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State Enterprises in Developing Countries

by Peter Nunnenkamp, Kiel*

The role of state-owned enterprises in the development process in the Third World is the subject of serious controversy. This article attempts to test empirically whether there is a relationship between the importance of public production in developing countries and their overall economic performance.

A considerable degree of scepticism prevails when governments assume the majority shares and control of business activities which otherwise would be left to private entrepreneurs. This is mainly due to experiences in advanced Western economies, where public ownership is frequently associated with ineffective management, significant burdens for the taxpayers and a considerable misallocation of resources. On the other hand, high expectations are placed on state enterprises. Especially in the Third World they are considered to stimulate economic growth and to promote industrialisation. Accordingly, public investment is assigned a prominent role in the industrial sector of many developing countries which otherwise pursue rather different economic policies.

Notwithstanding that the debate on the conflicting hypotheses about the role of public enterprises resulted in a vast amount of literature, economic research is still in an underdeveloped state in this field. Very little is known about the economic impact of public production, i.e. whether state enterprises succeeded in creating employment and in enhancing growth and industrialisation. The choice between "using rigorous methods to generate definite statements about trivial problems and using soft 'intuitive groping' to make questionable assertions about critical issues"¹ that is symptomatic for research on public enterprises, is largely due to the lack of data. Very few developing

countries present detailed and comprehensive accounts on the activities of public enterprises. Even more of a problem is that the statistical information available is not fully comparable between different countries. The coverage of statistics differs because of inconsistent definitions of the public enterprise sector.

Although shortcomings remain, the data situation has improved a great deal due to a recent publication.² Thus it seems promising to focus on some critical issues concerning the economic costs and benefits of state enterprises by substituting rather simple statistical procedures for merely intuitive groping. After a short summary of the major reasons for state enterprises and some frequently neglected drawbacks probably arising from public production, and an overview of the role of state enterprises in the Third World in quantitative terms, the following analysis attempts to subject the aforementioned conflicting hypotheses on the economic impact of state enterprises to an empirical test. Applying cross-country correlation analysis, it is checked whether economic performance in terms of overall growth, gross fixed capital formation and employment generation was relatively favourable in countries where state enterprises play a prominent role.

¹ Leroy P. Jones: Introduction, in: Leroy P. Jones (ed.): *Public Enterprise in Less-Developed Countries*, Cambridge 1982, p. 13.

² R. P. Short: *The Role of Public Enterprises: An International Statistical Comparison*, in: International Monetary Fund: *Public Enterprise in Mixed Economies: Some Macroeconomic Aspects*, Washington 1984.

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By the same token, some evidence is presented on the economic costs of public production, for example in terms of budgetary burdens, inflation and debt creation.

State enterprises are assumed to fulfil a variety of economic and social objectives.³ Apart from providing infrastructural facilities, the main emphasis is placed on their role in the industrial sector:

☐ Governmental control of key industries ("commanding heights") via public enterprises is intended to reduce the influence of foreign companies and to prevent private monopolies. Furthermore, governments wish to foster industrialisation and influence the path and direction of development.

☐ Non-competitive private companies faced with bankruptcy are nationalised in order to maintain the jobs. In some instances, disadvantaged population groups are given preferential employment in public enterprises (as in Malaysia), or regional imbalances are to be reduced.

☐ It is expected that public enterprises will improve the supply of goods falling into the basic needs category at socially acceptable prices.

☐ Public enterprises should help the upgrading of unskilled labour and contribute to a better supply of managerial skills, thereby reducing the widespread lack of human capital.

☐ In the field of foreign trade, public enterprises should increase national self-sufficiency by import substitution and promote the expansion and diversification of national exports.

These and other objectives are given different weights in different countries. However, most developing economies with a significant public share in the industrial sector have one thing in common: public enterprises are assigned a pioneer role in promoting industrialisation and growth. They are supposed to play a central role especially in those areas where private entrepreneurs are still reluctant to invest due to perceived limitations of the market mechanism.

Markets may fail in different respects to produce economically optimal results.⁴ Government intervention

(of which public production is only one of many possibilities, though considered the most effective one by its proponents) may be required in cases of increasing returns to scale, public goods and externalities, and market imperfections. If production is subject to increasing returns to scale throughout the whole range of relevant activity levels, a monopolisation of unregulated private markets may be expected. This would reduce production below the macroeconomically optimal level. It is argued that performance would be inefficient in dynamic terms as well, "because incentives for innovation will be weaker than would likely prevail under a more competitive regime".⁵

Externalities are assumed to play a prominent role in developing countries.⁶ External benefits prevailing at an early stage of development are largely of a pecuniary nature, i.e. interdependence among producers is mediated by the price mechanism. If a large-scale investment removes a bottleneck, for example, the investor's customers will derive benefit because of lower input prices. But the share of profits that escape the investor may be so high that the investment will not be realised altogether, its macroeconomic desirability notwithstanding. According to the infant industry argument, private losses incurred at the beginning of production may be offset by subsequent private profits only with considerable delay. This may retard economic development if producers are averse to taking risks and do not anticipate the profitability of activities in the longer run. Although this is not a case of market failure, government intervention is frequently required in order to overcome the lack of innovative Schumpeterian entrepreneurs which is considered characteristic for many Third World economies. By assigning to the state the role of investing in infant industries it is implicitly assumed that the "middle-class 'virtues' fundamental to entrepreneurial drive"⁷ are significantly stronger in the public sector.

The industrialisation process may be negatively affected by imperfections in factor markets as well. If labour in the agricultural sector is paid according to its

³ For an overview see, for example, Armeane M. Choski: State Intervention in the Industrialization of Developing Countries: Selected Issues, World Bank Staff Working Paper, No. 341, Washington 1979, pp. 6-12.

⁴ For a more detailed elaboration, see Peter Nunnenkamp: Market-Failure versus Government-Failure: On the Role of Public Industrial Enterprises in Developing Countries, in: Vierteljahresberichte des Forschungsinstituts der Friedrich-Ebert-Stiftung, No. 98, December 1984, pp. 347-359.

⁵ Charles Wolf jr.: A Theory of Nonmarket Failure: Framework for Implementation Analysis, in: Journal of Law and Economics, Vol. 22 (1979), pp. 107-112. The case for public production is not very strong, however. A monopolistic position is always threatened by domestic or foreign potential competitors. This constrains the monopolist's ability to cut production and raise prices and provides him with sufficient incentives for innovations.

⁶ See, for example, Marcus Fleming: External Economies and the Doctrine of Balanced Growth, in: Economic Journal, Vol. 65 (1955), pp. 241-256.

⁷ Deepak Lal: Public Enterprises, in: John Cody, Helen Hughes, David Wall (eds.): Policies for Industrial Progress in Developing Countries, Oxford 1980, p. 212.

average (rather than its marginal) productivity, domestic industrial production will be depressed due to a sub-optimal labour migration from agriculture to industry. Capital markets in developing countries often lack a sufficiently sophisticated infrastructure, so that the supply of funds for investment is eroded by hoarding and capital mobility is reduced.⁸ Under these conditions it is probably most difficult for private producers to finance high-yielding but risky pioneer projects. Consequently, it is argued that investments that remove barriers to further economic development, but frequently require considerable amounts of capital, should be the public sector's responsibility.

Possible Drawbacks

The market-failure debate in economic theory contributed to a remarkable extension of public intervention into private markets in general and state ownership in particular. For quite some time it was taken for granted that politicians, bureaucrats and public managers would be able and willing to correct market failures in a way that guaranteed macroeconomic efficiency. Subsequently, this rather naive belief was challenged by the theory of government failure.⁹ It is striking that many proponents of public production activities tend to ignore their critics, although the new perception of public sector operations resulted in hypotheses on the economic impact of state enterprises that sharply contrast with the traditional ones.

It is most unrealistic to assume that managers of state enterprises would above all strive to improve national welfare. They can, rather, be expected to maximise their own interests, just as private entrepreneurs do. As a promising way of increasing income, prestige and political leverage, public managers may expand the operations of the enterprises of which they are in charge. Probably, state enterprises extend production beyond macroeconomically optimal levels. The widespread practice of covering the losses of state enterprises out of the government budget allows them to invest in large-scale projects, even if this results in lasting excess capacity. In an attempt to maximise capacities or sales, public managers may also be

interested in crowding out private activities rather than merely filling gaps in private initiative and offsetting market failure.¹⁰

The alleged positive role of state enterprises in economic development is further challenged by the concept of X-inefficiency.¹¹ There are various reasons why public production in particular is likely to take place below the production possibility curve. Firstly, incentive systems prevailing in the public sector do not reward efforts to reduce costs.¹² Consequently, overstaffing is to be expected and cost-intensive modern technologies favoured by public managers may be installed, notwithstanding macroeconomic inappropriateness. Secondly, the economic environment in which state enterprises are typically operating gives rise to X-inefficiency. Competitive pressure is rather weak in the public sector due to officially restricted market entry. Competition from abroad is limited by import restraints, particularly in the officially fostered key industries, that do not conform to the country's comparative advantages.

Indirectly, public production may further add to inefficiencies. The more industrialisation is regulated by the government, the more private resources are absorbed by rent-seeking activities.¹³ Private economic agents compete in inducing the public sector to take measures that would be favourable to them. Since market prices of publicly produced goods frequently do not cover total costs, customers of state enterprises will use the opportunity of obtaining subsidised inputs to divert resources from production to rent-seeking. These resources are wasted from a macroeconomic standpoint. Empirical estimates indicate that inefficiencies caused by rent-seeking are substantial.¹⁴

A Quantitative Overview

The quantitative importance of state enterprises in developing countries may be indicated by their percentage shares in gross domestic product (GDP) and gross fixed capital formation.¹⁵ In the mid-1970's,

⁸ In many cases price distortions in labour and capital markets are due to government failure rather than market failure, however. Minimum wage legislation that raises labour costs beyond equilibrium rates is most common in developing countries. Frequently, private savers are discouraged from depositing their savings with financial intermediaries because of officially reduced interest rates.

⁹ See, for example, the contributions in Horst Hanusch (ed.): *Anatomy of Government Deficiencies*, Berlin 1983.

¹⁰ William A. Niskanen: *Bureaucrats and Politicians*, in: *Journal of Law and Economics*, Vol. 19 (1976), p. 633.

¹¹ Harvey Leibenstein: *Allocative Efficiency versus X-Efficiency*, in: *American Economic Review*, Vol. 56 (1966), pp. 392-415.

¹² Alan T. Peacock: *On the Anatomy of Collective Failure*, in: *Public Finance*, Vol. 35 (1980), pp. 33-43.

¹³ James M. Buchanan: *From Private Preferences to Public Philosophy: The Development of Public Choice*, in: *The Economics of Politics*, Institute of Economic Affairs, Readings, Vol. 18, London 1978, pp. 13f.

¹⁴ Anne O. Krueger: *The Political Economy of the Rent-Seeking Society*, in: *American Economic Review*, Vol. 64 (1974), pp. 291-303.

¹⁵ See the data given in R. P. Short, *op. cit.* Average figures are weighted averages for 1974-77 or the closest period for which data are available, unless otherwise indicated.

state enterprises accounted for 8.6 per cent of GDP (based on data for about 30 countries) and 27 per cent of overall investments (about 50 countries). Whereas the output share was slightly below the respective figure in industrial countries (9.6 per cent), the investment share in developing countries dramatically exceeded the figure of 11 per cent in industrial countries. In contrast to industrial economies, where the relative size of the public enterprise sector did not change significantly in recent years, there has been a remarkable increase in the Third World. Between the late 1960's and the end of the 1970's the average output and investment shares of state enterprises increased by 4.5 and 10.5 percentage points respectively.

State enterprises are now of major quantitative significance in most of the countries for which data are available. Average output and investment shares are broadly similar in Asia and Latin America, but noticeably larger in Africa. According to different per capita income levels the picture shown in Table 1 emerges.

Although state enterprises are still most important in the traditional fields, i.e. so-called natural monopolies like public utilities, communication and non-road transport, they are now engaged in virtually all types of economic activity. Typically, natural resource industries are largely operated by state enterprises. Economies of scale and high risks, but also the economic rents obtainable in mining are the principal reasons for public dominance. In manufacturing the public engagement increased most rapidly in recent years. Especially in many African and Middle Eastern countries, the manufacturing sector is dominated by state enterprises. They are most prominent in heavy industries such as petroleum refining, chemicals, transport equipment,

iron and steel, that are supposed to play a key role in economic development. State enterprises are expected to strengthen interindustrial linkages and to make use of economies of scale as well. Average plant sizes are dramatically higher in the public sector than in the private sector.¹⁶

State Enterprises and General Economic Development

It is extremely difficult to assess the economic impact of public production empirically. The following correlation analysis may provide a first step in this direction. In subsequent research, it has to be supplemented by more sophisticated analyses that allow the impact of state enterprises to be isolated from other relevant influences. Two different coefficients were calculated: Spearman rank correlation coefficients and Pearson correlation coefficients.

The results presented in Table 2 indicate that state enterprises failed to fulfil their principal role, i.e. to enhance economic development in Third World countries. The relative importance of state enterprises in developing countries is reflected by their output and investment shares (SHGDP, SHINV). In view of the above-mentioned hypotheses raised by the proponents of public production, the following variables were selected as indicators of the countries' general economic performance: real growth in GDP and gross fixed investment (GROGDP and GROINV, respectively), the industrialisation level (INDLEV) and growth in employment (GROEMP). Consequently, 16 coefficients were estimated. Just one out of these is significant at the 10 per cent level of confidence (Pearson – in contrast to Spearman – shows a positive correlation between the share of state enterprises in GDP and the industrialisation level). In all remaining cases no significant relationship emerged between the quantitative importance of state enterprises and general economic performance. In sharp contrast to widespread expectations, the coefficients seem to be rather negative for both GROGDP and GROINV.

The evidence is disappointing as well, if the progress made in employment generation is considered. The share of state enterprises in overall employment is

Table 1
Output and Investment Shares of State Enterprises in Developing Countries of Different Income Levels
(per cent)

	GDP ¹	SHGDP ²	SHINV ²
< 400		10.3 (11)	30.6 (14)
400 – 999		14.2 (6)	24.6 (14)
1000 – 1500		12.3 (3)	19.5 (10)
> 1500		10.3 (6)	25.0 (11)

¹ Per capita income in US-\$ (1981).

² Unweighted average shares in output and investment, respectively; in most cases figures are for the late 1970s. In parentheses: number of countries for which data are available.

Source: R. P. Short: The Role of Public Enterprises: An International Statistical Comparison, in: International Monetary Fund: Public Enterprise in Mixed Economies: Some Macroeconomic Aspects, Washington 1984, Table 1.

¹⁶ For the Indian example, see Peter Nunnkamp: Die Rolle öffentlicher Industrieunternehmen im Exportsektor Indiens, Schriften des Zentrums für regionale Entwicklungsforschung der Justus-Liebig-Universität Gießen, Vol. 30, Hamburg 1985, Table 5.

¹⁷ See R. P. Short, op. cit., pp. 27f.; Malcolm Gillis: The Role of State Enterprises in Economic Development, Harvard Institute for International Development, Development Discussion Paper, No. 83, Cambridge 1980, pp. 28ff.

generally considerably less than that in GDP.¹⁷ The missing link between high public investments and GROEMP has to be attributed to the extremely high capital intensity typically prevailing in state enterprises' operations. This partly reflects the industrial distribution of public production, i.e. its prominence in sectors that are inherently capital-intensive. However, the Indian example also points to drastic intra-industry differences in factor proportions between public and private enterprises.¹⁸ As in India, the cost of capital to state enterprises is lower than that to private producers in many developing countries, so that the same situation is likely to prevail elsewhere.

Thus a prominent role by state enterprises in the economy does not seem to be a sufficient condition (nor a necessary one) for a more favourable development record. In some instances, government failure (such as officially induced price distortions in factor markets) rather than market failure must be blamed for insufficient economic success.

World Market Orientation

Things look even worse if the state enterprises' role in external trade is considered (see Table 3). Sometimes it is argued that public production may improve the development prospects of Third World economies by reducing current account deficits. State enterprises are supposed to accelerate the growth in exports and to diversify the country's export basket by supplying non-

traditional export items. On the other hand, they should improve on import-substitution policies.

The correlation coefficients presented in Table 3 indicate complete failure in all three respects:

□ High output and investment shares by state enterprises were related to low, rather than high, growth in real exports (GROEXP); all four coefficients are significantly negative (at a 4 per cent level of confidence or better).

□ The more prominent state enterprises figure in the economy, the less diversified are the country's exports, if the share of three major commodities in total world market sales is taken as an indicator of export concentration (COMCON).

□ As regards growth in real imports (GROIMP), the coefficients remained insignificant; moreover, they have "wrong" signs, so that state enterprises seem to have speeded up import growth rather than reduced it.

An in-depth study of the export performance of state enterprises in India indicated that their share of industrial production (about 20 per cent in the 1970's) and employment (about 15 per cent) exceeded their share of exports (5-6 per cent) by 150-300 per cent. Notwithstanding the rather weak world market orientation of the Indian private sector, state enterprises lagged further behind: in the 1970's only 3.3 per cent of public industrial production was exported. World markets served as a temporary outlet for excess public production at times of insufficient domestic demand and were neglected as soon as domestic demand provided for satisfactory capacity utilisation. The state

¹⁸ See Peter N unnenkamp: Die Rolle öffentlicher Industrieunternehmen im Exportsektor Indiens, op. cit., p. 106.

Table 2
State Enterprises and Economic Development: Correlation Results¹

	Spearman				Pearson			
	SHGDP		SHINV		SHGDP		SHINV	
	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)
GROGDP	-0.18	0.19 (25)	-0.11	0.23 (44)	-0.21	0.16 (25)	-0.13	0.19 (44)
INDLEV	0.10	0.34 (21)	0.04	0.41 (37)	0.30	0.10 (21)	0.16	0.18 (37)
GROINV	-0.11	0.32 (21)	-0.09	0.29 (41)	-0.01	0.48 (21)	-0.09	0.29 (41)
GROEMP	0.02	0.46 (24)	-0.01	0.47 (41)	0.15	0.24 (24)	0.05	0.37 (41)

¹ Spearman rank correlation coefficients and Pearson correlation coefficients, respectively; besides the coefficients, the second column presents the level of significance (one-tailed test) and the number of observations on which the calculation is based (in parentheses). Variables: SHGDP = share of state enterprises in GDP; SHINV = share of state enterprises in gross fixed investment (SHGDP and SHINV are mostly for the late 1970's); GROGDP = average annual growth in real GDP, 1970-81; INDLEV = industrialisation level, i.e. share of industry in GDP in 1981; GROINV = average annual growth in gross fixed capital formation at constant prices, 1970-81; GROEMP = average annual growth in employment, 1970-81. Source: R. P. Short, see Table 1; World Bank: World Development Report; IMF: International Financial Statistics; own calculations.

enterprises' role in diversifying India's exports was negligible. Public production was neither sufficient nor necessary to open up new overseas markets by non-traditional exports.

Even in the case of homogeneous products and standardised production processes state enterprises failed to surpass the private sector's export performance. A more favourable picture was most likely to be expected in this area. State enterprises that operated on a moderately larger scale than private producers had the opportunity of making use of increasing returns to scale. Moreover, the marketing of homogeneous and standardised goods was rather easy and required less flexibility, thereby reducing the public sector's comparative disadvantages arising from bureaucratic decision-making.¹⁹ Apparently, these factors were offset by export-retarding effects. Apart from considerable X-inefficiencies, the government-induced high capital intensity in the public sector and the priority given to heavy industries (such as steel, machinery and transport equipment) have probably impeded a more favourable export performance by state enterprises. The role of state enterprises within the framework of India's development plans completely neglected the country's comparative advantages in international markets. A similar pattern of public production is typical for many other developing countries, so that the Indian experience is likely to be repeated elsewhere.

Financing the Deficits of State Enterprises

Though there is hardly any evidence of economic benefits that may be attributed to state enterprises, they may have given rise to considerable economic costs. X-inefficiencies, misconceived industrialisation policies and highly capital-intensive production processes in the public sector can be presumed to absorb economic resources that could have been employed more productively in the private sector. According to information on the overall balances of state enterprises presented by Short, the return on public investment was rather low in commercial terms. Excluding the receipts of current government transfers, the self-financing ratio of state enterprises amounted to only 10 per cent in those developing countries for which data were available.

In the mid-1970's, the overall deficits of state enterprises in developing countries averaged almost 4 per cent of GDP.²⁰ Table 4 indicates that high public investment shares were strongly correlated with high deficits of state enterprises (DEFOV). Deficits had to be financed either by borrowing by state enterprises in

domestic and international financial markets or by capital infusions by the government. Various drawbacks may arise from these options:

□ Borrowing from domestic commercial banks is likely to crowd out private investors because of credit rationing or rising capital costs. The same applies if state enterprises shift their deficits to the government budget and governments refinance by borrowing in domestic capital markets.

□ The money supply is affected if state enterprises have direct access to borrowing from the central bank (this is the case in several developing countries) or if governments refinance by money creation. Most probably, this would result in higher inflation rates. Table 4 provides some evidence that high public investment shares (in case of both Spearman and Pearson correlations) and high deficits of state enterprises (DEFOV and DEFCOR in case of Spearman correlations) were significantly related to high government budget deficits. However, correlations between state enterprises' deficits and the inflation rate remained insignificant (the 10 per cent level of confidence is considered as a minimum standard). Moreover, all coefficients have "wrong" signs in view of what might have been expected.

□ The international debt situation of developing countries is negatively affected if state enterprises step up their foreign borrowing or if credits raised in international markets in order to finance their deficits are channelled through central government accounts. As discussed below, this may trigger debt servicing difficulties.

The International Debt Burden

In the mid-1970's, for those countries providing a complete breakdown of sources of finance, about 25 per cent of the state enterprises' deficits were covered by direct foreign borrowing.²¹ The share of international lending would probably have been much larger if indirect foreign borrowing by state enterprises were taken into account, i.e. foreign loans channelled through government accounts. The observation that the deficits of state enterprises were significantly related to

¹⁹ For adding marketing and institutional aspects to the concept of comparative advantage, see Leroy P. Jones, Lawrence H. Wortzel: *Public Enterprise and Manufactured Exports in Less-Developed Countries: Institutional and Market Factors Determining Comparative Advantage*, in: Leroy P. Jones (ed.): *Public Enterprise in Less-Developed Countries*, Cambridge 1982, pp. 217-242.

²⁰ The exclusion of current government transfers increased the deficits by another percentage point; see R. P. Short, *op. cit.*, pp. 29ff.

²¹ See R. P. Short, *op. cit.*, pp. 45ff.

Table 3
State Enterprises and External Trade: Correlation Results¹

	Spearman				Pearson			
	SHGDP		SHINV		SHGDP		SHINV	
	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)
GROEXP	-0.44	0.02 (21)	-0.40	0.01 (38)	-0.41	0.03 (21)	-0.29	0.04 (38)
COMCON	0.29	0.08 (24)	0.24	0.06 (46)	0.34	0.05 (24)	0.37	0.01 (46)
GROIMP	0.12	0.30 (21)	0.07	0.33 (38)	0.26	0.13 (21)	0.05	0.38 (38)

¹ See footnote to Table 2; additional variables: GROEXP, GROIMP = average annual growth in exports and imports respectively, at constant prices, 1970-81; COMCON = commodity concentration, i.e. share of 3 major commodities in total merchandise exports in 1981.
 Sources: See Table 2; World Bank: World Tables; own calculations.

Table 4
State Enterprises, Government Budget Deficits and Inflation: Correlation Results¹

	Spearman						Pearson					
	DEFOV		GOVDEF		INFL		DEFOV		GOVDEF		INFL	
	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)
SHGDP	-0.17	0.26 (18)	0.04	0.44 (17)	-0.24	0.12 (25)	-0.26	0.15 (18)	-0.32	0.11 (17)	-0.11	0.31 (25)
SHINV	-0.66	0.001 (35)	-0.42	0.01 (32)	-0.17	0.13 (48)	-0.67	0.000 (35)	-0.46	0.004 (32)	-0.18	0.11 (48)
DEFOV	-	-	0.28	0.10 (22)	0.20	0.12 (36)	-	-	-0.02	0.46 (22)	0.19	0.13 (36)
DEFCOR	-	-	0.45	0.03 (19)	0.07	0.38 (23)	-	-	0.15	0.27 (19)	0.24	0.13 (23)

¹ See footnote to Table 2; additional variables: DEFOV = overall deficit of state enterprises as a share of GDP (surplus: +); DEFCOR = corrected deficit of state enterprises as a share of GDP, i.e. overall deficits minus current government transfers to state enterprises (surplus: +); GOVDEF = government budget deficit as a share of GDP (surplus: +); DEFOV, DEFCOR and GOVDEF are mostly for the late 1970's; INFL = average annual rate of inflation (consumer prices), 1970-81.
 Sources: See Table 2.

Table 5
State Enterprises and Foreign Debt: Correlation Results¹

	Spearman				Pearson			
	DEBGNP		DSR		DEBGNP		DSR	
	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)	coeff.	sig. (N)
SHGDP	0.55	0.002 (25)	0.39	0.03 (23)	0.63	0.000 (25)	0.28	0.10 (23)
SHINV	0.44	0.001 (46)	0.37	0.01 (45)	0.31	0.02 (46)	0.33	0.01 (45)
DEFOV	-0.40	0.01 (34)	-0.14	0.22 (32)	-0.37	0.02 (34)	-0.14	0.22 (32)
FORBOR	0.30	0.08 (24)	0.48	0.01 (23)	0.10	0.31 (24)	0.41	0.03 (23)

¹ See footnote to Table 2; additional variables: DEFOV = overall deficit of state enterprises as a share of GDP (surplus: +); FORBOR = foreign borrowing by state enterprises as a share of GDP (DEFOV and FORBOR are mostly for the late 1970's); DEBGNP = public and publicly guaranteed debt as a share of gross national product, 1980-82; DSR = debt service ratio, i.e. debt service on public and publicly guaranteed debt as a share of exports, 1980-82.
 Sources: See Table 2; World Bank: World Debt Tables; own calculations.

government deficits but not to domestic inflation indicates that government budget deficits were largely financed in international capital markets, rather than by domestic money creation.²² In the period 1976-78, state enterprises accounted for one third of all international borrowing by developing countries.²³

Against this background it might be supposed that state enterprises contributed to the deteriorating debt situation of many developing countries in the early 1980's. This view is supported by the correlation results presented in Table 5. The analysis considers two of the most frequently used debt indicators, the ratio of foreign debt outstanding to gross national product (DEBGNP) and the ratio of interest and amortisation payments on external liabilities to the country's exports (debt service ratio, DSR) as a measure of the debt service burden of developing countries. All coefficients have the expected signs and all but three are significant at the 10 per cent level of confidence or better. High deficits of state enterprises are associated with large amounts of accumulated debt relative to GNP. With increasing direct borrowing by state enterprises in international capital markets the debt service ratio increases. Both DEBGNP and DSR show a strongly positive relation to the output and investment shares of state enterprises. Moreover, a look at those 23 developing countries that provide data on the adjusted deficits of state enterprises (DEFCOR, i.e. DEFOV minus current government transfers) reveals that the probability of rescheduling increased for countries with a relatively high DEFCOR. For the nine countries that did not reschedule part of their foreign debt within the period 1975-84, DEFCOR averaged 2.5 per cent. The respective figure amounted to 3.2 per cent (3.6 per cent) for countries with one (more than one) rescheduling agreement.

Summary

In the above, the hypothesis of a positive role for state enterprises in the economic development of Third World countries was subjected to simple empirical tests. There is hardly any evidence that state enterprises fulfilled the assumed pioneer role within the framework of industrialisation plans in a way that would have benefitted developing countries' economies. In contrast to widespread expectations, a prominent role by public production within the economy was neither associated

with relatively favourable growth and industrialisation records, nor with high employment generation. In the field of foreign trade, state enterprises seem, rather, to have added to the economic problems of developing countries. High output and investment shares by state enterprises were related to poor overall export performance and high export concentration on a few traditional commodities. This may have contributed significantly to balance of payments difficulties in many developing countries.

It goes without saying that the correlation analysis presented above provides a rather weak empirical test. Subsequent research should supplement this by more sophisticated procedures in order to isolate the effects of public production on economic development from other relevant factors. This article can therefore only serve as a first step towards reaching definite conclusions. However, it strongly questions the rather naive belief that public production per se will remove the bottlenecks to economic growth and industrialisation.

A reappraisal of what state enterprises can achieve has to consider the economic costs of public production as well. Market failure is a necessary rather than a sufficient condition for state intervention. In terms of economic welfare, public production activities can only be justified where welfare-increasing effects due to the correction of market failure exceed welfare losses due to government failure. The correlation analysis indicates that the economic costs of state enterprises were far from negligible. The striking deficits of state enterprises in many developing countries represented a major reason for high and rising government deficits. There is no evidence of inflationary effects arising from public production. However, crowding-out of private economic activities is likely to have occurred. Moreover, the lack of private initiative in industries that are typically given high priority in government planning cannot be attributed simply to market failure and private risk aversion. Both theoretical considerations and empirical findings tell us, for example, that for most developing countries it does not make sense to invest in capital-intensive industries because of comparative disadvantages. The economic benefits of state enterprises engaged in these industries are highly debatable. Public production may, rather, have resulted in a substantial misallocation of resources. Finally, state enterprises seem to have added significantly to one of the most severe problems many Third World economies are struggling with today. The financing of the state enterprises' deficits has contributed considerably to the accumulation of foreign debt and has increased the probability of debt servicing difficulties.

²² According to World Bank estimates (World Development Report 1985, Washington 1985, p. 62), a significant positive relationship prevailed between growing government deficits and the accumulation of foreign debt.

²³ See World Bank: Borrowing in International Capital Markets: Third Quarter 1979, Washington 1980.