Advanced business services and multinational corporation: theory and evidence

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Abstract

In this paper we have two objectives. First, we want to outline the key elements of the theoretical framework of business services in MNCs. This will be the description of the main assumptions rather than a formal model. Then, the assumptions will be verified in the empirical part. We will use the sample of the largest European companies having foreign affiliates. To the best knowledge of the author this is one of the first attempts to analyse the operations of MNCs with respect to their ABS activities. We applied here a logistic regression model, which indicates the probability of having an ABS subsidiary taking into consideration the characteristics of MNCs. In other words we will define the factors influencing decision on having foreign subsidiaries. The novelty is also focusing on services subsidiaries in two types of economies: advanced and emerging. The main conclusion from the empirical part is that size of an enterprise positively influences the propensity towards locating ABS subsidiaries abroad. It means that only large companies are engaged in offshoring of services. Both employment and value of assets were statistically significant.

JEL Classification: F21; F23

Keywords: foreign direct investment, modern business services, regions, European Union

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1. Introduction

Business services create a distinctive group within the broad sector of services. Likewise, the business services are far from being homogenous. A very important category in business services are advanced business services (ABS) and they are defined here as relying heavily on knowledge and professional expertise. From the business perspective, forms of ABS are as follows: business process outsourcing (BPO), shared service centres (SSC), information technology outsourcing (ITO) and research and development centres (R&D). These services are also labelled as modern business services. The important characteristics of ABS is also their high level of standardization and tradability. Therefore many task can be provided from distant location, thus increasing the propensity of firms towards offshoring of white-collar work.

The topic of offshoring is relevant both for advanced and emerging economies. The transfer of white-collar tasks may alter the business structure in both groups of countries and influence economic environment. Especially when we consider operations of MNCs which are dominating entities in many industries and economies. The offshoring of white-collar workers has attracted a lot of attention of the economists and policymakers, however developments in MNCs were not directly associated with the new trend.

The role of services in an economy and its tertiarisation were frequently pronounced in the macroeconomics. However, the role of services in firms, especially MNCs, was not sufficiently defined. The mainstream models of MNC assume two types of operations: headquarters activities and manufacturing activities. We argue that to make the picture of MNCs complete, the additional category of activities should be included – advanced business services. They are related both to the headquarters and the production, so they can be perceived as a link between this two operations.

The mainstream theories and models of MNCs predominantly focused on manufacturing operations of MNCs. Thus, the role of business services was on the margin of the discussion and was subordinated to the production function. In our opinion the distinction of services is necessary due to the changing nature and geographic structure of global value chains. In many cases, MNCs have their headquarters in a developed country, produce in developing country and locate services either in developed or developing country.

In this paper we have two objectives. First, we want to outline the key elements of the theoretical framework of business services in MNCs. This will be the description of the main assumptions rather than a formal model. The assumptions will be verified in the empirical part. We will use the sample of the largest European companies having foreign affiliates. To the best
knowledge of the author this is one of the first attempts to analyse the operations of MNCs with respect to their ABS activities. We applied here a logistic regression approach, which indicates the probability of having an ABS subsidiary taking into consideration the characteristics of MNCs. In other words we will define the factors influencing decision on having foreign subsidiaries. The novelty is also focusing on services subsidiaries in two types of economies: advanced and emerging.

The remainder of the paper is organised as follows. Section 2 delivers a review of previous contributions in the field of determinants of BS; Section 3 contains data description; Section 4 delivers the outline of an econometric strategy; Section 5 contains results of the analysis; and Section 6 delivers concluding remarks.

2. Previous theoretical and empirical contributions

Among few attempts to model service activities of MNCs the approach of (Markusen and Strand 2009) is particularly relevant. They prepared a theoretical model in which an earlier explanation of international production by MNC has been enhanced with service activities. The advantage of the model is also comprehending the effects of service activities for production factors’ markets in a host economy. However, their approach has some shortcomings as the model fails to comprehend advanced organizational strategies of MNCs. They based on the knowledge-capital model by (Carr, Markusen and Maskus 1998). The original model assumes that: knowledge-intensive services of MNCs may be separated from the production; knowledge capital is skilled-labour intensive relative to production; and can be supplied to additional production facilities at low cost. This prepares the background for analysing services in separation from production activities.

The model of (Markusen and Strand 2009) takes into consideration different types of barriers to trade and establishing commercial presence in services. Two main groups identified in their approach called “natural” economic costs and “policy-imposed” costs. They influence the viability of operations in services in the international scale. The advantage of the model is also comprehending the effects of service activities for production factors’ markets in a host economy. However, their approach has some shortcomings as the model fails to comprehend advanced organizational strategies of MNCs.

The complex operations of MNCs in various international configurations were better explained by (Yeaple 2003) and (Grossman, Helpman and Szeidl 2006). They proposed more detailed explanation of activity MNCs. However, they all focus on enterprises active in the
production and this is the subject of the international division of labour. They do not take into account services that are essential in every MNCs. (Grossman and Rossi-Hansberg 2008) advanced the theoretic discussion regarding international division of task within the global value chain. They also to take into consideration trade in business services.

Despite indicated shortcomings, the models of (Markusen and Strand 2009) and (Yeaple 2003) best explains operations and impact of MNCs on markets and therefore will be used as the basis for constructing a new model of complex structures MNCs including activities in business services. Moreover, the new model will be constructed in the general equilibrium, what will enable to assess the impact of FDI on a host economy and particular markets. The design of the model (Yeaple 2003) allows for the adjustment to a more detailed explanation of the activities MNCs, for example, in the context of emerging economies (Klimek 2016).

(May 2012) extends their model and considers manufacturing operations as prior to complementary services. In this approach services are subordinated to manufacturing. Additional element that has to be taken into consideration when analysing the development of service sector is the liberalisation of the service trade. This influences welfare of home and host economies.

Export-platform approach to MNCs may be also relevant here (Ekholm, Forslid and Markusen 2003). Indeed, most SSC/BPO units in emerging Europe export their services to the headquarters in the advanced economies and other units of MNCs anywhere in the world. Frequently the reach is greater than the home region. We can notice than many ABS subsidiaries are global providers of specialized services within a MNCs. All in all, ABS are mostly exported and only a small fraction is consumed in the country of origin. The consumption takes place by the other subsidiaries in the host country. For example, just after the collapse of the iron wall many Western European firms established production subsidiaries in Eastern Europe. The operations are still there is spite of the rising productions cost. Moreover, the Western companies in the middle of 2000s started establishing service units in emerging Europe. Thus, the former units provide services for production units in both groups of countries.

Some argue that it is possible to separate information from physical manufacturing operations (Evans and Wurster 1999, 20). In this sense, the advanced services can increase the fragmentation of global value chains (GVC). This also creates additional assumption to economic modelling of white-collar workers offshoring. The tasks can be executed remotely and the distance play almost no role. This also leads to the possibility of organising global service centres, which consolidate operations of many separate units in the world. The necessity
is to have consistent work among particular parts of the company. The idea is to develop and deliver the service anywhere in the world (Youngdahl and Ramaswamy 2008).

Another important aspect is the standardization of knowledge-intensive services. Even in 1990s the services were not considered as processes and diagrams similar to those for an assembly line were not existent (Metters and Verma 2008). Standardization of operations related to accounting or stock control in companies having hundreds or more units lead to increased profits. The profits are even greater when the operations are consolidated in one global service centre providing services to every unit in the world.

The issue of professional qualification and licences is crucial in services. The licence are designed to protect users of services (like legal services), but they are also important barriers for entry of new companies. In the case of ABS the issue of licences was overcome by the fact that ABS operations are mostly back-office type than front-office one. Moreover, they work for other units within the same business group or for not related companies, so ABS is business-to-business type. Sales of the services is conducted by local units according to the local regulation. For example, many operations in banks may be processed by remote units anywhere in the world, but the direct contacts with customers is provided by local staff.

### 3. Data and stylized facts

The objective of the paper is to analyse the operations of European MNCs with respect to their engagement in advanced business services. We expect that firms maximize their profit, therefore they will configure their services operations in the most optimal way.

The source of data on the firms was Amadeus database containing detailed information about millions of companies across Europe. We used here data for European companies and their European subsidiaries. The selected countries create a unique area of free movement of services on the global scale. Therefore the analysis will focus on the characteristics of firms. We want to define factors that lead to establishing services operations in Western and Eastern Europe.

First, the sample of 5,000 firms having their headquarters in 15 Western European countries belonging to EU and three countries: Norway and Switzerland was extracted. The primary criterion of selecting the records was the operating turnover at least EUR 50 million in 2015. Such restriction is necessary as only large organisations are able to organise their operations internationally, due to high fixed costs. The companies should also employ more than 1,000 workers, as only such organisations are able to create a separate unit for services.
The time span of the analysis was 2007-2016. Not all companies reported all financial information over the period of 10 years, therefore we received a strongly balanced panel of data.

In the next step, three types of firms were distinguished. First, a MNC can have ABS subsidiary in a highly developed country. Second, a firm has ABS operations in selected countries of Central and Eastern Europe, that is Czech Republic, Hungary, Poland, and Slovakia. This group is also called a Visegrad Group (V4). This naming is rather of political nature, however it can be also useful for the economic purposes. Third, a firms has operations both in emerging and developed Europe. In the next step the service subsidiaries were merged with their headquarters and financial data related to the operation of the entire organisation.

The first step in the analysis is to investigate the pattern of firms in sample. German and British firms together with their French peers constitute almost 50% of all MNCs in the sample (figure 1). This fact is important because investment in production facilities is dependent on the distance between headquarters and subsidiaries. Out of 5,000 firms in the sample, 990 firms have their ABS subsidiaries in another advanced European economy, 275 firms in emerging Europe, and 194 firms in both emerging and developed Europe. It means that firm mostly focus on services in other developed countries. Moreover, we can also conclude that a firm that establishes an service unit in an emerging economy it also has a unit in advanced Europe. Only 81 firms have their service subsidiary only in at least one of the V4 countries.

**Figure 1. Geographic structure of MNCs in the sample**

![Pie chart showing the geographic structure of MNCs in the sample](image)

Source: own elaboration
When we analyse the 990 firms with subsidiaries in advanced Europe we notice significant share of French companies (22%) comparing to their share in total number of firms (12%). German firms, which dominate with respect to possession of a subsidiary irrespective of its type, are lagging here behind France and Great Britain.

**Figure 2. Companies with ABS subsidiaries in advanced Europe**

![Pie chart showing distribution of subsidiaries among countries in advanced Europe.]

Source: own elaboration

French firms still dominate when we analyse MNCs with services subsidiaries in selected emerging countries. However, the position of German firm is also very important. Much more German firms have their subsidiaries in V4 countries comparing to the advanced Europe. This may be associated to the proximity of V4 economies to Germany.

**Figure 3. Companies with ABS subsidiaries in V4**

![Pie chart showing distribution of subsidiaries among countries in V4.]

Source: own elaboration
To understand the new wave of FDI in business services in emerging Europe it is important to analyse the structure of services in the two groups of countries. In Western Europe services of *Engineering activities and related technical consultancy (7112)*, *Computer consultancy (6202)* and *Other information technology and computer services (6209)* are dominating. On the other hand, in emerging Europe we have on top positions: *Accounting, bookkeeping and auditing activities; tax consultancy (6290)*, *Computer programming activities (6201)* and *Engineering activities and related technical consultancy (7112)*. There is some overlap in the services, however the magnitude of particular activities is quite different. For example, accounting activities represent only 5% of firms in Western Europe and 26% in Eastern Europe. This can be interpreted as still focusing on simpler activities in V4 countries, comparing to operation in advanced Europe.

**Figure 4. ABS subsidiaries**

![Pie charts showing ABS subsidiaries in emerging and advanced Europe](image)

Source: own elaboration

The initial analysis of data brought important findings regarding country and industry characteristics of parent companies and their service subsidiaries across Europe. There is still large difference in country pattern, when it comes to locating the ABS in advanced or emerging economies. Moreover, services subsidiaries are not very common among MNC based in Europe. Only around 20% of MNC possess a service subsidiary in any country and only around 5% possess such subsidiaries in V4 countries. There is still difference in types of activities in subsidiaries in Western and Eastern Europe. Therefore we also expect different characteristics of firms, what will be revealed in the next section.
4. Empirical proceedings

The empirical proceedings are based on categorical data analysis. Due to the nature of the research problem we applied here a logit model. The dependent variables are as follows: 1) a company has an ABS unit in advanced Europe, 2) a company has an ABS unit in emerging Europe, 3) a company has an ABS unit in both groups of countries. Such setting is similar to that for Taiwanese MNCs by (Aw and Lee 2008).

Following (Long and Freese 2006) the firms’ profit function for the choice between strategies of configuration of international operations with respect to white-collar processes. There are four possible strategies. First, no separate business services unit abroad. Two, a service unit in another advanced economy. Three, a service unit in an emerging economy. Four, service units both in advanced and emerging economy.

\[ \pi_i = \alpha + \beta x_i + \epsilon_i \]

where \(\pi_1\) is predicted profit of a firm with no service operations abroad, \(\pi_2\) for the advanced economy, \(\pi_3\) for the emerging economy, \(\pi_4\) for both advanced and emerging economy. \(x_i\) represents characteristics of a firm leading to the choice of one strategy. Profit of a firm depends on its characteristics, which determine the firm’s overall efficiency. The probability that a firm chooses one of the strategies depends on observable variables. Probability that a firm belongs to one of the group is given by:

\[ \text{Pr}(y = 1|x) = \frac{\exp(\alpha + \beta x_i)}{1 + \exp(\alpha + \beta x_i)} \]

where \(\text{Pr}\) is the probability that a firm chooses one of the strategies.

The independent variables were selected to describe the potential of firms to run advanced business service units abroad (table 1). First, the size of a firm is crucial element in analysis of probability of having a business services unit abroad. The size in this work is measured by the value of assets, number of employees and revenue. The second group of factors influencing the decision to establish a service subsidiary abroad depends on the profitability of a firm measured by added value and profit before taxation. These were all absolute values. However, to avoid the skewness towards the largest firms in the analysed group we focus on relative measures that can indicate best-performing companies. The ratios in the paper describe
financial performance (ROA, ROCE, profit per employee and revenue per employee) of firms and their innovativeness (R&D intensity).

Table 1. Description of independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Total assets (million EUR)</td>
</tr>
<tr>
<td>Added value</td>
<td>Added value (million EUR)</td>
</tr>
<tr>
<td>Employment</td>
<td>Number of employees (thousand)</td>
</tr>
<tr>
<td>P/L before tax</td>
<td>Profit/loss before tax (million EUR)</td>
</tr>
<tr>
<td>Revenue</td>
<td>Operating revenue (turnover) (million EUR)</td>
</tr>
<tr>
<td>ROE</td>
<td>Return on equity (%)</td>
</tr>
<tr>
<td>ROCE</td>
<td>Return on capital employed (%)</td>
</tr>
<tr>
<td>R&amp;D intensity</td>
<td>Research and development expenses (million EUR)</td>
</tr>
<tr>
<td>Revenue per employee</td>
<td>Revenue per employee (thousand EUR)</td>
</tr>
<tr>
<td>P/L before tax per employee</td>
<td>Profit/loss before tax per employee (thousand EUR)</td>
</tr>
</tbody>
</table>

5. Empirical results

We applied here a two-step analysis using logistic regression. First, the absolute values on the large sample of firms leading to 29,640 observations was conducted. The second step based on ratios, due to date limitation, gave 5,601 observations.

The regression of the absolute values brought very conclusive results (table 2). When it comes to firms locating their ABS in advanced Europe they were larger in terms of value of assets and number of employees than firms with no such operations. The firms also reported higher added value, what can be interpreted as one of measures of profitability. The coefficient for profit before tax was not statistically significant. Similarly revenue was also not useful in this part of the analysis.

When it comes to firms having ABS in emerging Europe the size was also positively correlated with the propensity of having an ABS unit. However, the value of assets became not statistically significant. The coefficients for profitability were somehow inconclusive. The coefficient for added value was positive, but profit before taxation – negative. However, these
two measures indicate earnings of a firm at quite different levels. Added value is only a
difference between outputs and inputs, while profit before tax is a much narrower gauge of
profitability.

Table 2. Logit regression of location of ABS subsidiaries – absolute values

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Advanced Europe</th>
<th>Emerging Europe</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>0.00005 ***</td>
<td>0.00001</td>
<td>0.00001</td>
</tr>
<tr>
<td></td>
<td>(0.00002)</td>
<td>(0.00001)</td>
<td>(0.00001)</td>
</tr>
<tr>
<td>Added value</td>
<td>0.00039 *</td>
<td>0.00017 *</td>
<td>0.00024 ***</td>
</tr>
<tr>
<td></td>
<td>(0.00020)</td>
<td>(0.00009)</td>
<td>(0.00008)</td>
</tr>
<tr>
<td>Employment</td>
<td>0.02586 ***</td>
<td>0.01029 **</td>
<td>0.01236 ***</td>
</tr>
<tr>
<td></td>
<td>(0.00871)</td>
<td>(0.00466)</td>
<td>(0.00320)</td>
</tr>
<tr>
<td>P/L before tax</td>
<td>-0.00019</td>
<td>-0.00026 **</td>
<td>-0.00024 *</td>
</tr>
<tr>
<td></td>
<td>(0.00020)</td>
<td>(0.00012)</td>
<td>(0.00014)</td>
</tr>
<tr>
<td>Revenue</td>
<td>-0.00004</td>
<td>0.00003 *</td>
<td>-0.00003</td>
</tr>
<tr>
<td></td>
<td>(0.00003)</td>
<td>(0.00002)</td>
<td>(0.00002)</td>
</tr>
<tr>
<td>Constant</td>
<td>-14.52218 ***</td>
<td>-13.95867 ***</td>
<td>-16.55649 ***</td>
</tr>
<tr>
<td></td>
<td>(0.20968)</td>
<td>(0.13176)</td>
<td>(0.14703)</td>
</tr>
<tr>
<td>Observations</td>
<td>29640</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of groups</td>
<td>3930</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The signs of statistically significant coefficients are the same for each strategy of configuring ABS units. However, there are large differences in the value of coefficients. When it comes to the added value the coefficient for the advanced Europe is more than twice as high as for the emerging Europe. It means that firms should be more profitable to possess units in the advanced Europe. It also means that firms of lower efficiency are choosing investment in emerging Europe. The same coefficient was in between for investment in both locations. Similar results were for the number of employees. The firms with units only in advanced Europe have larger number of employees. This coefficient was almost the same for strategy of locating in emerging Europe and in both categories.

When it comes to the value of ratios, which were estimated using a smaller sample were not highly statistically significant and only two variables were relevant (table 3). The most important were R&D expenses. They were highly significant in all strategies of ABS units. It means that companies with higher expenses invested in business services units abroad. We can
also directly associate R&D spending with the fact, that many ABS units are engaged in R&D works. In the case of ABS in emerging Europe the value of coefficients for revenue per employee, which is the measure of efficiency, was negative.

Table 3. Logit regression of location of ABS subsidiaries – ratios

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Advanced Europe</th>
<th>Emerging Europe</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>0.00039</td>
<td>-0.00342</td>
<td>-0.00084</td>
</tr>
<tr>
<td></td>
<td>(0.00077)</td>
<td>(0.00449)</td>
<td>(0.00112)</td>
</tr>
<tr>
<td>ROCE</td>
<td>-0.00538</td>
<td>0.00461</td>
<td>0.00515</td>
</tr>
<tr>
<td></td>
<td>(0.00350)</td>
<td>(0.01722)</td>
<td>(0.00347)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.00037 ***</td>
<td>0.00031 ***</td>
<td>0.00046 **</td>
</tr>
<tr>
<td></td>
<td>(0.00006)</td>
<td>(0.00023)</td>
<td>(0.00004)</td>
</tr>
<tr>
<td>Revenue per employee</td>
<td>-0.00002</td>
<td>-0.00002 ***</td>
<td>-0.00002</td>
</tr>
<tr>
<td></td>
<td>(0.00003)</td>
<td>(0.00014)</td>
<td>(0.00012)</td>
</tr>
<tr>
<td>P/L before tax per employee</td>
<td>0.00034</td>
<td>0.00023</td>
<td>-0.00077</td>
</tr>
<tr>
<td></td>
<td>(0.00028)</td>
<td>(0.00134)</td>
<td>(0.00068)</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.42185 ***</td>
<td>-11.20900 ***</td>
<td>-2.22654 ***</td>
</tr>
<tr>
<td></td>
<td>(0.06091)</td>
<td>(0.40805)</td>
<td>(0.06145)</td>
</tr>
</tbody>
</table>

The statistically significant coefficients for the relative values are also of the same signs. Firms with ABS units in advanced Europe spend more on R&D in comparison to firms in emerging Europe. However, companies having units in two groups of countries are significantly more profitable than the remaining two groups.

6. Conclusions

This paper has been devoted to the analysis of the operations of MNC with respect to their strategies towards foreign subsidiaries providing advanced business services. First, the theoretical background and the outline of the future formal model were provided. There is still an ambiguity towards the need of new model of MNCs with respect to advanced business services. In our opinion the evidence confirming the role of ABS subsidiaries stipulates the
need for a new theoretical approach. This approach should be based on the existing mainstream theories, but should enhance them.

The main conclusion from the empirical part is that size of an enterprise positively influences the propensity towards locating ABS subsidiaries abroad. It means that only large companies are engaged in offshoring of services. Both employment and value of assets were statistically significant. We divided the companies possessing ABS units into three categories: unit in advanced Europe, unit in emerging Europe, and unit in both groups of countries. There are large differences between coefficients for particular strategies. Generally, the firms with ABS in advanced Europe tend to be larger and more profitable than those without such units or units in emerging Europe.

Firms possessing an ABS unit abroad comparing to foreign production units are still in minority. Only around 20% of MNC are have their units abroad. The reason is that for many firm ABS are auxiliary activities and potential gains from locating the subsidiary in the optimal foreign location are not high. However, there is also possibility that offshoring of services abroad is for many companies more difficult than offshoring of production tasks. Locating the services abroad requires codifying the tacit knowledge of the organisation.

There is also important conclusion from the policy point of view. Even if the absolute number of foreign-owned ABS units in V4 countries is significantly lower than in advanced Europe, we need to remember that these are only four countries of a medium size comparing to 17 countries of higher development level. It may also mean that the large wave of FDI into ABS was already complete and we should not expect rapid growth of the number of companies investing in ABS in V4 in coming years. This view is contradictory to the opinions of some consultancies expecting multiplication of current level of employment in ABS in emerging Europe in coming years.

References


Appendix 1. Services included in empirical analysis according to NACE Rev. 2 (primary codes):

620 - Computer programming, consultancy and related activities
631 - Data processing, hosting and related activities; web portals
639 - Other information service activities
691 - Legal activities
692 - Accounting, bookkeeping and auditing activities; tax consultancy
711 - Architectural and engineering activities and related technical consultancy
712 - Technical testing and analysis
721 - Research and experimental development on natural sciences and engineering
722 - Research and experimental development on social sciences and humanities