

The work of Yakir Plessner is worth studying for students of politics and economics alike in Pakistan. This book successfully shows the direction that an economy takes when developed with ideological and political aims at hand, rather than for purely economic reasons. This book gives a good view of the working, expansion and stagnation of the Israel's economy. The comparison of the economic development of Pakistan and the economic development of Israel, (however strange and unorthodox that it might seem), can be made while going through the chapters of this book. Both these countries are the only ideologically created nations outside the so-called communist bloc. Financial resources for both these nations,

(although they stand as ideological enemies to each other), come from the same foreign sources, i.e. the capitalist financial markets, USA and the World Bank. Also, their economic development has been spearheaded by the government under a mixed economic system, and are struggling because of wrong economic policies. Both nations fought wars with their neighbours in roughly the same years, for opposing ideological reasons, but with the same devastating effects on their eonomies. Also this analogy is important to see where the two economies differ.

The author, in this book has subscribed to the basic conclusion, that the Israel's economy has failed. The reason for its failure, is the predominant role of the Israeli government in the economy, which according to the author, operates too far from liberalism and too close to socialism. Liberalism is defined by the author, not in its ideological sense, but in its economic meaning i.e., free market economy, while Socialism is used interchangeably to describe the ideology and to identify the organizational setup within which the norms laid down by the ideology are being pursued, i.e. government controlled economic and ideological development. For example, it is pointed out that, "Sweden, often referred to as Socialist, has the highest incidence of private ownership of any Western economy. In contrast, the Israeli system recognizes the forces of supply and demand, except that the government is more heavily involved". The reason given for the government's control of the economy is the ideological framework for the creation of this Jewish state and the political setup which was important to enforce this ideological basis. For the sake of argument the author states, "While the free world had its share of crises, it always rebounded, the Soviet economy on the other hand, slowly grounded to a halt. If Israel has failed to grow all along, the sort of statement made about the Soviet economy could have

been applied to Israel as well". "Big government constitues an obstacle to growth not because of its strength, but rather because of its weakness". On the face of it, Israel's government has been powerful, it controls the capital market and the banking system, the financial lifeline of the economy. It owns and is predominant in virtually every aspect of the economy except part of domestic commerce. "Much of capital and 94% of land - has been owned either by the government or by the Trade Union Federation - both forms of social ownership of the means of production. The wage structure reflects the attempt to implement the basic socialist welfare criterion". But is the Israeli government and economy really as powerful? The answer given in the book with considerable evidence is in the negative. The test applied by the author is how close the government came to realizing its objectives. The evidene suggests that the extent of failures is too great to call Israel's government powerful or economically successful.

The basic reason for superiority of a market economy over the government controlled economy which the author gives, is the discipline which the market imposes on economic agents and that a competitive market economy is the only one in which survival depends exclusively on economic successes and not ideological or any other successes and goals. "Industries regulated by the government, on the other hand, automatically come to expect one kind or another of government handouts and shift both the decision making as well as the blame to the policy makers in the government rather than the ecnomists and managers of individual industrial units. Furthermore, government ownership of firms promotes inefficiency because governments are reluctant to admit failure and such practices have adverse effects on the entire economy."

The author points out that, because of the ideological framework of the Israel's economy and their belief about how the economy of the Jewish community had developed were all conducive to the seizure of the capital market. The ideology as such was agrarian based. "The first political nucleus that was organized to advance its ideological agenda in a systematic manner consisted of immigrants from Eastern Europe, who held both Zionist and socialist views. These attitudes were indeed translated into policy. The causes of the boom in Israeli economy and then its decline, in his view, are the hold of the government on the economy and the ideological basis on which the country has been built" i.e. the immigration of Jewish labour force from around the world to Israel.

In answer to the posed question of rapid growth in Israel's economy before 1973, the author defends himself and writes, "The argument that places the blame for Israel's failure to grow on a fundamentally flawed structures must therefore establish that things were not at all right prior to the twin crisis of 1973 - the War and the Oil crisis". He underlines that, the fast growth rates that the economy has experienced for two decades happened despite the flaws and were facilitated by special circumstances. The essence of the argument offered by him is that during the early stages of development there are opportunities for large scale investments that are easy to identify, i.e. infrastructure and residential construction. Industrial investment too, comes relatively easily, when in the early stages of development, wages are low and large number of workers can be employed in traditional industries like textiles, steel and shipbuilding. Also at this stage of development, the ease with which projects can be identified, and the relatively large chunk of capital that each such project can absorb, makes it possible for governments to become major investors. This means that in early stages, the availability of private

entrepreneurs is not that crucial to generate growth. "But as the economy becomes more complex, and investment opportunities become less obvious, the economy must rely on the private entrepreneur to discover the niches of relative advantage - a discovery process in which a cumbersome bureaucracy has a distinct disadvantage. It is also the stage when an increasing part of investment takes the form of relatively small initial outlays, magnitudes of little interest to bureaucrats. When the required class of entrepreneurs does not exist, or is relatively small, or if private enterprise finds it hard to pick up where the government has left off because of the institutional rigidities it left behind, the economy will stop growing". In his view, this is where the major drawbacks of central planning show although centrally planned economies do grow fast in the early stages of development. Similarly, early fast growth in Israel was indeed generated to a very substantial extent by the government therefore, early economic growth at reasonable rates is not inconsistent with central planning or heavy government involvement. "In other words, growth in Israel during the first twenty years occurred because it was easy to grow, more or less regardless of the institutional setup of this economy".

To enforce his argument the author goes on to say that, "In the first five years of existence of Israel, industrial investment grew at an average rate of 6.6%, much of it was government financed, either directly or through intermediaries getting their instructions from the government. One typical member of this category is textile and diamond-polishing plants". "But after 1967 there was a major decline in all categories of investments in industry. Important factor in the slump was the winding up of major government projects, without new ones to take their place". The real reason given by the author was the Six Days War in June 1967, due to which

"Most of public and private investment was diverted to defence and construction of settlements on occupied lands". The main beneficiaries from government's defence production were metal and electronic industries. "Stepped up investments under the government's initiative had all sorts of considerations other than economic ones. The rate at which the government subsidized new capital formation increased steadily from 3.2% in 1966 to 35% by 1977. It follows that part of the investment took place not because of the availability of good opportunities, but rather because it came cheap to the investors".

In author's view, the observation that Israel's economy grew for a while at a respectable rate is not the same as saying that the economy performed efficiently. To establish efficiency, in his view, one would have to demonstrate that the realized growth rates justified the capital investments which has been undertaken and must prove capable of producing rate of return at least as high as could be secured in alternative uses of the capital. He further points out that, "In the market economy it is the market mechanism that imposes a selection process favoring the best investment opportunities. Furthermore, if an enterprise, albeit profitably, could be made even more so, there is always the possibility of takeover by entrepreneurs who believe that they are capable of realizing the full potential of an existing capital stock. In a market economy, therefore there is no reason to believe that the existing capital stock is invested in a pattern that deviates sharply from the most efficient pattern. But in Israel the market test hardly applies. Free access to capital is virtually nonexistent. There has been very extensive protectionism, in the form of both subsidies and import duties, and there has been a lot of centralization and monopolization". The author concludes that, it is therefore quite possible that at least a part of the capital invested has been allocated non-profitably. The government had a tendency

to provide especially generous assistance for the less profitable enterprises. "In fact, in the period 1965-72, the degree of public finance of investment bears an exact inverse relationship to the degree of profitability". Another way of assessing the economy's performance during the years of high growth rate, in his view, is to consider individual episodes of prominent failure, which indicate that the government was incapable of distinguishing good investment opportunities from bad ones. There were huge and spectacular failures involving huge public sums of money, he writes.

Regarding inflation the author argues that, inflation in Israel was not merely a natural part of the ordinary trade cycle. Rather, it was generated by the very same institutional arrangements responsible for the miserable economic performance. Inflation was the most dramatic manifestation of these traits. "Other events that affected Israel's economic growth including world inflationary rates are, wrong economic policies; the 1972 War which wreaked havoc on the economy, because of the horrible death and injury, mobilization of a substantial part of the work force to the front, which halted many productive units and the domestic defence consumption and wages which increased to 53 % in 1972; the oil price shock after 1974 and sharp rise of world prices, particularly of raw materials n consequence of the oil price rise. Another harsh development which hit Israel in 1974 was the decline in net immigration. This was a result of the relative suddenness with which the government ran out of productive investment opportunities".

Another form of government control of the economy the author writes, is its capital market.In Israel the government has undertaken to act as the principal capital market intermediary, and to ensure its dominance in this sector, it has

imposed very strict and stringent restrictions on the other intermediaries. To assert its role as allocator of savings, the government had to suppress potential competition from private sector, Israel's commercial banking system has been shaped overwhelmingly by its subordination to the government, which has controlled the lion's share of both the assets and liabilities of the banks. "The Israel's government controlled the capital market and the political and ideological trends of the economy through its Interest Rate Law, which is the government's first instrument of capital control". The obvious consequence of this law is that it opened the doors for unintended allocation of resources. It obliges the government to become involved in the capital market and this implies that government bureaucrats not only control investment under the law, but also influence investment outside it. The virtual nationalization of the capital market, in his view, was underpinned by the perceived need to allocate investment in a manner that would enhance national objectives.

About the private business and industrial sector, the author writes that, "The history of the emasculation of the private sector is almost as long as the history of the renewed Jewish settlement of Palestine. But Private enterprise in Israel, was considered both incompatible with the objectives of the Zionist efforts and incapable of accomplishing those objectives". In other words, the objections to the private sector's development in Israel were both ideological and practical. Private enterprise was also very often identified with industry and trade or, more generally, non-agricultural occupations. Because agriculture retained an ideological supremacy over all other occupations, private enterprise was viewed unfavourably because of its concentration in non-farm enterprise. How did the private sector respond to the hostile environment to which it was subjected? His answer is that, the environment with

which private enterprise had been confronted required a strategy for survival other than managing sound business, "The industrialists willingly cooperated with the government". "The bankers wanted cartelization if industrialists expected credit. Therefore the cartelization of private sector in Israel. The Jewish Agency also actively helped in organizing cartels. The government driven by its ideology was swift to assume control. It intervened right away in foreign trade; introduced fixed exchange rates and domestic pricing of 'essential goods'. Intervention in the distribution of consumer goods and services in the domestic markets was governed by the Austerity Plans and price control". "The plan constituted a weapon in the fight against inflation. It was a doomed fight, because the government kept printing money to finance its deficits, on the one hand, but maintained a set of artificial low exchange rates on the other. Consequently real incomes were incompatible with the amount of goods in the market, and so with controlled domestic prices black market developed". In his view, the most serious consequence of state controlled and ideologically orientated economic development and the lack of free market private initiative in the country, is that Israel has never developed and still bereft of a political constituency based on the liberal, in the European sense, philosophy.

Theoretically, the author is correct to underline that free market economy produces and promotes liberal thought and philosophy. It is also true that agro-based and public sector dominated economies are usually the upholders of ideologies. Historically, the economically weaker states and nations diverted their political systems towards Communism. It is also true that, in countries where governments run the economy, both inside and outside the Communist bloc, feudal base of the society is preserved in one form or the other. This feudal base determines the politics of the country, which in turn influences

the economic trends suited to the ideology that the ruling classes of that nation subscribe to. It is important to note that capitalism in its 'pure' form can and has broken this ideological and political hold of the feudal classes, however urbanised these classes seemed to have become, as is the case with Pakistan, with Israel and was the case with the nationalities living under the Soviet Union.

In reality though, the economic development of the world after the Second World war, especially in the developed capitalist countries cannot be defined as pure competition. Most of the Western economies have had one or another form of state control or state sponsored capitalism. All these countries subscribe to government regulated economic and monetary policies and have kept one form or another of state enterprises. These governments pursue the so called 'liberal' ideological and political ideas and economic goals with all forms of economic, political and military aggression, at their disposal. At the same time monopolization of industrial and financial capital, which concentrated the different markets and resources of the developed world into the hands of the few and the emergence of multinational corporations created imperfect market trends in most of Western European and the World economy. These trends dominate the ideological, political and economic development of all non-communist societies in the so-called 'free world'.

As we go through the political and economic history of all developing nations, especially in Asia, advised and financed by the World Bank and other such institutions, we see the same pattern emerge. State controlled or government sponsored economic development under some sort of regimented political system pursuing one or the other, often antagonistic to each other, ideological goals, which have more often led to wars

between these states themselves. It was fashion of the day then to write about the economic wonders of the mixed economy and the Asian experiment. Political thinkers and economists both in the 'free West' and in Asia then supported and even at times praised the non-democratic and sometimes fascist regimes of these states, including Israel, for the rapid economic growth in these countries. Because of the cold war, they sacrificed principles of human rights and democracy laid down by themselves, as long as these states did not subscribe to socialism. Now that the threat of socialism and communism has receded in the world it seems that it has become a fashion again to criticize the public sector, to subscribe to free market economy and to join the band wagon of privatization. Although superbly written, this book is also a part of the same band wagon. With all its criticism of the public sector it can not disapprove its role in the development of all the third world economies, including Israel, especially those sectors where the private sector is shy to invest because of a lack of fast profits.

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