

Is the Private Sector more Productive than the Public Sector?

KHWAJA SARMAJ

1. INTRODUCTION

In developing countries the rapid growth of the public sector during the past few decades was viewed as an important means for accelerating the pace of economic growth. In most developing countries the public sector now accounts for a prominent share of total production and investment. But the contribution of the public sector to growth has been much below expectations. In many cases public enterprises require large subsidies from the government and impose a significant fiscal burden on the economy, which leads to the notion that the private sector is much more productive than the public sector. However, little empirical work has been done in this field so that the proposals that emphasize the private sector *vis-a-vis* the public sector rest largely on theoretical considerations.

Recent work by Khan and Reinhart (1990) is an important exception. Using cross-section data for the seventies of 24 developing countries they show that the arguments favouring the private sector in adjustment programmes have empirical support. Khan and Reinhart estimate a growth model in which the effect of private and public investment on growth is separated. A comparison of the marginal productivities of the two types of investment allows them to conclude that “all in all, there does seem to be some merit in the key role assigned to private investment in the development process by supporters of market-based strategies”. [Khan and Reinhart (1990), p. 25.]

However, their period is rather short and the coverage limited so it seems useful to extend the scope of their study. First, the sample of developing countries could be enlarged. Given the lack of consistent long-run data on the institutional breakdown of aggregate investment this source of extension is limited, but the available data do allow the relevant hypothesis to be tested for a different set of

of capital, $I = dK$, a_2 and a_3 are the elasticities of output with respect to labour and exports.

By substituting for the variable (equal to $K_p + K_g$ i.e. the sum of the stock of private and public capital) in Equation (1) and following the same procedure as in deriving Equation (2) Khan and Reinhart derive the following equation:

$$dY/Y = b_0 + b_1 I_p/Y + b_2 I_g/Y + b_3 dL/L + b_4 dX/X \dots \dots \dots \quad (3)$$

where:

I_p/Y and I_g/Y are the investment rates of private and public investment and b_1 and b_2 are the corresponding marginal productivities.

A comparison of the coefficients b_1 and b_2 in Equation (3) provides an indication of the differential effects of private and public investment on growth of aggregate output. However, as noted above this comparison has to be made with caution because the methodology does not account for the indirect effects of public investment.

3. RESULTS OF ESTIMATION

Following Khan and Reinhart we estimate Equation (3) using ordinary least squares for a cross-section sample of 26 countries on the basis of data averages for the period 1980 to 1987. We also estimated Equation (3) for a cross-section sample of 15 countries (for which relevant data was available) on the basis of data averages for the period 1970 to 1979 to compare our results with those of Khan and Reinhart. Data relating to real GDP, investment and exports has been taken from the World Tables data tape of the World Bank. Total investment is split into public and private investment according to the sectoral breakdown in Pfeffermann and Madarassy (1989), and data on labour has been obtained from the data diskette (MEDS) of the UN Statistical Office. The results of estimation are reported in Table 1.

Several observations can be made on the basis of the results reported in Table 1. First, the fits of the Equations are satisfactory and most of the variables are significant at the 95 percent confidence level. The important exceptions are the public investment variable in Equations (2) and (3) and the labour growth variable in Equations (1) and (2). Second, in general, the estimated coefficients in Equations (1) and (2) have the correct signs and the values are consistent with those reported by Khan and Reinhart. Note, for example, that in Equation (1) (estimation period 1980–1987) the coefficient of the exports variable is significant

Table 1

Results of Estimation#

No.	Constant	Investment		Growth of		R^2	SEE
		Private	Public	Labour	Exports		
1980 – 1987*							
1.	-0.021 (1.60)	0.161 (2.62)	0.263 (3.05)	-0.011 (0.03)	0.147 (3.03)	0.703	0.015
1970 – 1979**							
2.	-0.007 (0.43)	0.214 (2.12)	0.019 (0.15)	0.742 (1.50)	0.176 (2.02)	0.691	0.051
Khan and Reinhart's Results 1970 – 1979**							
3.	2.145 (1.66)	0.158 (3.27)	-0.108 (1.02)	0.573 (1.94)	0.163 (3.75)	0.737	1.091

The values in parentheses are t -values; R^2 is the coefficient of determination; and SEE is the standard error of the equations.

* Sample size is 15.

** Sample size is 26.

*** Sample size is 24.

and fairly large—indicating, the importance of export expansion as a determinant of economic performance. These results present additional empirical evidence confirming a significant cross-country association between export expansion and economic performance [see e.g. Balassa (1978); Tyler (1981); Kavoussi (1984); and Ram (1985)]. In Equations (1) and (2) productivity growth estimates (represented by the respective constants) remain negative but come close to being statistically different from zero at the 5 percent level. This coefficient summarizes the influence of all other variables affecting total factor productivity as well as that of the error term. Third, and more importantly for the purposes of this study, in Equation (2) the coefficient of public investment—marginal productivity of public sector capital—is statistically insignificant. Thus, at face value confirming Khan and Reinhart's result Equation (3) that during the years from 1970–1979 public sector investment did not significantly influence economic performance in developing countries. Fourth, the empirical estimates obtained for the period 1980–1987 are different from the general pattern observed during the earlier period, particularly with regard to the investment variables: The coefficient of

On the face value of the empirical estimates there appears to be little doubt that public sector investment has begun to exert a significant influence on aggregate output. This would suggest abandoning the conventional notions that public investment is not important to economic growth in developing countries, or that it is substantially less important as compared with private investment.

However, given the limitations of the methodology and the special circumstances of the two periods examined here these results need to be interpreted with caution. It could be argued, for example, that the easy availability of external finance during the first period and its use in some of the developing countries included in the sample, in long gestation, and in many cases unproductive, projects negatively affected the contribution of the public sector to aggregate growth. On the other hand, during the second period, the strain of macro-economic adjustment could have made public sector performance more important to economic growth. Alternatively, it could be argued that fast growing countries had better access to external finance and could thus afford a higher level of public investment. Thus, while the above analysis has served to uncover some interesting behavioural patterns of public and private sector investment during the decades of the seventies and eighties and provides a useful reference point for analysing individual country experience, it should be supplemented by detailed country studies to reveal the country-specific factors involved in the behavioural shifts over time.

REFERENCES

- Balassa, Bela (1978) Exports and Economic Growth: Further Evidence. *Journal of Development Economics* 5 : 2 181-189.
- Fitzgerald, E.V. K., and Khwaja Sarmad (1990) Public and Private Sector Capital Account Behaviour in LDCs 1970-1988. *Sub-series on Money, Finance and Development* The Hague: ISS. (Working Paper No. 36.)
- Kavoussi, Rostam M. (1988) Export Expansion and Economic Growth: Further Empirical Evidence. *Journal of Development Economics* 14 : 241-250
- Khan, Mohsin S., and Carmen M. Reinhart (1990) Private Investment and Economic Growth in Developing Countries. *World Development* 18 : 1 19-27.
- Pfeffermann, Guy P., and Andrea Madarassy (1989) Trends in Private investment in Thirty Developing Countries. Washington, D. C.: International Finance Corporation. The World Bank. (Discussion Paper No. 6.)
- Ram, Rati (1985) Exports and Economic Growth: Some Additional Evidence. *Economic Development and Cultural Change* 33 : 1 415-425.
- Tyler, William G. (1981) Growth and Export Expansion in Developing Countries: Some Empirical Evidence. *Journal of Development Economics* 9 : 1 121-130.

Comments on
“Is the Private Sector more Productive than
the Public Sector?”

Dr Sarmad's empirical paper on the relative productivity of the public *vis-a-vis* the private sector is very interesting and well timed. He had used recent data (of the eighties) and considered also the indirect effects of public investment on growth, which leads him to different conclusions from that of earlier studies. There are a few queries, though:

- (1) Does the presence of Exports (x) as an argument in the production function lead to a differential increase in the productivity of the public relative to the private sector, and if so, does it lead to an upward bias in estimating the marginal productivity of public investment, and hence the effect of public investment on growth;
- (2) My second query concerns the variable Z in Equation (4) the net resource transfer from the private to the public sector—and its coefficient d_2 which is a measure of crowding out. Will the sign of d_2 always be < 0 and will it not depend on how the budget deficit is financed—money supply, bonds or taxation. The first of these alternatives, i.e., the increase in money supply may well lead to zero crowding out and no fall in private investment due to the budget deficit;
- (3) The coefficient of public sector investment-marginal productivity of public sector capital is different in two time periods 1970–1979 and 1980–1987. In the latter period analysis, it is statistically significant and greater and exceeds the value of the private sector investment coefficient. What accounts for this difference in the time periods? Is it just the increase in the size of the public sector, or strains of macro economic adjustment, and how?
- (4) The results of estimation of the investment function show that z -resource transfer from the private to the public sector—does not significantly influence private sector investment implying a rejection of the crowding out hypothesis. The reason given is that private consumption adjusted to facilitate higher savings. Does this hold in the face of ostentatious consumption patterns that we observe, the demonstration

effect, as well as the low interest rate responsiveness of consumption?
and

- (5) Conclusions about reductions in size of public sector adversely affecting output growth and productivity of private sector cannot be made if the analysis is divorced from the question of resource allocation and inefficiency within the private sector. That is also a type of indirect effect of public investment and needs to be taken into account with the other two indirect effects that the author handles so well.

Yasmeen Mohiuddin

University of the South Swanee,
USA.