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Mirosław Wypych
University of Social Sciences

Efficiency of public sector enterprises in conditions of crisis

Abstract: The systemic transformation in Poland, aimed, among others, at activating market mechanisms, has resulted in a change in the ownership structure and privatization that has accompanied it. Privatization processes are commonly considered to be principally motivated by an increase in efficiency of the economy based on the assumption that efficiency of private enterprises is higher than that of public sector ones. The main aim of the article is to verify the above hypothesis. An analysis of efficiency of public and private sector enterprises, taking into account their organizational and legal forms, made on the basis of Central Statistical Office information, confirmed the above hypothesis. Private enterprises use their assets better and take advantage of the financial leverage mechanism to a larger extent. It should be emphasized, however, that private enterprises are more adversely affected by economic fluctuations caused by the crisis.

Key-words: efficiency, privatization, public sector, private sector.

Introduction

Over the last dozen or so years the Polish economy has undergone fundamental structural changes resulting from the systemic transformation aimed, among others, at activating market mechanisms. One of the major areas of systemic transformation is a change in the ownership structure and privatization accompanying it. The phenomenon of privatization in Poland should be studied in two basic aspects. Firstly, as privatization of the economy that consists in reducing the share of the public sector through the setting up and development of new private enterprises. Secondly, as privatization of enterprises within the public sector owned by the state and local government units. Irrespective of the aspect, an attempt was made to find out, based on statistical data, whether public sector enterprises actually operate less efficiently than private sector ones and, if so, what is the extent of disproportion in that scope. Moreover, it was sought to answer the following question: How did macroeconomic conditions of carrying out economic

activity, which worsened due to the global financial crisis, impact on the efficiency of Polish enterprises?

1. Extent of Privatization in the Transformation Period

According to the classification of the national economy taking into account the ownership structure, enterprises are categorized as public and private sector ones. The public sector encompasses state property (of the State Treasury and state legal persons), property of local government units and “mixed property” with a predominance of capital (property) of public sector entities. The fact that the process of ownership structure transformation aims to increase the importance of the private sector is not tantamount to considering the existence of public sector enterprises to be without reason. The owner’s supervision over selected enterprises strategically important to the economy and public utility enterprises, exercised by agencies representing the state and local governments, seems justified.

Table 1. The private sector’s position in the industry based on selected macroeconomic values from 1995 to 2010

Specification	Sector a/	1995	2000	2005	2010
Number of workers in the industry (thousands of people)	PB	1892.0	838.1	498.6	419.5
	PR	1864.9	2384.0	2413.5	2276.6
	% PR	45.3	71.6	82.9	84.4
Value of sold industrial output (PLN bn – current prices)	PB	129.9	140.3	122.4	148.4
	PR	114.5	348.5	576.3	837.4
	% PR	46.9	71.3	82.5	84.9
Gross value added of the industry (PLN bn – current prices)	PB	46.3	50.0	49.4	63.0
	PR	38.2	108.7	164.5	237.3
	% PR	45.2	68.5	76.9	79.0
Export sales value in the industry (PLN bn – current prices)	PB	21.5	19.4	14.8	12.9
	PR	28.3	80.0	192.6	295.9
	% PR	56.8	80.5	92.9	95.8
Gross value of fixed assets (PLN bn – current recorded prices)	PB	191.3	288.2	241.8	293.4
	PR	47.3	182.7	330.3	519.1
	% PR	19.8	38.8	57.7	63.9

a/ PB – public sector, PR – private sector, % PR – share of the private sector in the total

Source: own work based on *Statistical yearbook of industry 2005, 2011* and *Financial results of economic entities 2000, 2005, 2010*.

However, the fact that an enterprise is part of the public sector cannot equal disregarding aspects of efficiency in its operations. The scale of ownership structure transformation in the Polish economy can be clearly seen on the example of the industry (Table 1).

The pace of changes was particularly fast in the second half of the 1990s. The share of private enterprises in the value of sold industrial output and the number of all industrial workers was almost 85% in 2010 (it was slightly over 45% in 1995), while their share in the value of exports exceeded 95% (57% in 1995). Their relatively smaller share in the value of fixed assets is consequent on the trade specificity of the public sector industry (a high share of capital-consuming fields of production such as mining and the energy industry), although the ownership structure underwent fundamental changes also in that respect.

The increased share of the private sector in macroeconomic values results from both establishing new private entities and ownership changes of public sector enterprises through their privatization. From 1990 to 2012, 7555 state-owned enterprises were privatized, which resulted in the formation of 5652 capital companies. The number of state-owned enterprises fell from 1029 in 2005 to 177 in 2012. Apart from enterprises run by natural persons, the most common organizational form of carrying out economic activity is capital companies: at the end of 2012 there were 349 thousand of them registered in the REGON system, 21.4% of which were companies with foreign capital participation [Mały Rocznik Statystyczny 2012 pp. 495–502]. Thus, the entity structure of the Polish national economy became similar to that of economies of highly developed countries.

2. Methodological Aspects of the Measurement and Analysis of Efficiency

The concept of efficiency is most commonly applied while characterizing processes connected with economic activity. It may refer to the national economy as a whole, its specific sectors and divisions as well as specific entities carrying out economic activity (enterprises). Efficiency considered on the scale of the economy (its sector or division) is the outcome of efficiency of enterprises operating within the economy (its sector or division) because an enterprise is not an independent being but a component associated with specific activity conducted in a specific place and occurring within a strictly determined time period [Zygmunt 2006, p. 771]. In that context efficiency can be perceived from the angle of a set of enterprises and related to both the national economy as a whole and its specific classifications (divisions, forms of ownership, location or size of enterprises). Hence, in such a case, we assess efficiency by using measures of economic efficiency whose main function is to measure economic phenomena and processes in order to evaluate an enterprise and make economic decisions [Barburski 2010, p. 32].

Economic efficiency is usually defined as a relation between effects and outlays [Penc 1997, p. 99]. Presenting efficiency in such a way, i.e. by applying a strictly mathematical formula, is often considered sufficient to comprehensively describe that phenomenon. It should be noticed, however, that such an approach describes a selected component of economic efficiency but omits an

interpretation and analysis of relationships occurring between effects and outlays as well as the impact of various factors that determine them. That dilemma is most commonly solved by the use of a set of measures expressing effects and outlays in various forms in assessing efficiency. It is simultaneously kept in mind that, similarly to financial ratios, the construction of an efficiency measure should apply the principles of usefulness, comparability and correspondence as well as the matching concept [Siemińska 2002, p. 120]. The comprehensive approach is justified, among others, by the fact that categories similar to the concept of efficiency and often used in everyday speech are concepts of effectiveness and productivity.

The classical approach to efficiency measurement is based on the principle of rational operation that provides for achieving a maximum result at a given outlay level or achieving a given result at a minimum outlay level [Chudykowska 2012, p. 39]. On the basis of the above definition, it is commonly assumed that optimal economic efficiency assessment measures are quotient formulas. If effects are expressed in pecuniary units and take the form of profit, quotient formulas are referred to as rates (ratios) of return. Those that are most important and most commonly used in the measurement of efficiency include: return on equity (ROE – the quotient of the net financial result and the value of equity) reflecting benefits of owners derived from capital they have invested, and return on assets (ROA – the quotient of the net financial result and the value of assets) indicating how efficiently assets of an enterprise are being used [Helfert 2004, p. 204; Sierpińska, Jachna 2004, p. 196–203; Wypych 2007, p. 682–684]. Financial analysts also apply the return on sales (ROS) ratio that informs about the share of the net financial result in the total revenues of an enterprise. The three listed rates of return are based on the net financial result that reflects the ultimate outcome of an enterprise's activity. An additional efficiency assessment criterion may be the share of enterprises achieving a positive net financial result in the total number of enterprises.

It should be emphasized that information published by the Central Statistical Office on financial results of enterprises enables quite easy calculation of the above-mentioned rates in various analytical cross-sections (according to sections and divisions, size of enterprises, ownership sectors), which is of particular importance to this study.

3. Comparative Analysis of the Efficiency of Public and Private Sector Enterprises with Special Focus on the Industry

As stressed in the introduction, the aim of the article is to prove that private enterprises operate more efficiently than public sector ones. In the light of the assumed efficiency assessment methods, the comparative analysis applies the above-described rates of return. Information on the share of enterprises reporting a positive financial result (net profit) in the total number of enterprises is of a supplementary nature. The analysis covers 2007, 2009 and 2011 and concerns enterprises keeping the books and employing more than 9 individuals. The above periods were chosen in order to determine the extent to which the economic slowdown in Poland, caused by the global financial crisis,

affected public and private sector enterprises. Table 2, containing information on the GDP dynamics and sold industrial output, indicates that 2007 can be considered a reference point for the worsening economic situation. In 2009 the GDP and sold industrial output dynamics hit a low. In 2011 the situation substantially improved, which does not imply that the positive trend continued in subsequent years.

Table 2. Dynamics of GDP and sold industrial production from 2007 to 2012

Years	GDP dynamics	Dynamics of sold industrial output
2007	106.8	110.7
2008	105.1	103.6
2009	101.6	95.5
2010	103.9	109.0
2011	104.5	107.5
2012	101.9	100.8

Source: *Annual macroeconomic indicators*. Information website of the Central Statistical Office.

The analysis of ratios characterizing efficiency of enterprises in 2009 as compared to 2007 allows to assess consequences of the deteriorated macroeconomic situation, while the analysis of ratios characterizing efficiency of enterprises in 2011 as compared to 2009 – consequences of the improved economic situation.

The values of measures of the efficiency of public and private sector enterprises with special focus on the industry, as the main division of the national economy, are shown in Table 3.

The results indicate without a doubt that private enterprises are in a better financial situation than public sector ones. The values of rates of return in the analysed periods are definitely higher in the private sector. The only exception is ROS: in 2011 its level in the public sector was higher than in the private sector both in the economy as a whole and in the industry. The reason for this was simple – from 2009 to 2011 the net profit increase was relatively higher in the public sector as compared to sales revenues in the private sector because its 2009 level was comparatively low. The percentage of profitable enterprises (reporting a net profit) is also definitely higher in the private sector.

Table 3. Efficiency of enterprises according to ownership sectors in 2007, 2009, 2011

Index	Public sector			Private sector		
	2007	2009	2011	2007	2009	2011
All enterprises						
ROS	4.3	3.3	7.3	5.2	4.2	3.5
ROA	2.9	2.2	4.5	7.5	5.7	4.9
ROE	4.6	3.5	7.3	15.1	11.9	10.6
Percentage of enterprises re-reporting net profit (%)	74.1	72.0	70.1	84.6	78.8	79.6
Industrial enterprises						
ROS	4.3	4.2	7.9	6.1	4.7	5.0
ROA	3.3	3.1	5.7	8.6	6.1	6.7
ROE	5.2	4.9	9.2	16.3	11.8	12.7
Percentage of enterprises re-reporting net profit (%)	75.0	73.4	76.4	83.0	76.1	80.0

Source: Own calculations based on: *Financial results of economic entities 2007, 2009, 2011*, Central Statistical Office, Warsaw.

While analysing changes in the efficiency level from 2007 and 2009, it is observed that private enterprises suffered more serious consequences of the economic downturn. Rates of return fell more significantly in that sector than in the public one, which is especially the case for the industry. The percentage of profitable enterprises in the private sector declined by 6.9 percentage points, while in the public sector – by only 1.6 percentage points.

Public sector enterprises were also more positively affected by the economic upturn. The levels of all the three rates of return were even higher than in 2007. It should be noticed, however, that there was a downward trend in the share of enterprises generating positive financial results (74.1 % in 2007 and 70.1 % in 2011). That was due to the increased number of unprofitable entities in such divisions as healthcare, social welfare, culture and recreation. The situation was different in the private sector. While industrial enterprises showed higher profitability in 2011 than in 2009, they did not exceed the level of 2007. On the other hand, economy-wide, the private sector did not improve the rates of 2009. One of the reasons for that was the deteriorating financial situation of construction enterprises (ROS at 3.0 %, ROA at 3.8%).

To sum up, although private enterprises are characterized by higher profitability than public sector enterprises, they are more adversely affected by economic instability caused by the crisis.

4. Efficiency of Enterprises According to Their Organizational and Legal Forms

While the public sector is mainly represented by state-owned enterprises, private sector entities take various legal forms. Those include capital companies (joint-stock and limited liability companies), partnerships (limited, limited joint-stock, professional, registered, civil law partnerships) as well as establishments run by natural persons. It seems an interesting idea to juxtapose the efficiency of state-owned enterprises with that of various organizational and legal forms of private enterprises. The relevant information is shown in Table 4. The information concerns entities employing at least 10 individuals and submitting the F-02 statistical financial report containing, among others, the balance sheet and the profit and loss account.

In general, state-owned enterprises rank below joint-stock companies in profitability (with the exception of ROS in 2011) and, in the case of ROA and ROE, also below limited liability companies. On the other hand, during the economic upturn, the efficiency of state-owned enterprises improved to a larger degree than that of capital companies. Thus, the same conclusion is drawn as for the comparison of all public and private sector enterprises.

Out of all the organizational forms, the best appear to be relatively small enterprises (establishments run by natural persons and partnerships), especially in respect of ROA and ROE. Information concerning that category of entities should be taken with a pinch of salt because they keep simplified financial records. A majority of small firms is not obliged to submit the balance sheet and the profit and loss account, and keeps only the revenue and expense ledger. Hence, generalizations are not advisable for those firms. It is worth noticing that, in both the cases, there is a downward trend in the level of all the ratios in 2011 as compared not only to 2007 but also to 2009 – the improved economic situation did not positively affect efficiency in contrast to the other groups of enterprises.

Table 4. Efficiency of enterprises according to organizational and legal forms in 2007, 2009, 2011

Specification	Years	Profitability ratios		
		ROS	ROA	ROE
State-owned enterprises	2007	5.9	3.8	5.6
	2009	4.5	2.2	3.2
	2011	12.3	5.8	7.3
Joint-stock companies	2007	6.1	6.1	11.5
	2009	4.8	4.6	8.9
	2011	5.2	5.0	9.7
Limited liability companies	2007	4.1	6.5	14.4
	2009	3.0	4.4	9.8
	2011	2.6	3.8	9.2
Partnerships*	2007	6.6	18.6	47.5
	2009	6.5	15.0	33.8
	2011	5.2	11.3	26.9

Co-operatives	2007	2.8	1.2	1.4
	2009	2.9	1.5	1.9
	2011	2.7	1.6	2.1
Natural persons and small-scale production enterprises	2007	6.1	17.5	38.1
	2009	5.8	13.9	31.7
	2011	5.4	13.2	27.1

*Limited, limited joint-stock, professional, registered, civil law partnerships.

Source: As for Table 3.

In turn, co-operatives are without a doubt characterized by the lowest efficiency. Their return on sales does not exceed 3% and the slight difference between ROA and ROE indicates that co-operatives take advantage of the financial leverage effect to a very small extent.

Conclusion

The hypothesis put forward at the beginning of the article is confirmed. Public sector enterprises are no match for private enterprises as far as efficiency is concerned. The ownership structure transformation aimed at increasing the importance of the private sector positively affects the efficiency of the sector of enterprises, and thus the national economy as a whole. That does not add up, however, to the need to completely eliminate enterprises whose owner's supervision is exercised by agencies representing the state and local governments. The point is to create mechanisms mobilizing them to operate according to market principles. On the other hand, while examining dynamics of efficiency, it was found that although private enterprises are characterized by higher profitability than public sector ones, they are more adversely affected by economic instability caused by the crisis. Due to the limited length of the paper, the performed analysis is of a fragmentary nature and should be considered a starting point for more in-depth research.

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