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State owned enterprises, privatization and the public interest: evidence of S.O.E. performance in the Greek manufacturing

By

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Abstract

In this study a brief description of the policy options for the control of public enterprise under different market structures is presented. A critical examination of the drawbacks of some similar studies in the international literature is also endeavored. Moreover, using a number of suggested financial efficiency ratios a measurement of the efficiency of the state controlled enterprises for the time period 1978-1991 is attempted. The main conclusions drawn from this study are, that public owned enterprises exhibit continuously lower efficiency on average compared to the average efficiency of the industry sectors in which they belong for all the period of the study, competition contributes positively in increasing efficiency, but it is rather considered as a necessary condition than a sufficient condition for the attainment of the overall economic efficiency. Conversely, the ownership form appears to be of critical importance.

Keywords: Privatization; State owned enterprises; Greek manufacturing.

JEL Classification Codes: A1; D2.

1. Introduction

In recent times government policies involving the transfer of S.O.E. (State Owned Enterprises) from the Public to the Private sector have become the central issue of the policy debate. Domberger & Piggot (1986), suggest that privatization is associated with the desire for “smaller” government and it is a politically charged term used to describe almost any attempt to improve public sector performance.

The reasons for the increasing popularity of the privatization measures all over the world can be easily described. S.O.E. has been proved wasteful and inefficient, producing at high cost low quality products and services. They are usually overstaffed as governments use them as a tool for the maintenance of macroeconomic goals such as low unemployment. Kikeri & Nellis (2002), argue that S.O.E. are often protected from competition and also instructed to keep their prices low, resulting in mounting financial losses. This in turn leads to bailouts and fiscal strains both on government budgets and to the banking system. Governments cover S.O.E. losses with fiscal transfers. This financing through the Banking system increase intermediation costs, reducing the private sector’s access to credit and endanger the overall financial sector viability.

In the international literature there are conflicting evidences regarding the superiority of the one over the other ownership regime. A number of studies that support the superiority of public ownership are those of Meyer (1975), Yanker (1975), Lindsay (1975), Primeaux (1977), Edwards and Stevens (1978), Omran (2001).

Some other studies, such as, Caves (1990), Dyck (1977), Wasserfallen & Muller (1998), Martin & Parker (1995), Bortoloti *et. al.* (1998), Newberry & Pollitt (1997), Bitros & Salamouris, (1993), Cragg & Dyck (1999), claim that private ownership leads to more efficient outcomes.

Also, as it follows from another set of empirical studies there is no difference in efficiency between private and public ownership and more specifically what is supported is that, the main factor that leads to increased efficiency in the use of resources is the existence of an adequately competitive environment irrespectively of the ownership structure (Domberger and Piggot, (1986), Dunshire *et al.*, (1991), Borcharding *et.al.* (1982), Savas (1977), Vickers and Yarrow (1988), Spann (1977), Davies (1971, 1977), Kay and Thompson, (1986), Pryke, (1981), Hartley *et. al.* (1991), Marsh, (1991)).

Therefore, the critical policy questions are whether, a) to transfer the ownership to the private sector, or b) to transfer the ownership together with policies for increased competition, or c) to expose the public enterprises into competition. The crucial question again is whether competition is a necessary or a sufficient condition to achieve efficiency.

The remaining part of this study is organized as follows. In the next section some theoretical and empirical issues on the privatization debate are described. Then, the methodology and the financial ratios employed are presented. The results obtained are analyzed and finally, we end to conclusions and policy implications.

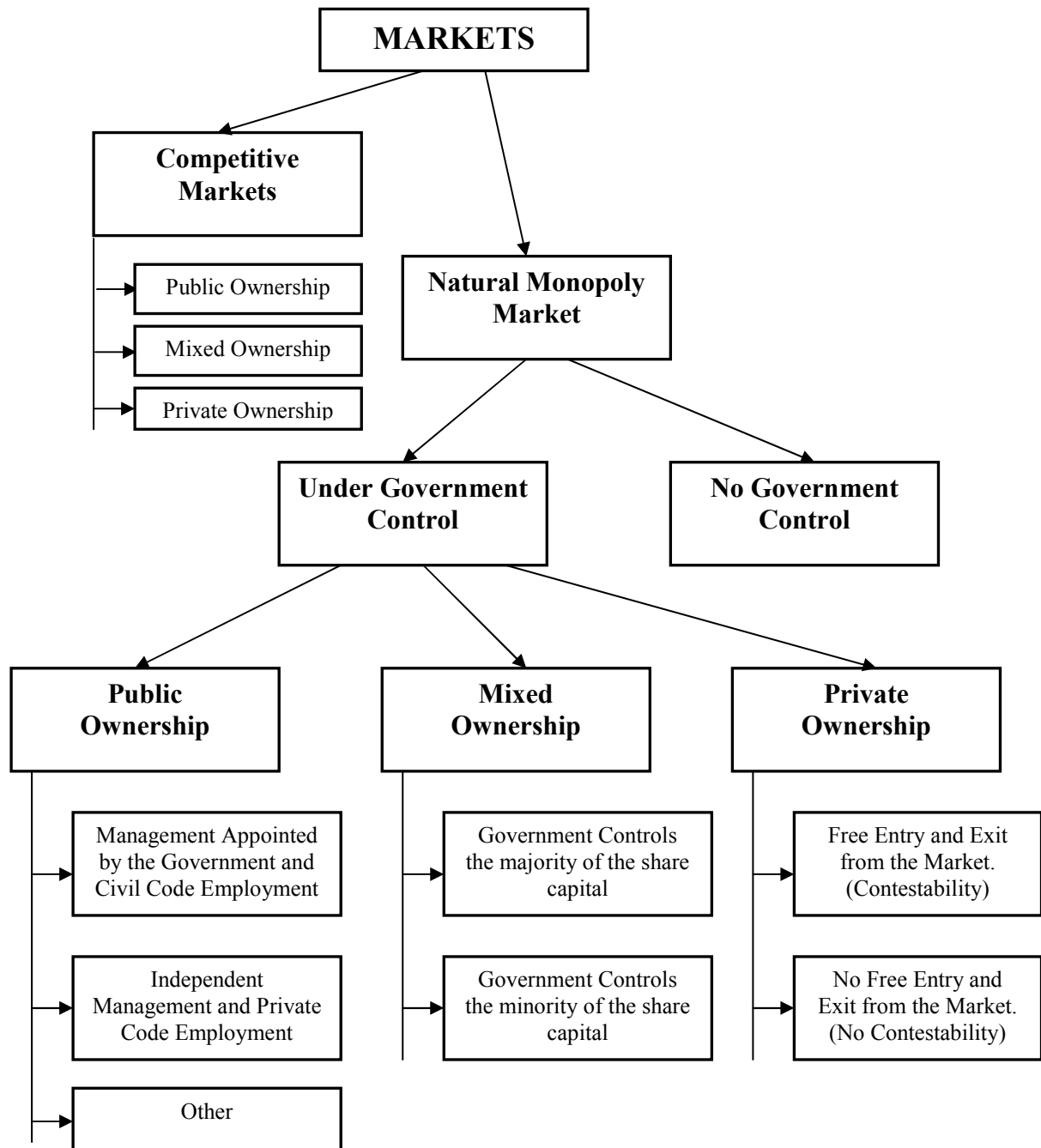
2. Some theoretical and empirical issues on the privatization debate

For the maximization of social welfare it is necessary that both, S.O.E and private enterprises to attain maximization of the overall economic efficiency, (technical and allocative efficiency). An allocation is efficient if the existing resources in the economy cannot be reallocated without making somebody worse off even when lump – sum transfers are feasible. The necessary conditions for an efficient allocation include the marginal equivalences consistent with a competitive equilibrium. Under perfect competition the competitive forces of the market generate a pattern of resource

use, which approximates an optimal allocation. There are also two cases where the market seems to fail in its allocative role. The first is when there are increasing returns to scale in the production of particular commodities and the second is the externalities, where the marginal social benefit exceeds the marginal private benefit. The solution of these problems is related either with the public ownership of these natural monopolies or with the private ownership of these enterprises under regulation, which is applied by regulatory bodies, appointed by the government. It is obvious that no regulation of private monopoly enterprises is inefficient since does not provide the private monopolist with the incentives to achieve allocative efficiency. However the monopolist has an incentive to achieve technical efficiency. Diagram 1 presents some of the most usual forms of ownership structure.

The main argument for the support of public ownership is that social welfare is promoted mainly because public enterprises defend employment, use their power for income redistribution, and promote balanced development of the economy, promoting this way allocative efficiency. On the other hand public sector management does not behave in a way consistent with cost minimization since profit maximization is not a goal of primary importance. Given that the attainment of allocative efficiency that publicly controlled enterprises are trying to achieve, strongly prerequisites the achievement of technical efficiency (since otherwise they would waste scarce resources) we can say that public ownership would be a policy choice only if these enterprises could be technically efficient.

Diagram 1: Market structure and forms of ownership



During the post war period we observe the tendency the state to maintain full employment and income redistribution policies through the public enterprises of both monopoly and competitive sector of the economy. The experience acquired from the operation of public enterprises in the monopoly, oligopoly sector on efficiency issues is mixed. In some cases private firms perform better than the public ones while in others the opposite holds. Conversely, studies, which measure the comparative efficiency of public and private firms in the competitive sector of the economy show that on efficiency grounds private firms are more efficient than public owned ones. In our study, the same result seems to hold since for all the period of the study publicly controlled firms exhibit lower efficiency levels than the corresponding average firm of the industry these firms operate.

Before we proceed to the examination of the efficiency of S.O.E. in Greek manufacturing, it is interesting to refer to some imperfections of several studies which attempted to compare the performance of private and public enterprises. Many researchers consider some markets as competitive while this does not hold in practice. Studies such as Neumberg (1977), Pescatrice and Trapani (1980), Atkinson and Halvorsen (1986), De Alessi (1974, 1977), which dealt with the measurement of performance in electric utilities industry, Pier et al. (1974), in refuse collection, concerned firms which comprise geographical monopolies and therefore they did not compete directly among them. Hence, all the conclusions drawn from these studies are basically referred to comparisons of public and private enterprises in non competitive markets. These studies although they contribute in the examination of the consequences of the ownership structure in a non competitive environment do not contribute to any conclusion relative to role of ownership in competitive sectors. So

the results which support the superior importance of competition over the importance of the ownership structure should be treated with caution.

Another set of studies dealing with the comparison of private versus public firms regard duopoly cases. Some of these studies are those of Forsyth and Hocking (1980), Jordan (1981), Davies, (1977, 1971), Pryke (1982), Kirby (1979), which measure the comparative efficiency of airlines, Caves and Cristensen (1980), Caves *et. al.* (1982), which are dealt with the comparison of railway companies. It is important to stress that these duopoly markets were treated in their analysis as competitive. As a consequence the results that support competition superiority as a basic determinant for economic efficiency to be considered as ambiguous. Vining and Boardman (1992) and Tzouanaki *et. al.* (2002) argue that in these markets there is no competition since many of the lines were not common for the companies under consideration but also it is observed increased regulation that to a great extent cancelled the competition in prices between the companies

3. The performance of S.O.Es in competitive environment.

Let us now examine the performance of enterprises which operate in competitive environment and their ownership structure is either mixed with the State to control the majority of the share capital, or enterprises which the State controls the total of the share capital. In both categories the state appoints the management of these enterprises. Hence, examining the performance of these firms over time we are able to conclude relative to whether these firms are achieving the economic efficiency of its both dimensions, technical and allocative. Comparing also, the average performance of these enterprises with the average performance of the industry in which they belong, we can reach conclusions for the superiority of one ownership structure over the other.

Three State banks, the Commercial Bank of Greece, the Ionian and Popular Bank of Greece and mainly the National Bank of Greece controlled for the period under examination (1978 – 1991) approximately the 80% of the banking sector works. Among others, one of their activities is the participation in the share capital of either financial or non-financial enterprises, which operate in several sectors of the economy. These enterprises were operating in the private sector before but due to their poor financial performance their ownership transferred to the public sector through the banking system. In our sample we strictly include those enterprises that National Bank of Greece control more than 50% of their share capital and operate in the competitive sectors of the economy.

3.1. Methodology

Our sample includes twenty-three State owned manufacturing enterprises that operated continuously in manufacturing from 1978 to 1991¹. Using ratio analysis, the performance of sample enterprises is compared to the average efficiency of the industry sectors these firms belong. To ensure the higher comparability possible sample firms grouped into 10 two digit Standard Industrial Classification Industries, and the ratios divided by the number of firms. Then we compared their performance with the corresponding average two-digit industry level one².

Considering that sample firms, had been continued to operate in the same industry sector after their transfer to the public sector, we draw conclusions relative to their comparative performance before and after the ownership transfer. More specifically, we examine whether indirect state control through the banking system has been proved to be an efficient policy measure in performance terms or not. Any variation in performance is attributed to differences in technical efficiency and by extension to the relative management efficiency of the different ownership regimes.

Financial statement analysts suggest that a plethora of financial ratios can be used as indicators of a firm's performance, none of which provides us with an adequate indicator of a firm's efficiency on its own. Hence, in this study by selecting a representative number of ratios, which reflect different dimensions of a firm's performance, we attempt to satisfy all the most important performance indicators. The selected financial ratios, which are used as performance measures, are defined as follows:

$$\text{i) Return on Total Assets} = \frac{\text{Net Profits}}{\text{Total Assets}}$$

$$\text{ii) Net Profit Margin} = \frac{\text{Net Profits}}{\text{Net Sales}}$$

$$\text{iii) Remuneration per Employee} = \frac{\text{Salaries + other Employers Charges}}{\text{Number of Employees}}$$

$$\text{iv) Net Profit per Employee} = \frac{\text{Net Profits}}{\text{Number of Employees}}$$

$$\text{v) Machinery Acc/ted Depreciation} = \frac{\text{Machinery Accumulated Depreciation}}{\text{Machinery before Depreciation}}$$

$$\text{vi) Liquidity (Current Ratio)} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

These financial ratios reflect respectively: Profitability (R.T.A., N.P.M.), employees' performance and the relation between remuneration and productivity (N.P.E., R.E.), technological infrastructure ³, (M.A.D.) and liquidity position (C.R.). By implication, a high ranking in the most of the chosen ratios is considered, other things being equal, to reflect a strong financial position.

3.2. Results

The results obtained from the analysis of the selected ratios are quite interesting. State own enterprises appear to exhibit inferior efficiency compared to the efficiency of their private counterparts. As indicated in figures 1, 2 the R.T.A. and N.P.M. ratios are continuously negative for SOE for all the period of the study, taking their lowest value the period 1985 - 1986. It is important to observe that at the beginning of the period under consideration (1978), the average Industry performance was nearly equal to the average performance of S.O.E.

Also the government stabilization program applied from 1985 to 1987 contributed to the improved performance of public enterprises. However, the efficiency difference between the public enterprises and the average firm of the industry remain almost unaltered. These ratios clearly show us that state controlled enterprises are managed with a model, which diverge from the respective one of the private firms in economic efficiency terms. However, we should also note that the average private sectors profitability, although it is much better than S.O.E.'s one, indicates the acute problems of the Greek manufacturing, since from 1982 to 1987 profitability was also negative for the average private enterprise.

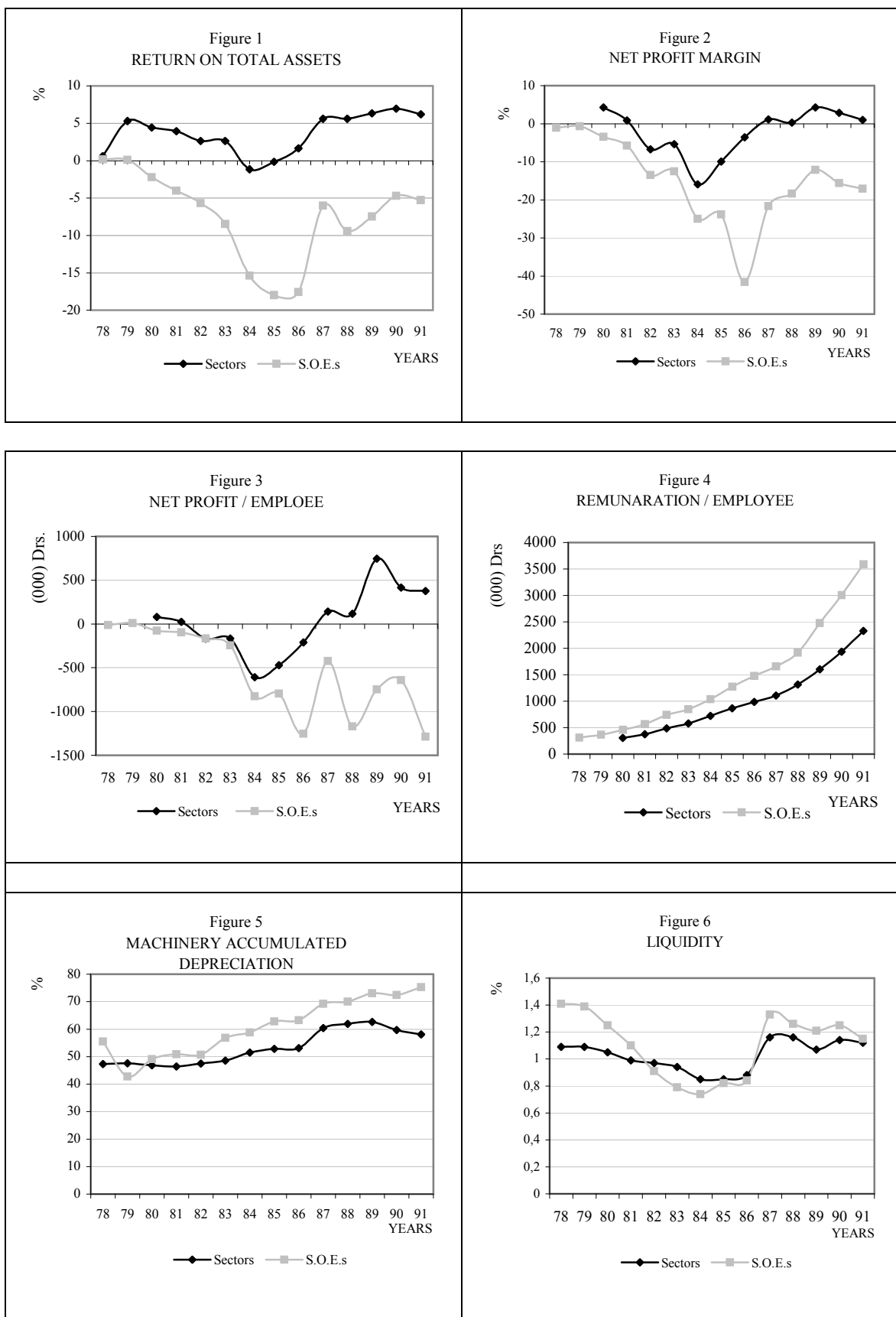
One of the main reasons that provide explanation for the inferior performance of State Owned Enterprises is related to the cost of labour. The cost of labour as shown in figure 4 is continuously increasing for all the period of the study. The increase in wages had been exceeded the average labour cost increase of the industry. We should notice that the average remuneration cost was nearly the same for the year 1980 ⁴ for both S.O.E and private firms. Combining the above with the results presented in figure 3, where the profit per employee shows a significant deterioration for sample enterprises over time (especially for the time period 1983 to 1991) we can

realize the paradoxical phenomenon, of continuously increasing remuneration per employee while for the same time there is a continuously increasing loss per employee.

Conclusions relative to the level of technological infrastructure of the sample firms compared to the average industry level can be drawn from the machinery accumulated depreciation ratio (figure 5). It is shown that after 1980 sample enterprises renew with lower trend their technological infrastructure and consequently they have older technological equipment. Using this result with combination of the results drawn from figures 3, 4 we can argue that sample firms are becoming more labour intensive.

Finally, mixed results can be drawn from the liquidity ratio in figure 6. Therefore we cannot reach a valid conclusion relative to the superiority of the one-ownership structure over the other. More specifically the liquidity position of State controlled enterprises is similar to the average industry firm liquidity. However we should take into consideration that these firms belong to the National Bank of Greece therefore it is easier for them to have access in capital. This can explain the long living of these enterprises, which while they face acute financial problems they continue to operate.

Comparative analysis of S.O.E. and Industry financial ratios



Our results indicate that the transfer of enterprises from the private to the public sector through the banking system is not an effective policy measure since it does not lead these enterprises to increased efficiency levels. There is series of reasons that public ownership leads to inefficient results. The most important reason is that the state dictates to the management of the firm a number of policy elements such as price, investment, personnel policies etc. These policies very often diverge from the respective optimal private policies. This sometimes results to deficits for the public owned firms. State then subsidizes the deficits and the enterprises remain in the market. Many studies in the international bibliography refer losses subsidization by the state as the main reason that public sector management does not face the risk of bankruptcy and consequently assign low priority to cost reduction policies, Provopoulos (1985), Megginson *et. al.* (1986), Kotsogiannis and Makris, (2002).

The deterioration of the financial position of the majority of the enterprises that were operating under the indirect control of the state, led to the creation of the Industrial Reconstruction Organization S.A. (IRO) ⁵. IRO companies can be grouped in four distinct categories with different characteristics. The first category concerns ex-private companies that their poor financial performance led them to the introduction to IRO. The second category concerns ex-private companies, which spent a period under IRO management, and they were transferred to the private sector afterwards. A third category concerns publicly owned companies that were introduced in IRE voluntarily. A fourth category concerns a number of companies that were established from IRO. This policy action prescribed from the persuasion of policy makers that IRO management would be equally or more efficient than the corresponding private management. This belief is supported from the fact that, all these companies spent a long time period under the control of the organization. The

results on performance of firms that run under IRO management are mixed since some of the enterprises bankrupted while some others finally were transferred to the private sector.

4. Conclusions and policy implications

Privatization policies are designed in order to substitute the single objective of maximizing profits for the typically mixed objectives of public enterprises, and exposure to the benefits and penalties of monitoring of the capital markets focusing on the task of raising revenues and lowering cost. The results of this study support the view that the indirect control of manufacturing firms that were operating in the competitive sector of the economy, by the state through the banking system was not an efficient policy measure since public owned firms exhibited lower efficiency than the corresponding average efficiency level of the Industry for all the study period. Considering nationalization of the inefficient enterprises as a measure to secure employment seem to be mistaken on two grounds. The most obvious result is the distortion of the competition in the market, and the second and more important is that it is not a permanent solution since these enterprises finally may bankrupt as the experience shows.

NOTES

1. The initial sample was significantly larger. However, data limitations restricted the analysis to the 23 finally chosen enterprises. A large amount of enterprises was also excluded from the sample since the percentage of their share capital controlled by National Bank of Greece was less than fifty per cent, while some others were excluded since they were not operating in the manufacturing sector.
2. The data used for the ratio calculations were derived from balance sheets and income statements of the sample enterprises while the data for the industry sectors collected from the National Statistical Service of Greece and from the Annual reports of the Industry, published from the Confederation of Greek Industries.
3. This ratio is included in the analysis, since it is considered as the most appropriate to measure the age of the technological infrastructure of a firm. This ratio indicates us how often a firm renews its production equipment.
4. There are not available data for the average industrial sectors remuneration for the year 1978, 1979.
5. The main task of this organization was to reconstruct “problematic” enterprises. The purpose for setting up this organization is clearly specified in the law 1386/08-08-1983, article 2, paragraph 2, 3. Specifically, the main purpose of the organization *is to contribute to the social and economic development of the country* by a) the economic reform of the enterprises, which are members of the organization, b) the introduction and application of advanced foreign technology as well as with the development of local technology, c) the establishment and operation publicly owned enterprises or mixed economy enterprises. In the setting up law was provided that all these companies would be transferred to the private sector again after they have been reformed.

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