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## Productivity effects of the ownership concentration in employee-owned companies

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**Productivity effects of the ownership concentration in  
employee-owned companies**

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## **Productivity effects of the ownership concentration in employee-owned companies**

**JEL Classification:** *D24; G32; L33*

**Keywords:** *privatisation process; direct privatisation; employee-owned company; productivity; ownership structure*

### **Abstract**

**Research background:** Empirical research on the influence of the degree of ownership concentration in the employee-owned companies on their sales revenues thematically fits into the issue of efficiency of the direct privatisation method, in particular giving a state-owned enterprise for use against payment.

**Purpose of the article:** The main goal of this article is to verify the research hypothesis stating that in employee-owned companies an increase in the degree of ownership concentration leads to an increase in sales revenues.

**Methodology/methods:** In conducted empirical studies parameters of a Cobb–Douglas production function were estimated by Ordinary Least Squares method for two variants, differing in the way of measuring the degree of ownership concentration.

**Findings & Value added:** The research hypothesis formulated in this paper was verified negatively as the increase in the degree of ownership concentration in employee-owned companies caused the decrease in their sales revenues.

### **Introduction**

The main aim of this article is to verify the research hypothesis stated that in investigated employee-owned companies an increase in the degree of ownership concentration leads to an increase in sales revenues.

The employee-owned company is a joint stock company established by employees of the directly privatised state-owned enterprise to take its assets in the use against payment (compare Jawłowski, 2001, p. 55; Kozarzewski, 1998, pp. 25-26; Leksykon, 1998, p. 195). The strong employee nature of a company using a state-owned enterprise against payment is a

result of the need to meet capital-ownership statutory conditions (see Błaszczyk, 2002, p. 193) which create a possibility to establish a joint stock company, even with a full participation of employees, but with dispersed ownership.

Empirical studies on the influence of employee ownership on the efficiency of a company carried out so far show that the entities, in which the share of employee ownership exceeded 5% of the share capital, revealed relatively poor performance (see Faleyte *et al.*, 2006, p. 509; Kruse & Freeman, 2012, pp. 23). However, it seems that the increase in ownership concentration in the hands of outside or inside shareholders (compare Fazl-zadeh *et al.*, 2011, pp. 255-256; Kapopoulos & Lazaretou, 2006, p. 18; Schanchez-Ballesta & Garcia-Meca, 2007, 885-886) and the implementation of managerial equity ownership (compare Daraghma & Alsinawi, 2010, p. 124; Jelinek & Stuerke, 2009, p. 173) may improve performance of this type of entities.

### **The essence of employee-owned companies**

Giving a directly privatised state-owned enterprise for use against payment as a rule, takes place to a joint stock company that meets conditions connected with a required value of the share capital as well as a participation of employees and outside investors in it (see Ustawa z dnia 30 sierpnia 1996 r., Article 51 (1, 2)).

The fulfilment of these conditions, with limited financial resources of employees and negligible interest of outside investors in joining the company with their capital participation makes that the ownership of relatively low value share capital is usually significantly dispersed (see Jarosz & Kozak, 1995, pp. 115-125). However, due to the disposal of shares belonging to ordinary employees to managers, the ownership that was initially dispersed among employees is gradually concentrated in the hands of managerial elites (compare Błaszczyk & Woodward, 2001, p. 17). The reason for the transfer of shares by employees is mostly a weak economic and financial standing of the employee-owned company, resulting from the need to meet not only capital-ownership statutory conditions of its creation, but also the obligations under the agreement on giving a state-owned enterprise for use against payment concluded for a fixed period (see Ustawa z dnia 30 sierpnia 1996 r., Article 52 (1)).

The most important obligation of the employee-owned company is the necessity to repay the debt for the use of a state-owned enterprise. This commitment cannot be lower than the sum of (compare Rozporządzenie Rady Ministrów z dnia 16 października 1997 r., §3) the value of the state-owned enterprise paid in capital instalments and the sum of additional fees

for the entire duration of the agreement debited in financial costs (see Kozarzewski, 1998, p. 25).

Beside price liabilities, i.e. related to the value of a state-owned enterprise, the employee-owned company is obliged to comply with the so-called, non-price commitments. Non-price commitments primarily consist of investment commitments requiring from the employee-owned company to pay a set amount of capital expenditure on tangible fixed assets (compare Bojar *et al.*, 2003, s. 110-111; Wrońska, 2004, pp. 125-127; Matuszewska-Pierzynka, 2014, pp. 45-47) and social guarantees including a need to keep agreed employment and quite frequently, even to increase wages (see Matuszewska-Pierzynka, 2016, pp. 101-103; Matuszewska-Pierzynka, 2016b, pp. 114-115; Ustawa z dnia 30 sierpnia 1996 r., Article 44).

The small share capital with slight prospects for its increase in the future, difficulties in gaining a positive financial result, being the effect of significant financial and remuneration costs, as well as the lack of property rights of a state-owned enterprise in the duration of the agreement with the State Treasury (see Ustawa z dnia 30 sierpnia 1996 r., Article 5 (2)) negatively affect the credit capacity of the employee-owned company. Limited possibility of obtaining funds from a bank loan for the implementation of obligatory investments means that a primary source of their financing becomes the net profit (compare Matuszewska-Pierzynka, 2015a: pp. 388-389; Matuszewska-Pierzynka, 2015b, p. 103). Therefore, due to retaining the whole of a minuscule net profit for investment purposes, workers-shareholders seeking to maximize total current incomes (compare Faleye *et al.*, 2006, p. 509; Harbaugh, 2005, p. 566; Kim & Ouimet, 2010, pp. 9, 36), which mainly consist of salaries and dividends, are likely not only to exert some wage pressure, but also to sell shares (compare Błaszczuk, 2002, p. 197; Kozarzewski & Woodward, 2001, p. 22).

## **Research Methodology**

The verification of the formulated research hypothesis was conducted among fifteen employee-owned companies from Mazowieckie Province, which concluded the agreement of giving a state-owned enterprise for use against payment in between years 2000–2004, basing on the data from financial statements submitted by them to the National Court Register for ten-year period after the privatization year.

Bearing in mind previous empirical research that analysed productivity effects of the employee participation (see Conte & Svejnar, 1988, pp. 144-145; Estrin *et al.*, 1987; pp. 51-52; Jones, 1993, pp. 478-479; Kozarzewski & Woodward, 2001, p. 31), empirical studies on the relation between ownership concentration and productivity of employee-owned companies are

based on a Cobb–Douglas production function that in a logarithm form looks as follows:

$$\ln V = \ln A + \alpha_1 \ln K + \alpha_2 \ln L + \beta X + \gamma Z$$

From collected data, three operating variables (values are deflated by CPI<sub>2000=0</sub> – Consumer Price Index (basic year = 2000)) are constructed:

- V (output) – sales revenues instead of value added, which was impossible to calculate because of the lack of data measuring capital cost (compare Christev & FitzRoy, 2002, p. 261; Grosfeld & Nivet, 1999, p. 1141),
- K (capital input) – tangible fixed assets (one period lagged variable) being the object of obligatory investments and
- L (labour input) – salaries covering employment and wages commitments.

The X vector contains dummies for the number of years after privatisation year treated as 0 period (AGE – values from 1 to 10), the year of production (YEAR – values from 0 for 2001 to 13 for 2014) and the location of company headquarters (CITY – values 1 and 0) as well as the construction (CONST – values 1 and 0) and transportation and storage (TRANS – values 1 and 0) sectors. The vector Z comprises three proxies for the ownership concentration: DOC (degree of ownership concentration) measured by the value of Herfindahl–Hirschman Index (compare Sosnowski, 2015, p. 351; Fazlzadeh et al., 2011, p. 254) that forms the basis for the construction of two other dummy variables, namely SOC (strong ownership concentration – the value of Herfindahl–Hirschman Index is above the third quartile from a set of index values) and WOC (weak ownership concentration – the value of Herfindahl–Hirschman Index is below the first quartile from a set of index values).

The estimation of a Cobb–Douglas production function is carried out with the use of Ordinary Least Squares method for two variants – main and additional – that differ in terms of the vector Z structure. Taking into account constructed variables as well as denoting enterprises by  $i$ , the time period in years by  $t$  ( $t = 1, 2, \dots$ ) and residual by  $\mu$ , the estimated Cobb–Douglas production function in discussed variants is as follows, respectively:

$$\ln V_{it} = \alpha_0 + \alpha_1 \ln K_{it-1} + \alpha_2 \ln L_{it} + \beta_1 AGE_{it} + \beta_2 YEAR_{it} + \beta_3 CITY_{it} + \beta_4 CONST_{it} + \beta_5 TRANS_{it} + \gamma DOC_{it}$$

and

$$\ln V_{it} = \alpha_0 + \alpha_1 \ln K_{it-1} + \alpha_2 \ln L_{it} + \beta_1 AGE_{it} + \beta_2 YEAR_{it} + \beta_3 CITY_{it} + \beta_4 CONST_{it} + \beta_5 TRANS_{it} + \gamma_1 SOC_{it} + \gamma_2 WOC_{it}$$

### The relation between ownership concentration and productivity of employee-owned companies – the results of empirical research

Analysing the results of the estimation of a Cobb–Douglas production function for employee-owned companies qualified for the research sample, the positive relationship between sales revenues and tangible fixed assets as well as salaries, whose coefficients are statistically significant at the significance level  $\alpha = 0.01$  can be noticed.

**Table 1.** Production function estimates of productivity effects

Variable	Main variant		Additional variant	
	Parameter estimate	<i>p</i> -value	Parameter estimate	<i>p</i> -value
LnA	2.4624	0.0024	2.4222	0.0062
LnL	0.2537	0.0000	0.2530	0.0000
LnK	0.7079	0.0000	0.7047	0.0000
AGE	0.0123	0.7691	0.0028	0.9481
YEAR	-0.0042	0.9141	0.0013	0.9745
CITY	-0.2031	0.0414	-0.1614	0.1069
CONST	0.1867	0.1493	0.2419	0.0679
TRANS	-0.5549	0.0005	-0.4876	0.0028
DOC	-0.4003	0.0243	-	-
SOC	-	-	-0.1470	0.1765
WOC	-	-	0.0307	0.7425
N	146		146	
Adj R <sup>2</sup>	0.8988		0.8961	
F statistics	161.91		139.91	

Source: own calculations based on the data of the National Court Register

The positive coefficient of AGE variable in both considered variants of the estimation, although not statistically significant is slight support for assertions advocating the existence of a positive relationship between the company's performance and its life cycle. The coefficient of YEAR varia-

ble, which is negative in the main variant of the estimation and positive in the additional one, as well as statistically insignificant in both of these variants, does not allow to formulate the request for the direction of impact of technological changes on company's performance. According to the conducted empirical research, the location of company headquarters in Warsaw negatively influenced on sales revenues of studied employee-owned companies – the coefficient for CITY variable is statistically significant in the main variant of the estimation at the significance level  $\alpha = 0.05$  and in the additional variant with the probability close to 90%. What is more, sales revenues are on average lower for employee-owned company operating in the transportation and storage sector, and higher for those operating in the construction sector. It is worth noting that the coefficient of CONST variable may be considered statistically significant with the probability close to 95% only in the additional variant of the estimation, and the coefficient of TRANS variable is statistically significant in both of them at the significance level  $\alpha = 0.01$ .

The conducted empirical research in relation to variables associated with the ownership concentration revealed in the main variant of the estimation the existence of the negative relation between the degree of ownership concentration and sales revenues that is statistically significant with the probability close to 99%. The occurrence of the negative influence of ownership concentration on sales revenues of the investigated employee-owned companies seem to confirm the results of the estimation of a Cobb–Douglas production function in the additional variant, in which the coefficient of SOC variable is negative and of WOC variable is positive. However, it should be noted that both of these coefficients are not statistically significant, even at the significance level  $\alpha = 0.1$  (see Table 4).

## **Conclusions**

The conducted empirical research on the effects of the degree of ownership concentration on sales revenues of employee-owned companies showed that the increase in the degree of ownership concentration leads to the decline in sales revenues, which means that the formulated research hypothesis was verified negatively. In addition, sales revenues within the strong ownership concentration are on average lower and within the weak ownership concentration are on average higher than in other cases, which suggests that to some extent the increase in the degree of ownership concentration in examined employee-owned companies causes the increase in their sales revenues and to some extent it causes the decrease (compare Akimowa & Schwödiauer, 2004, p. 41; Lee, 2008, p. 22).



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