

State ownership in developing country mineral industries

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The issue under investigation can be formulated as follows: How has the emergence of an important state enterprise sector impacted on the mineral industry worldwide, and on the international mineral markets? State mineral enterprises in both industrialized and developing market economies are examined, but with a heavy emphasis on the latter. The major growth of state ownership and the major conflicts with private firms have occurred precisely in the developing countries. Mineral industries in socialist countries are not examined.

The presentation discusses the following themes. What have been the motivations for setting up state ownership? How should the state enterprise universe be defined and how big is it? What are the distinguishing features of these firms? How have they impacted on the mineral industry in general, and on the international mineral markets?

Motivations

Minerals constitute a favoured area for state intervention worldwide. Several circumstances provide an explanation for the governments' desire to interfere. Perception of the mineral wealth as a national patrimony. Inability to move deposits and escape tough government action. High rent generation that is difficult to tax away. Minerals regarded as strategically important.

Examples of large government holdings in industrialized countries include: aluminium at all stages in France; aluminium smelting, in Germany, Italy, Norway and Spain; copper at all stages, in Finland; iron ore, in France and Sweden; steel, in several European countries.

The modes of acquisition have varied: confiscation after war; the bailing out of bankrupt privates; buying at decreed or agreed price are a few examples.

State ownership expansion in LDCs has had a very special motivation. It was mainly the result of an economic eman-

ipation process after decolonization. The nature and importance of the mineral sector, and the desire to control the economy motivated state intervention, which included nationalization of the mainly foreign owned ventures. Compensation varied but was invariably considered inadequate by the former owners.

This process of economic emancipation in LDCs seems to have been completed by the early 1980s.

Definition and quantification

Our interest is in the impact of state ownership. Hence, government control rather than government ownership is crucial, since control, and not ownership per se, determines behaviour. The extent of government control, however, would be inhumanly difficult to assess in a global investigation. Government equity holding is a much simpler measure of quantification. Notice, however, that equity holding and control do not go hand in hand in all cases.

Even with equity holding, different measures are possible. For three major metals, defining state ownership as the capacity proportional to government equity holding, the figures in Table 1 suggest that state ownership is equal to 1/3 in the non-socialist world, but 1/2 in LDCs. Similar proportions emerge for the aggregate of all metal minerals.

Most of the state-owned enterprises were established in the past 25 years. In the 1950s, state enterprises were quite insignificant.

There are strong indications that the expansion of state enterprise was a one-time phenomenon, which has now ended. In the 1980s there is considerable disillusion over the value of state enterprise, especially in industrialized countries. In LDCs, nationalizations due to economic emancipation seem by and large completed. The most conspicuous foreign holdings have already been taken over. Better collaborative arrange-

ments with private multinationals are emerging.

I therefore conclude that the state enterprise universe will remain large, will be increasingly mature, but that its proportion of total global industry will not grow.

Distinguishing features and market impact

The borderline between private and state-owned mineral firms is blurred. Privates have been conditioned by the emergent social circumstances. There is a wide variety of state-owned enterprises. However, a distinction in goals, characteristics and behaviour can be identified between the average state and private enterprise. The emphasis in my discussion is on the state-owned firms in LDCs.

Inefficiency of new state-owned firms. This is a transient feature. During the past two decades, a large proportion of the state-owned universe has been very young, inexperienced and inefficient. After nationalization the new, inexperienced management needed long time to acquire the skills needed for efficient operation. The inefficiency can be regarded

as a kind of setting-up cost. Initially, everything was disrupted. Capacity utilization went down. Costs went up. The ability to expand capacity was nil. There was then a gradual recovery, first in the commercial field, then in the technical. Last came the competence to invest in new projects. Management contracts provided only a partial solution to the inexperience problem.

The periods of inefficiency have been of varying durations. Their lengths depended on the level of national development and the earlier exposure of national managers to managerial tasks. In Venezuela, maybe 5 years. In Indonesia, 20 years. In Zambia nationalization started in 1969, and the process has not yet been completed.

As a result of successive nationalizations over the past 25 years, a large proportion of the state enterprise universe has been inexperienced and inefficient throughout this period. Now an increasing maturity, with imposing efficiency standards is emerging.

Multiplicity of goals and cost levels. Besides return of capital, social goals such as employment, community welfare, regional development, and national technical progress have shaped the behaviour

of state-owned firms. The pursuit of these objectives adds permanently to the cost of mineral production.

A further boost to costs results from lesser pressure on management to minimize costs. Expenditures can always be justified by the pursuit of one or more social goals which is hard to quantify.

National objectives instead of corporate objectives. State enterprises are more likely than private firms to consider social benefits important. In mineral-producing LDCs unemployment is common, so the shadow wage rate, assuming full employment, is lower than the market wage rate. During periods of high mineral prices, the current account deficit, so the shadow exchange rate ensuring balance between exports and imports, is lower than the market exchange rate. Application of these shadow rates lowers the supply curve and increases the price in domestic currency, see figure 1. The result is higher capacity utilization than when market rates are applied. Notice that the application of shadow rates rectifies the distortions caused by government policies.

Guaranteed financial survival and financial subsidies. Governments do pro-

Table 1
Government ownership, proportion of equity, 1981

	Aluminium (1980)			Mining	Copper			Iron ore
	Mining	Refining	Smelting		Refining	Smelting		
Western world								
Total capacity ¹ (kt)	92 500	30 790	14 040	7 820	8 780	9 120	543 000	
Government share, %	27.8	15.1	18.5	32.4	26.1	21.6	40.0	
Developing countries								
Total capacity ¹ (kt)	54 000	6 530	2 190	4 120	3 340	2 580	216 900	
Government share, %	41.1	21.1	44.7	57.8	64.0	67.6	61.8	

¹ Production of iron ore.

the large state-owned mineral firms against financial collapse, and sometimes provide them with financial subsidies.

Investment behaviour. Ordinarily, this is quite similar to that in private firms. An adequate rate of return on investment is a guiding criterion. Concessional international finance does not change this guideline, since international financial institutions like the World Bank require careful project analysis before lending. Ex post, disappointment may of course occur, but they do so in private investments too.

In some cases, governments decide on uneconomic investments to promote regional development or to satisfy some strategic needs. This is not unique for LDCs. Neither is it specific to state enterprises. Governments often use subsidies or tariffs to promote private investments in pursuit of such goals.

Nationalizations frequently ruptured international vertical integration chains. State enterprises in non-fuel minerals have been generally unwilling to invest abroad. Since downstream processing is often most economical close to the final market, the result of the state-owned universe growth has been a reduction of vertical integration in mineral industries.

The aggressiveness of investment behaviour varies greatly among the state firms, as among privates. ZCCM in Zambia and Ferrominera in Venezuela contrast with CVRD in Brazil. CVRD market expansion in iron ore is similar to RTZ's expansion in copper. Others, eg, TIMAH in Indonesia and CODELCO in Chile act aggressively to recover formerly lost market shares.

Overall market impact. Nationalizations have permanently reduced the extent of vertical integration in mineral industries world-wide.

Inexperience of the state-owned firms resulted in temporarily higher costs and the inability to expand capacity.

Multiple goals result in permanently higher costs.

Social benefit considerations reduce variations in capacity utilization in response to price. This in turn, should lead to greater price volatility.

These findings are based on casual empiricism and logic. They are very hard to justify through formal empirical analysis. My econometric attempt to confirm a lesser price sensitivity to supply in state-owned copper industries, surveying 10 countries over 25 years, failed to find any differences between private and state ownership.

Implications for the private mineral industry

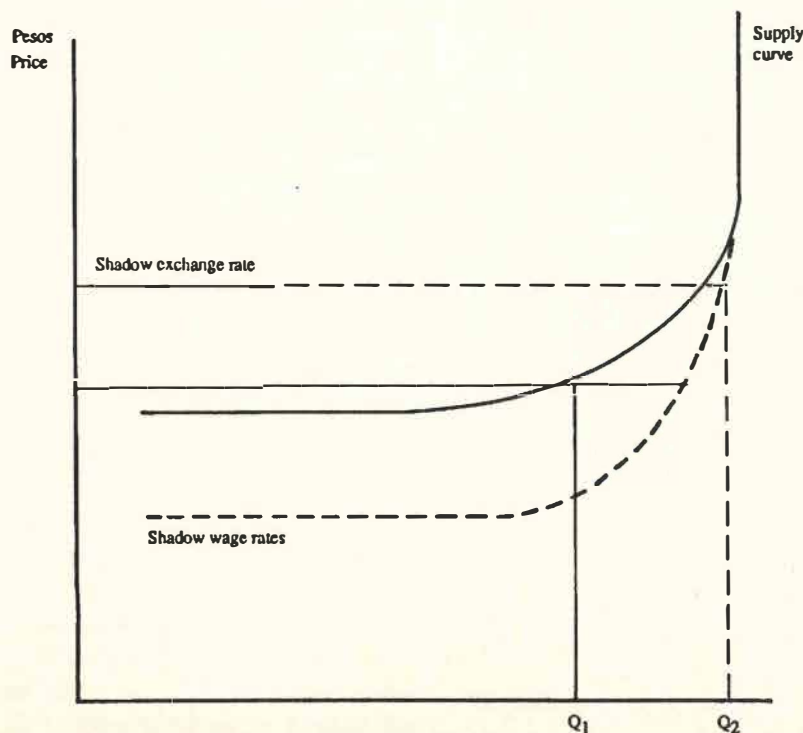
Nationalizations. These have been extremely disruptive to private industry. Nationalizations were usually preceded by tensions which perverted enterprise behaviour. Disorderly divestment often

occurred. Nationalizations involved painful amputations of private integrated units. Compensation in many cases was grossly inadequate. From 1960 to 1980, nationalizations reduced the private market share by at least 1 percentage point per year. As nationalizations ceased in the 1980s, these detrimental impacts no longer take place.

Ruptured vertical integration. Private industry is now much more dependent on arms-length raw material supply. This is less convenient and less controllable. Active purchasing efforts are required. Prices in the market vary more than costs in subsidiaries.

In practice, supply insecurity has not increased. Revolutions and strikes would have affected the supply from subsidiaries also. One may speculate that costs are now lower than they would have been with continued vertical integration, given the greater competitiveness in

Figure 1
Shadow rates and the supply curve



arms-length transactions as compared to in-house production.

The cost of setting up state enterprise. The higher cost levels of the inexperienced state enterprises and their inability to expand capacity gave the privates a competitive edge for a long time. More recently, this advantage has been lost, as the state enterprise universe is becoming increasingly mature.

Social objectives and public subsidies. Great concern has been expressed in the 1980s in North America about the irrational economic behaviour of state enterprises, and the public subsidies given to this group. The arguments have not been supported by any clear empirical evidence. Let me treat each in turn.

Historically mineral prices have been exceedingly low in the 1980s. On earlier occasions, producers have often colluded and raised prices through joint supply cuts. Irrational economic behaviour might mean an unwillingness among governments and their enterprises to participate in collusion. This is hardly a tenable view, given the government actions in the petroleum and bauxite markets.

Without producer collusion, rational economic behaviour implies a cut in capacity utilization until marginal cost equals price. High cost producers should cut first.

Possibly, state-owned firms have more commonly exceeded this production level, but this is very hard to prove. Even if proof can be found, this is not necessarily negative for private industry, compared to a purely competitive equilibrium where all agents behave in a rational manner. As noted, unemployment and current account deficits in LDCs reflect the distorting economic policies of governments. The application of shadow wage rates and rates of exchange imply the adjustment of these rates to the levels they would reach in competitive equilibrium.

The fact that most cuts in capacity utilization in the 1980s took place in North America, while the LDCs continued producing at full pace, is more likely due to the effective exchange rate changes that took place during the decade, than to ownership forms. About 1980, the North American costs for the production of metal minerals were already above world average. Since then, the effective devaluations of USA's and Canada's major competitors has been huge. Effective devaluation takes account of differences in inflation, and so measures the relative competitiveness. Between 1980 and 1986, exchange rate policies and inflation combined, reduced the costs of the main mineral exporters by 20-70% in relation to North American costs. No wonder that the North Americans became the marginal producers who had to cut production first, despite their successful managerial pressures to contain costs. Note that there has been no letting up since March 1985 when the dollar started to fall against the DMark and yen, because the currencies of the main mineral exporters have been devalued in parallel with the dollar.

State ownership becomes irrelevant in this light. Chile's copper output would not have been cut, even if that country's great mines had remained in private hands.

There is some truth in the statement that financial assurances and subsidies by themselves give a competitive edge to the state enterprise universe. But this has to be juxtaposed with the costly social requirements with which these enterprises have to comply. On balance, it is by no means clear that the two in combination yield a net corporate benefit.

When considering financial subsidies, it should also be underlined that governments of countries whose economies are dominated by minerals, have no means to provide a net support to their mineral industries on a sustained basis. On the contrary, such governments expect the

mineral activity to yield substantial returns to the nation.

Summary of implications

The process of nationalization in itself has been very painful to the private mineral industry.

The nationalizations ruptured the vertical integration chains of the private mineral firms, and forced them to obtain raw materials through arms-length trade.

The heavy setting-up cost of state enterprises gave an extended though temporary competitive advantage to private industry.

State-owned firms do on occasion benefit from concessional finance, but this advantage must be weighed against the costly social goals that they are required to pursue.

The findings of this analysis do not support the frequent claim that state enterprises impose a survival threat to private industry. The severe difficulties faced by the North American mineral producers in the 1980s have had other causes than the emergence of governments as important equity holders in the mineral industry.