

# OUTSOURCING AND EMPLOYMENT, LABOUR COSTS AND PRODUCTIVITY IN ENTERPRISES

## Abstract

For several decades, outsourcing has been extremely popular among managers who treat it as a way to improve the efficiency and competitiveness of companies. It implies a number of significant changes in organizational structures and operation strategies that consequently modify the size and structure of material and human resources in question. The phenomenon of outsourcing, despite its economic benefits, raises social controversies related to: the threat of job losses, degradation of the workplace, reduction of labour costs or reduction of worker protection as some of the workplaces are cancelled shortly, an employee's *status quo* is violated and there appears a need to complete the qualifications.

Taking into account: specifics of outsourcing (as a method of management), the purpose of its application in practice in Polish enterprises, the changes that it may emerge in the area of human resources (labour) and the scarcity of scientific studies related to its impact on labour resources in the enterprise sector in Poland and related categories, the author set the following research goals in this dissertation:

- recognition of the size of outsourcing phenomenon in enterprises operating in Polish economy, divided into material outsourcing and service outsourcing;
- assessment of outsourcing impact on the level of employment, labour costs and labour productivity in enterprises operating in manufacturing divisions that require: high technology – HT, medium high-technology – MHT, medium low-technology – MLT and low-technology – LT (according to Eurostat classification) as well as in knowledge-intensive business services – KIBS and less knowledge-intensive business services – LKIBS divisions according to Eurostat classification in combination with Central Statistical Office (GUS) classification.

In theoretical work it was considered appropriate to:

- recognize the outsourcing essence and determinants of its application and review terminology related to outsourcing and its forms;
- recognize the ways to measure outsourcing and its forms as well as development of proprietary measurement approaches to outsourcing and its two main types (material outsourcing and service outsourcing) based on relevant financial statistics;

- overview outsourcing in the light of economic theory and management theory;
- analyse classical and alternative labour market theories in the context of outsourcing impact on: size, price and efficiency of human resources;
- recognize the level and forms of employment, the components of labour costs and the essence and methods of measuring labour productivity.

In empirical work the following objectives were formulated:

- recognition of the changes in size and dynamics of outsourcing based on reports in the available databases: Statista, UNCTAD and World Input-Output Database (WIOD)
- recognition of the size of material outsourcing and service outsourcing between 2005 and 2013 in relation to the increase in net sales and added value, in the sector of enterprises employing 10 or more persons, according to the following criteria: sections and divisions of PKD 2007, the level of technological intensity in manufacturing and professional knowledge in business service;
- recognition of the dynamics of changes in the levels and forms of employment and in costs of work per employee in the enterprise sector;
- labour productivity measurement according;
- the empirical verification of three econometric models which demonstrate the impact of material outsourcing and service outsourcing respectively on: employment level, labour costs and productivity per employee in four groups of enterprises operating in manufacturing divisions: HT, MHT, MLT, LT and in two groups of enterprises in divisions: KIBS and LKIBS.

Outsourcing itself is a complex, evolutionary and difficult to quantify subject of research because there are no direct categories that analyse this phenomenon neither in general nor in part. In addition, the specifics of Polish economy, in particular the relatively low labour costs in comparison to other high developed economies have made companies more likely to benefit from domestic outsourcing of intermediate goods and services than from foreign one.

Adoption of the objective criterion allowed to measure outsourcing of intermediate materials and outside services on the basis of indirect costs category included in the financial statements and to examine the nature of outsourcing impact on: the size, price and efficiency of human resources as well as the possible rejection or support of arguments for the socially perceived negative image of the impact of outsourcing. The research methodology has made this possible. The method of descriptive analysis was used in theoretical work, which allowed presentation of the theoretical achievements included in particular in the foreign literature of the subject and relatively poor Polish literature concerning the impact of outsourcing on the basic categories related to labour resources. The literature on econometrics was also used in this work, which was indispensable to build and verify the model and interpret the results.

In the field of empirical research the secondary, processed as ordered, aggregated at levels of sections and divisions of PKD 2007 financial and personal data was used for the years 2005-2013. These data came from statistical reports submitted to the Central Statistical Office: F-01/ I-01 (in the semi-annual cycle) and Z-06 (once a year) by business entities employing 10 or more people and included in the enterprises. It should be noted that due to reclassification of PKD 2004 into PKD 2007 this was the maximum longest, achievable time series of homogeneous data ( $n = 18$ ).

Data analysis was conducted in two stages. At the preliminary analysis stage, the annual data was used and presented with the dynamics and structure indicators. Considerable differences were noted between sections while analysing the dynamics of: both types of outsourcing, level of employment, labour costs per employee, labour productivity and added value in PKD 2007 sections. When looking for a way to group divisions in terms of homogeneous features some similarities were found in the above-mentioned Eurostat classification. This classification allowed distinguishing four groups of manufacturing industry (HT, MHT, MLT and LT) according to technological intensity level and two groups of business services according to professional knowledge (KIBS and LKIBS).

At the stage of advanced analysis the semi-annual financial and personal data for the years 2005-2013 aggregated at the level of the six groups mentioned above (i.e. HT, MHT, MLT, LT, KIBS and LKIBS) were adopted. To achieve the maximal longest homogeneous time series ( $n = 18$ ) these data were collected from all the enterprises employing 10 and more people, which submitted statistical reports F-01/ I-01. As of 31.12.2013 the data collected from 18,385 out of 51,569 companies constituting the enterprise sector in Poland were used at this stage. An attempt was made to verify the impact of material outsourcing and/or service outsourcing respectively on: employment, labour costs and productivity per one employee using econometric models. The ordinary least squares method (OLS) was used to estimate the regression models with respect to structural parameters for the time series of variable levels or first differences. GRETTL software was used in the econometric analysis.

The analysis of literature has confirmed that outsourcing is differently understood and adjusted to the purpose of research and availability of data for its measurement as well as comparisons made between economies of different countries. However, despite different approaches to understanding outsourcing and especially offshoring, it should be emphasized that, in essence, these terms generally referred to the separation of a particular process/function or part thereof and its transfer to an external supplier. These management decisions were reflected in the form of expenses, expressed in terms of the cost of intermediate materials and outside services and their indirect effect was the added value or volume of output expressed in the category of net sales of products, services and materials.

The rapid development of outsourcing in business practice has created many theories that justify and ground knowledge about it. Through the prism of existing

classical and contemporary microeconomic theories (including labour market theory) and management theories, an attempt was made to:

- systematize knowledge about business motives when deciding on outsourcing in terms of profitability of own production or purchase from external suppliers (*make or buy?*), irrespective of the capital ties between the contracting parties;
- determine the impact that outsourcing can have on human resources, in particular on employment, costs and labour productivity.

Theories' analysis has shown that neither economics nor management theories discuss directly subcontracting or contracting work. However, knowledge of the relationships described in these theories can contribute to: improving the outsourcing processes management in companies, increasing demand for their goods and indirectly but not proportionately increasing employment, labour costs and productivity per employee.

The literature on the subject lacked a clear view of the researchers on the ways of measuring outsourcing. The main reason for the divergence in defining these measures was the mismatch of financial reporting. Therefore, the measures most closely related to specific activities were sought, which indirectly valued the phenomenon in its entirety or its selected types and forms such as, for example: domestic outsourcing, international outsourcing, offshoring (or offshore outsourcing), SSC/BPO or KPO. Homogeneous in measurement and further in comparisons at the level of sectors or whole economies of different countries as well as one of the most studied by the researchers turned out to be international outsourcing or offshoring demonstrated by the expenses on the purchase of imported intermediate goods or outsourcing intensity indicator.

Due to the limited availability of data, much more difficult to measure turned out to be the total outsourcing, which included both domestic and international outsourcing of products and services. In this situation, the author considered an adequate indirect measure of the economy in absolute terms – the level of intermediate consumption of materials and outside services or, in relative terms – the share of intermediate consumption in net sales or added value.

The analysis of data on Polish economy gathered in the WIOD database confirmed that in the years 2003-2011 there was a predominance of domestic outsourcing over foreign one. Nevertheless, the share of domestic outsourcing in total intermediate consumption has shown a slow downward trend from 78.1% in 2003 to 72.4% in 2011, although in absolute terms its annual value was increasing year by year. The dynamics of this increase, however, was slightly weaker than the dynamics of the growth of foreign outsourcing. The growth in global output in Polish economy was realized with rising labour costs and increased outsourcing (expressed as indirect consumption). Computed annual growth rate (CAGR) equalled 8.19%, intermediate consumption: 8.73% and added value: 7.49%.

The preliminary analysis of the data (included in the F-01/I-01 financial statement for the period 2005-2013) at the level sections and divisions of PKD 2007

confirmed the specificity of outsourcing that shows a dominant share, although in downward trend, of domestic material outsourcing in total outsourcing and a dominant and growing trend of outsourcing services, especially business services. Material outsourcing was characterized by slightly higher, although more varied, growth dynamics (by 88.9% in 9 years) than service outsourcing (by 84.5% in 9 years) with 82% growth dynamics of net sales in the enterprise sector. The transition to the aggregation level of sections and divisions of PKD 2007 and groups according to Eurostat classification revealed discrepancies in the use of outsourcing. At the level of the sections there was a diversified increase in demand for material and service outsourcing. The largest dynamics of material and service outsourcing during the examined period was achieved by companies providing both business and social services. Analysis of the share of outsourcing in net sales, showing the intensity of its use, demonstrated a regularity that the highest level (i.e. the level of 50.6-55.2%) of the share of material outsourcing in net sales occurred in manufacturing companies. In a much diversified service sector the share of service outsourcing in net sales was dominant (excluding Section S) and ranged from 6.6 to 34.7% in 2013.

Making the decision to outsource was inherently associated with changes in human resources i.e. changes in the size and structure of employment in particular sections or divisions of PKD 2007 and subsequent changes in labour costs and productivity per employee in the enterprise sector. Preliminary data analysis has confirmed higher diversification of employment and outsourcing size at section level and even division level or other more targeted division criteria (e.g. according to Eurostat classification) than at the level of the main economy sectors (i.e. industry, services). The employment in enterprises related to the industrial sector decreased from 34.5% in 2005 to 31.6% in 2013 and in service sector companies (except administration) it increased from 58.7% in 2005 to 61.5% in 2013. According to Eurostat classification, the highest increase in employment was recorded in the MLT divisions and the fall in the LT divisions. In the HT and MHT divisions, which *nota bene* demand hiring a large number of highly qualified workers, the employment was characterized by varying tendencies of growth. These changes have provided a preliminary indication of the ambiguous nature of the impact of material and/or service outsourcing on employment. The highest dynamics of successive increase in employment by 46.2% in 2005-2012 was noted in the business service divisions requiring professional knowledge. In the period 2005-2013 the number of employees in the LKIBS divisions increased only by 4.8%. However, the divisions, included into this group, were very much polarized in terms of size and dynamics of employed persons.

It was confirmed by the analysing temporary employment data that there was a departure from the model of permanent employment as flexible employment has increased in most sections. The majority of temporary workers were employed – in administration and support services activities. On average, every fourth person employed in the manufacturing section was employed on temporary employment

conditions. There was also a relatively high share of workers employed on fixed-term contracts in industries requiring lower qualifications. The reasons for this phenomenon formation can be seen mainly in: low employee salaries, greater availability of workers on the market, relatively low employee replacement costs, high employee rotation and outsourcing growth.

By analysing the price of human resources expressed in the category of annual labour costs per employee, it was observed that in nine years in PKD 2007 sections these costs actually increased each year on average from 2.9% to 7.9% (CAGR). More variation in the average annual growth rate was noticeable in PKD 2007 divisions. Taking into account Eurostat classification it was noted that the higher the level of technological intensity or professional knowledge, the better the employees were paid. The higher level of technology intensity required more skilled workers, which meant higher labour costs that could have led to searching for new solutions to reduce costs and increase labour productivity. In this case, also the analysis of labour productivity indicators showed that higher technological intensity and professional knowledge led to higher labour productivity. Nevertheless, disproportions in labour productivity per employee between the defined HT, MHT, MLT and LT groups as well as between KIBS and LKIBS have begun to decrease.

A preliminary analysis of outsourcing and human resources categories has made it possible to identify the directions of possible dependencies between outsourcing and human resources, while the econometric analysis has been used to examine the strength of these dependencies. The econometric analysis of the employment regression model in four groups of manufacturing industries (HT, MHT, MLT, LT) and two groups of business services (KIBS and LKIBS) has validated the hypothesis that outsourcing influenced the level of employment in the enterprise sector in Poland with varying intensity. Positive although relatively weak impact of material outsourcing on the size of employment was noted by entities operating in the MHT and MLT industries and the relatively weak, negative impact of this outsourcing was evident in the KIBS one. Among the MLT, LT and LKIBS industries, employing mainly low-skilled workers, material outsourcing has had a relatively weak, positive impact on employment in the MLT industry only. In the LT and LKIBS industries the increase in labour costs per employee reduced employment and the added value growth increased it.

The econometric analysis of the labour cost regression model per employee has confirmed that the interaction of both types of outsourcing contributed to the increase in labour costs per employee or was neutral. In the MHT and MLT industries material outsourcing turned out to be a statistically significant and positive factor, although relatively weak. On the other hand, service outsourcing increased labour costs in the MHT enterprises only. In the other two industries: HT and LT the impact of outsourcing on labour costs per employee was neutral. The main determinants of the increase in labour costs in these groups of enterprises were technical and organizational factors. HT industries employing highly qualified workers increased the technical equipment of workplace and concentrated on

the increase of labour productivity. In the LT and LKIBS industries, where labour intensity is significantly less sensitive to changes in labour costs, the increase in labour productivity was an important factor. In the LKIBS divisions services outsourcing was the second factor which positively although weakly influenced the increase in labour costs. On the one hand companies sought it as a possibility for reducing their own operating costs, but on the other hand – in order to meet the growing expectations of their customers – they extended the offer by the services of a specialized subcontractor who they cooperated with. In KIBS industry the increase in labour costs per employee was mainly due to the increase in the technical equipment of workplace and further due to the increase in material outsourcing and labour productivity.

Estimating the labour productivity regression model it was noted that the impact of two or even three types of outsourcing (within material outsourcing there were domestic and foreign material outsourcing) was positive, but quite varied. In enterprises employing the dominant group of low-skilled workers the main determinant of this productivity growth was the increase in the technical equipment of workplace. Modernization and equipping workstations made it possible to have the work done faster while limiting employment growth. In the HT and LKIBS divisions the use of service outsourcing seems to stem from two different premises. Probably its use was in the first place to focus on the key operation areas generating most profits and in the second place – to reduce costs by outsourcing these services to companies that do the work better and cheaper.

Considering the variety of results the author is convinced of the relevance of conducting research at lower levels of entities aggregation rather than at the level of sectors, the economy as a whole or on the global scale. Variety of conditions, specificity of business activity, varied quality of data provided by enterprises as well as differentiation of approach to calculation in specific categories e.g. employment or added value hinder the statistical and substantive verification of analysed processes at higher levels of data aggregation. Similarly the examined period 2005-2013 may also seem too short. However, a significant change in the methodology of PKD 2004 to PKD 2007 prevented the use of earlier data. It seems that, despite the shortcomings of outsourcing measurements and relatively short period of time studied the results of initial research and econometric analyses presented in this book may contribute to the very poorly researched so far outsourcing influence on changes in human resources in the enterprise sector in Poland.