ABSTRACT: Globalization created a new business environment, characterized by intensive privatization and economic liberalization. The changed business environment opened the way to increased use of cross-border acquisitions, which make the lion’s share of foreign direct investment in transition economies. The acquisitions accelerate transition, facilitating the restructuring of state-owned enterprises and making them more efficient. This paper analyses the impact of cross-border acquisitions in Serbia, an economy in transition, on employee productivity, employment, and wages in acquisition targets. Statistical analysis of a sample comprising 79 cross-border acquisitions carried out in Serbia in the period 2003-2009 shows that the change of ownership had a positive impact on employee productivity and real wages, while the number of employees in the acquired enterprises decreased.

KEY WORDS: cross-border acquisitions, wages, productivity, employment, transition

JEL CLASSIFICATION: F23, F61, G34, P32
1. INTRODUCTION

Globalization and economic liberalization have created a new business environment that offers numerous business opportunities, but also involves growing business risks. Multinational companies (MNC) frequently use cross-border acquisitions to seize emerging business opportunities, even though this strategy is very risky. The value of cross-border acquisitions made in 2014 was about USD 399 billion, which is much below their all-time peak of more than USD 1,032 billion reached in 2007 (UNCTAD 2015). Acquisitions of enterprises in emerging markets, including transition markets, constitute a significant share of the total value of cross-border acquisitions made in the last decade.

Geographic distance and institutional, organizational, and cultural differences make the transfer of strategic capabilities from investors to foreign targets very complex. Cross-border acquisitions are, therefore, considered to be a very risky strategy, even though they can significantly improve investors’ competitive position. The integration of targets from emerging markets is complex because these markets are characterized by undeveloped formal institutions, unpredictable actions by informal institutions, weak legal protection, and a broad base of poor customers (Yadong et al. 2011). All these factors can significantly impair a target’s financial performance after the acquisition is completed.

Management scholars have used several approaches to measure the financial performance of cross-border acquisitions; for example, short-term and long-term financial performance and accounting performance. (Thanos & Papadakis 2011). The very complex integration process results in a very high acquisition failure rate: roughly two-thirds of them do not create value for shareholders (Lodorfos & Boateng 2006). However, this approach does not cover all aspects of acquisitions because financial performance is an imperfect measure of organizational efficiency. Cross-border acquisitions have a profound and broad impact on human resources, which is very important for value creation in the post-acquisition phase. Previous research has examined the impact of cross-border acquisitions on some specific aspects of human resources. However, cross-border acquisitions affect both staff turnover and productivity. After the acquisition employees are faced with a corporate culture and business practices that are completely new to them, and which change their behaviour and performance. We have therefore analysed the wider impact of cross-border acquisitions on human resources in Serbia, a transition economy.
The rest of this paper consists of three parts. The first part presents a review of the literature on the impact of cross-border acquisitions on productivity, wages, and employment. The second part provides an insight into the methodology and data used. Finally, in the third part we discuss the results and limitations and offer some suggestions for further research.

2. LITERATURE REVIEW

Many scholars argue that multinational companies (MNCs) decide to invest abroad primarily because they possess strategic resources that are the source of their competitive advantage and want to exploit them abroad (Dunning 2000; Rugman & Verbeke 2003) in combination with the competitive advantage of a foreign location (Dunning 2000; Verbeke 2009). MNCs from developed countries decide where to locate their production facilities according to the product life-cycle phase (Vernon 1966). Production of mature products is outsourced to developing and transition economies. MNCs combine their mature production technology of widely accepted products and their management and marketing knowledge with low labour costs in emerging markets. This strategy results in lower production costs, wider profit margins, and increased demand for mature standardized products.

Production outsourcing strategies have a multidimensional impact on host economies, especially in transition countries, which makes analysis more complex. Foreign direct investment (FDI) affects the following aspects of host economies: market competition, balance of payments, investment, employment, growth rates, and transfer of new technology and capabilities. Most scholars argue that FDI has a positive impact on host economies, regardless of some negative influences. Empirical research shows that a 1% increase in the FDI/GDP ratio results in a 0.8% increase in GDP per capita in emerging markets, including transition economies (Bergsman et al. 2000).

Cross-border acquisitions, as a specific type of FDI, have a profound impact on host economies. Besides the value of the deal, cross-border acquisitions also imply additional investment in target restructuring, which has multiple positive effects on the host economy. In particular, acquisition of targets in transition economies is usually associated with large post-acquisition investment because these targets often lack the necessary capabilities to compete in the market. Accordingly,

---

1 Further in the paper, FDI
cross-border acquisition in transition economies is very similar to brown field investment (Meyer & Estrin 2001).

There is a big difference between the institutional context in transition economies and in developed market economies (Khanna & Palepu 2010). Institutional efficiency, industry structure, and the company’s own resources determine which business strategy will be used. Formal institutions in emerging markets are often less efficient than in developed countries and informal institutions perform their function (Peng et al. 2008). Therefore MNCs from developed countries have to be very careful when trying to standardize their business strategies at the global level. Business strategies that are not suitable for developed markets often fit in emerging markets (Khanna et al. 2005). Relationships between stakeholders in transition economies are very complex and foreign investors should identify their interests and influence on a potential target before the acquisition. Government is one of the most influential stakeholders in transition economies. Governments are eager to support cross-border acquisitions that are expected to improve national productivity, preserve existing jobs and create new ones (Rondinelli & Black 2000). However, sometimes governments and MNCs do not pursue identical goals, which makes acquisitions more complex. MNCs should, therefore, design acquisitions as a win-win arrangement that will bring benefits to both the investor and local stakeholders.

These are the two main reasons for an acquisition: investors are trying to improve their current performance, to maintain their premium position, and to cut costs, or investors are trying to reinvent their business model (Christensen et al. 2011). Cross-border acquisitions in transition economies are almost always driven by the former reason. In this type of acquisition, investors want to transfer their own business model to the target company. This implies major target restructuring, whereby the target loses its autonomy. Investors try to carry out a fast-paced restructuring of the target and gain “early wins” (Habeck et al. 2000) to satisfy their own stakeholders. “Early wins” are achieved through elimination of duplicate functions and surplus production capacity, and employee downsizing (Cullinan et al. 2004). This approach has a strong impact on employees’ conduct and expectations. Research has identified a connection between acquisitions and low staff morale, increased stress, job dissatisfaction, a high degree of staff turnover, and a decline in employee productivity (Cartwright 2012).

Cross-border acquisitions affect human resources profoundly and in many different ways. Their impact on the employment rate is of great importance to host governments. Cross-border acquisitions of targets in transition economies,
especially privatization acquisitions, usually result in employee downsizing. This is expected because these targets usually have excess employees with a low level of productivity. Furthermore, in the phase of post-acquisition restructuring the new management eliminates duplicate and unnecessary functions, thus reducing the overall number of employees. Post-acquisition restructuring in transition economies also implies the transfer of more modern production technologies to the target company, which results in an even lower demand for workforce. UNCTAD research has showed that cross-border privatization acquisitions result in an increased unemployment rate (UNCTAD 2000). However, this research also showed that employee downsizing in acquired companies was smaller than the average decrease in employment at the level of the national economy. This can be explained by the fact that cross-border acquisition of targets faced with financial difficulties and facing a high risk of bankruptcy actually preserves some jobs (Kalman & Hunya 2000). There is a close connection between employee downsizing and the value of the transaction. By paying high premiums for target companies, investors come under strong pressure to reduce the target’s operating costs in the short-term. They often try to achieve this goal through considerable reductions in the number of employees. However, this approach leads to poor business performance in the long run (Krishnan et al. 2007).

The impact of cross-border acquisitions on targets’ productivity in transition economies has not yet been properly examined. Research conducted at the beginning of transition process in Eastern and Central Europe showed that the internationally acquired companies had an average productivity growth rate of 7.3%, while the average productivity growth rate in state-owned companies was slightly negative (Anderson et al. 1997). In spite of being more gradual than the European approach, the Chinese approach to transition also allows sale of state-owned companies to MNCs and results in improved total factor productivity of targets (Driffield & Du 2007).

Targets in transition economies have limited technological and marketing capabilities. Therefore post-acquisition restructuring implies development and transfer of lacking capabilities and necessary knowledge from investor to target (Meyer 2002). Improved technological and marketing capabilities increase employee productivity. Employee rightsizing is another factor that boosts employee productivity (Siegel & Simons 2010). However, post-acquisition restructuring is a time-consuming and complex process. Consequently, improvement in employee productivity has a time lag and comes one to five years after the acquisition (Karpaty 2007).
Improved employee productivity is a precondition for wage increases. The impact of cross-border acquisitions on real wages has been analysed systematically by many scholars. Previous research shows that cross-border acquisitions have a positive impact on the real wages of both skilled and unskilled workers (Bandick 2011). The increase in real wages occurs three years after the acquisition (Huttunen 2007). This is explained by the time lag in productivity improvement. Acquisition-driven improvement in the target’s productivity results in higher wages than in peer non-acquired companies (Conyon et al. 2002).

There is no comprehensive analysis of the impact of cross-border acquisitions on targets’ productivity, employment, and real wages in any Southeastern European country. In order to fill this gap, we analysed changes in employment, employee productivity, and real wages in cross-border acquisitions in Serbia in the period before and during the global economic crisis.

3. DATA AND METHODOLOGY

This paper examines the impact of cross-border acquisitions made in Serbia in the period 2003-2009 on targets’ productivity, employment, and wages. Collecting a sample was a significant issue in the research, due to the lack of a comprehensive database on cross-border acquisitions in Serbia. Therefore, sampling was based on information obtained from the Serbian Privatization Agency, the Serbian Investment and Export Promotion Agency (SIEPA), and the Internet. A sample of 79 acquisitions of large and medium-size targets with a continuity of business operations at least from 2006 to 2012, and in almost all cases longer, was thus drawn.

The sample comprises 80% of all identified transactions. Some of the largest and most important transactions (NIS, Soko Štark, Tarket, tobacco industry, breweries, and cement industry) are included in the sample. However, we did not analyse the whole population, so our statistical conclusions are limited. All the necessary data is based on official financial statements.

We compared the number of employees before and after the acquisition in order to measure the impact of cross-border acquisitions on employment. Real sale income per employee was used as the indicator of employee productivity. The values of indicators before and after the acquisition were compared to examine the impact of cross-border acquisitions on employee productivity. Real gross wages per employee before and after the acquisition were compared to examine
the impact of cross-border acquisitions on wages. The changes in taxes on employees and social security contribution rates were negligible in the analysed period and therefore do not affect the results of the analysis. In order to make the analysis more realistic, sales income and gross wages were adjusted for annual inflation rates and discounted to their 2003 values. The inflation rates used were obtained from the IMF database.

What made this analysis more complex is the 2008 global economic crisis which spilt over into Serbia. To isolate the effects of the global economic crisis, we analysed separately cross-border acquisitions made in 2003, a period of strong economic growth, and cross-border acquisitions made as of 2008, during the global economic crisis. Another reason for using this approach was that most of the cross-border acquisitions made before the global economic crisis were privatization acquisitions, while most of the targets acquired as of 2008 were privately owned companies.

Since we had paired observations, our first task was to analyse the distribution of differences between the paired observations. Using Kolmogorov-Smirnov and Wilk-Shapiro tests for all paired samples with more than 30 observations we concluded that distribution of differences between the paired observations was not normal (with the exception of one pair of distributions). By analysing skewness we also found that the distributions were not symmetric.

Considering these findings, we chose the non-parametric “paired-samples sign test” for all paired samples, or its asymptotic version for large samples, so as to determine whether there was a median difference between paired or matched observations. The test is an alternative to the dependent t-test (also called the paired-samples t-test), or Wilcoxon signed-rank test, respectively for situations when distribution of differences between paired observations is neither normal nor symmetrical. We used descriptive statistics to choose the possible statistically significant direction of change in employment, employee productivity, and real wages. We used a one-way paired-samples sign test where the null hypothesis states that the difference of medians is equal to zero. All the statistical calculations were run and executed in the program IBM SPSS Statistics 24. We used a standard level of significance of 0.05.
4. RESULTS AND DISCUSSION

In transition economies, acquisitions are fraught with risk and uncertainty. These typically arise from an unstable business environment and structural problems that date back to the socialist period. One such problem is inadequate employee structure regarding age, professional qualifications, and education. Efficient management of a target’s human resources during the acquisition process is therefore an extremely complex task, which is of crucial importance to acquisition success. The majority of companies from transition economies, including even some privately owned ones, have surplus employees. Furthermore, the employees usually lack the skills needed to compete in the market. Acquisition of targets from transition economies, therefore, implies the necessary employee rightsizing, development of lacking competencies among existing employees, and engagement of new employees who already possess the necessary competencies (Santalainen & Leimman 2003).

Foreign investors encountered these problems in the majority of Serbian companies acquired in 2003. Restructuring strategies were developed accordingly, which affected the number of employees after the acquisitions. Most of the targets were state-owned or socially owned companies. The analysis comprised 34 cross-border acquisitions. Under the assumption that we had a random sample, we decided to test the null hypothesis which states that the median number of employees in targets acquired in 2003 remained unchanged three years after the acquisition. Descriptive statistics showed that the median number of employees in the sample decreased three years after acquisition (Appendix 1, Table 1). We therefore formulated an alternative hypothesis, which states that the median number of employees in targets acquired in 2003 changed three years after acquisition. We used the paired-samples sign test and decided to reject the null hypothesis at a 0.05 level of significance (the \( p \)-value was 0.013) (Appendix 1, Table 2). At a 0.05 level of significance we concluded that the number of employees in companies acquired in 2003 decreased three years after acquisition.2

The number of employees decreased three years after the acquisitions due to the following two reasons: the targets had surplus employees before the acquisitions and the targets had a very low technological base. Previous research shows that in cross-border acquisitions the process of target restructuring results in a decreased number of employees (Uhlenbruck & De Castro 2000). Foreign investors are

---

2 Further in the text the same approach was used, so we give only the final conclusion regarding the statistical significance of the results.
aware that targets have excess employees and therefore budget for the cost of employee rightsizing in the pre-acquisition phase. On the other hand, acquisition of targets from transition economies is very similar to brown field investment, because it implies transfer of more efficient and less labour-intensive technology (Meyer & Estrin 2011). Field research shows that the technological competencies of Serbian targets were at a relatively low level and that substantial investment in new technology was necessary (Marković 2013). However, implementation of new technology resulted in a reduced number of employees because new owners were not able to expand targets’ business operations, and thus create new jobs, at the same time as carrying out the process of target restructuring.

The same methodology was used to examine the change in the number of employees six and nine years after acquisition for the targets acquired in 2003. Descriptive statistics showed that the median number of employees decreased significantly in the analysed periods (Appendix 1, Table 1). The mean number of employees had decreased from 759.47 to 375.74 nine years after the acquisition (Appendix 1, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that the number of employees decreased six and nine years after the acquisition (the p-value in both cases was 0.0005) (Appendix 1, Table 2). This was a consequence of the global economic crisis that spilt over into Serbia in 2008. Target restructuring and stabilization of business activity were not followed by the expected gradual rise in sales and employment because economic activity in the domestic market and in the key export markets fell. The acquired companies were not able to expand their business operations and thus create new jobs.

To determine whether this trend refers exclusively to companies acquired in 2003, we tested the same hypothesis on 27 companies that were domestically owned in 2003 and later on were acquired by foreign investors. Many of these companies were privately owned, and a few of them were state-owned or socially owned. Descriptive statistics showed that the median number of employees decreased in 2006 compared with 2003 (Appendix 1, Table 1). The mean number of employees in the sample decreased from 704 to 600 in the analysed period (Appendix 1, Table 1). By using the paired-samples sign test at a 0.05 level of significance we concluded that the number of employees decreased in 2006 compared with 2003 (the p-value was 0.0155) (Appendix 1, Table 2).

The number of employees in state-owned and socially owned companies included in the sample was reduced through government severance pay programmes and the natural outflow of employees. Various factors caused the decline in the
number of employees in the privately owned companies. The GDP growth rate was relatively high in this period, and a notable number of foreign companies expanded their operations into the Serbian market, increasing the pressure on domestic companies. Many privately owned domestic companies invested in technology solutions that were not labour-intensive (Marković 2013), but at the same time faced severe competition and did not manage to take full advantage of the growing domestic demand.

We identified 23 cross-border acquisitions made after the beginning of the 2008 global economic crisis. Descriptive statistics showed that the median of the number of employees fell in the analysed period (Appendix 1, Table 1). The mean number of employees in the sample decreased from 1,029 to 878 three years after the acquisitions. By using the paired-samples sign test at a 0.05 level of significance we concluded that the number of employees did not decrease three years after acquisition (the \( p \)-value was 0.105) (Appendix 1, Table 2). A potential reason could be that most of these targets were privately owned before the acquisition, meaning that there was no need for a radical restructuring that would result in considerable employee downsizing.

The drop in domestic demand that was previously funded by the inflow of foreign capital, and falling demand in the key export markets (EU, CEFTA, and Russia) – both caused by the global economic crisis – significantly slowed down economic activity in Serbia. This was a period of negative or negligible growth rates. Declining economic activity affected the number of employees in the acquired companies. To determine its impact, we analysed the entire sample (79 acquired companies). Descriptive statistics showed a decrease in the number of employees (Appendix 1, Table 1). The mean of the number of employees in these companies decreased from 664 to 543 three years after the beginning of the crisis (Appendix 1, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that the number of employees decreased three years after the beginning of the global economic crisis (the \( p \)-value was 0.00) (Appendix 1, Table 2). The prolonged economic and debt crisis in Europe accompanied by domestic structural economic problems decreased the number of employees in the acquired companies, which was in line with the general downward trend in employment in Serbia in the observed period (Statistical Office of the Republic of Serbia 2016).

Comparative analysis of real sales income per employee before and after acquisition was used to assess employee productivity in the acquired companies. There is a close connection between employee productivity and trends in the
number of employees, and the technological base of the acquired companies. As mentioned before, the majority of targets, especially state-owned and socially owned companies, had excess employees and used relatively outdated technology, both having a negative impact on employee productivity.

The majority of the 34 targets acquired in 2003 were state-owned or socially owned companies. Descriptive statistics showed that the median of employee productivity increased three years after acquisition (Appendix 2, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that employee productivity increased three years after acquisition (the p-value was 0.00) (Appendix 2, Table 2). The same method was used to analyse the periods six and nine years after acquisition. Descriptive statistics showed that employee productivity in companies acquired in 2003 improved in the long run (Appendix 2, Table 1). The mean of real sales income per employee increased from RSD 2,034,937 to 7,941,139 nine years after the acquisitions (Appendix 2, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that employee productivity increased six and nine years after acquisition (the p-value was 0.00 in both cases) (Appendix 2, Table 2).

This is in line with the previous research that shows that employee productivity in cross-border acquisitions improves 1 to 5 years after acquisition (Karpaty 2007). The following two factors brought about the improvement in employee productivity: 1) surplus employees were made redundant through target restructuring without affecting the targets’ business activities (Appendix 1), and 2) transfer of new technology from investors to targets (Marković, 2013). The latter means a transfer of more modern and less labour-intensive technology, which implies an increase in sales income.

It was important to determine whether the employee productivity in companies that were domestically owned in 2003 and were later acquired by foreign investors improved in the analysed period. As mentioned before, this sample comprised 27 companies, most of which were privately owned. Descriptive statistics showed that the median of employee productivity in these companies increased in the analysed period (Appendix 2, Table 1). The mean of employee productivity increased from RSD 2,014,619 to RSD 2,508,858 three years after acquisition (Appendix 2, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that employee productivity increased in 2006 compared with 2003 (the p-value was 0.027) (Appendix 2, Table 2). Before the crisis, private domestic companies exploited a favourable environment to improve productivity. Growing demand resulted in increased sales income, and
the pressure from MNC affiliates led to business restructuring and employee rightsizing.

The change in employee productivity in companies acquired at the beginning of the global economic crisis was analysed in the sample of 23 companies. Descriptive statistics showed that the mean of employee productivity in these companies increased from RSD 3,494,972 to RSD 3,678,164 three years after acquisition (Appendix 2, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that employee productivity increased three years after acquisition (the \( p \)-value was 0.0175) (Appendix 2, Table 2). The number of employees in these companies remained stable after acquisition (Appendix 1), which clearly indicates that the aforementioned increase was driven by increased sales income. Transfer of tangible and intangible assets from acquirers to targets pushed up the targets’ sales income even during the crisis.

The same method was used to analyse the impact of the global economic crisis on employee productivity in all targets. The analysis comprised the entire sample, 79 companies. Descriptive statistics showed that the median of employee productivity in these companies increased in the period 2008-2011 (Appendix 2, Table 1). The mean of employee productivity had increased from RSD 4,790,262 to RSD 5,862,786 three years after the beginning of the global economic crisis (Appendix 2, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that employee productivity had increased three years after the beginning of the global economic crisis (the \( p \)-value was 0.00) (Appendix 1, Table 2). A considerable number of these companies were successfully restructured before the crisis, meaning that they had a stable business base and maintained a steady sales income during the global economic crisis. On the other hand, most of these companies reduced the number of employees during the crisis (Appendix 1) and managed to maintain or slightly increase their real sales income, both of which contributed to higher employee productivity.

Improved employee productivity is a precondition for wage increases. We therefore examined whether the increase in employee productivity was accompanied by an increase in real wages. To answer this question, we analysed the trends in real wages in cross-border acquisitions made before and during the global economic crisis.

We first analysed the changes in real wages in targets acquired in 2003. Descriptive statistics showed that the mean of real wages increased three years after the acquisitions, from RSD 305,992 to RSD 558,151 (Appendix 3, Table 1). By using
the paired-samples sign test at a 0.05 level of significance, we concluded that real wages increased three years after acquisition (the $p$-value was 0.00) (Appendix 3, Table 2). Real wages went up because employee productivity improved and the new owners increased salaries to keep employees with critical competencies. These results are in line with previous research that shows a rise in wages in targets from CEE countries shortly after acquisition (Oberhofer et al. 2012). Descriptive statistics showed that the mean and the median of real wages in targets acquired in 2003 were higher during the global economic crisis (2009 to 2012) than before acquisition (Appendix 3, Table 1). The mean of real wages increased from RSD 305,992 to RSD 594,022 nine years after acquisition (Appendix 3, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that real wages increased six and nine years after acquisition (the $p$-value was 0.00 in both cases) (Appendix 3, Table 2).

In the next stage of our research we analysed changes in real wages in companies that were domestically owned in 2003 and were later acquired by foreign investors. As mentioned before, the sample comprised 27 companies. Descriptive statistics showed that the median of real gross wages in these companies increased in 2006 compared with 2003 (Appendix 3, Table 1). The mean of real wages increased from RSD 292,417 to RSD 475,680 in this period (Appendix 3, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that real wages increased in 2006 compared with 2003 (the $p$-value was 0.00) (Appendix 3, Table 2). To clarify these results, the average nominal wage in the Republic of Serbia increased by 89% in the analysed period (Statistical Office of the Republic of Serbia). Furthermore, domestic privately owned companies that were adjusting wages to market trends represent a considerable share of this sample. On the other hand, a Ballas Samuelson effect was identified in transition countries (Egert et al. 2002), meaning that wages in state-owned and socially owned companies also rose.

In the next stage we analysed changes in real gross wages in targets acquired after the beginning of the global economic crisis. Descriptive statistics showed that the mean of real gross wages increased from RSD 486,239 to RSD 512,524 three years after acquisition (Appendix 3, Table 1). By using the paired-samples sign test at a 0.05 level of significance, we concluded that real wages did not increase three years after acquisition (the $p$-value was 0.2025) (Appendix 3, Table 2). We found that these companies significantly improved their productivity in the analysed period. We therefore concluded that the new owners did not use the growing productivity during the global crises to increase real wages.
Finally, we analysed the entire sample, 79 cross-border acquisitions, to examine the impact of the global economic crisis on real wages. Descriptive statistics showed that the mean of real gross wages increased from RSD 591,255 to RSD 609,697 three years after the beginning of the crisis. By using the paired-samples sign test at a 0.05 level of significance, we concluded that real wages did not increase three years after the beginning of the global economic crisis (the $p$-value was 0.50) (Appendix 3, Table 2). As this research showed, employee productivity in these companies improved in the analysed period, which was a precondition for wage increases. However, the new owners, surprisingly, did not share the benefits from the increased productivity with their employees.

5. CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

Economic transition in Serbia accelerated after the year 2000. This increased the number of cross-border acquisitions, while many targets were state-owned and socially owned companies. Targets in transition countries, even those that are privately owned, usually have excess employees, use outdated technology, and lack marketing and management competencies. Consequently, they have to undergo radical restructuring after being acquired. The aim of this research was to determine the impact of cross-border acquisitions in Serbia on the number of employees, employee productivity, and real wages in the acquired companies. The global economic crisis, which spilt over into Serbia in 2008, made this analysis more complex.

Our research showed that the median number of employees in companies acquired in 2003 (a time of economic prosperity) decreased three, six, and nine years after acquisition. This sample is comprised of 34 cross-border acquisitions. The majority of the targets were state-owned or socially owned companies that had excess employees and used relatively outdated technology. The new owners implemented more modern and less labour-intensive technology and laid off unnecessary workers, which in the long run resulted in a decreased number of employees.

On the other hand, no significant decline in the number of employees in companies acquired after 2008, the beginning of the global economic crisis, was detected three years after acquisition. This sample comprised 23 companies that were privately owned before acquisition and had no excess employees. Furthermore, the crisis prevented the new owners from investing in less labour-intensive technology.
CROSS-BORDER M&A - PRODUCTIVITY, WAGES AND EMPLOYMENT

The entire sample, comprising 79 cross-border acquisitions made in Serbia in the period 2003-2008, was tested to determine the impact of the global economic crisis on employment. The results showed that there was a significant decrease in the number of employees in these companies three years after the crisis started in 2008.

This paper shows that the number of employees in internationally acquired companies in Serbia decreased after acquisition. Cross-border acquisitions made at the beginning of the global economic crisis are the only exception. The obtained results are explained by the condition of the target companies before acquisition, and the impact of the global economic crisis.

A similar methodology was used to analyse the impact of cross-border acquisitions in Serbia on employee productivity. The results showed that cross-border acquisitions made in 2003 led to an improvement in employee productivity three, six, and nine years after acquisition. This was a consequence of successful target restructuring, which resulted in the aforementioned employee rightsizing and increased the income from real sales.

Our research also showed that employee productivity in targets acquired after the beginning of the global economic crisis improved three years after acquisition. Analysis of the entire sample, comprising 79 cross-border acquisitions, showed that there was an increase in employee productivity in these companies in 2011 compared with 2008. This was a consequence of job cuts during the crisis and a relatively stable, or slightly improved, income from real sales.

This research shows that employee productivity in internationally acquired companies in Serbia improved after acquisition. The obtained results are attributed to successful target restructuring, which resulted in the optimum number of employees and increased income from real sales before and during the crisis.

Analysis of the impact of cross-border acquisitions on real wages consisted of three steps. First, we analysed the trends in real wages in targets acquired in 2003, before the crisis began. The results showed that there was an increase in real wages in these companies three, six, and nine years after acquisition. This is explained by the aforementioned improvement in employee productivity.

We then analysed the trends in real wages in targets acquired in 2008, the first year of the crisis. The results showed that there was no increase in real wages
in these companies following the acquisition. Finally, we analysed the trends in real wages in internationally acquired companies in Serbia during the global economic crisis. The sample comprised 79 cross-border acquisitions. The results showed that there was no increase in real wages in these companies three years after the crisis began (in 2008). This comes as no surprise, considering that companies try to keep costs down in a time of crisis. However, analysis of the same sample also showed that employee productivity improved in the analysed periods. This led to the conclusion that the new owners did not share the benefits of the improved productivity with employees. In other words, they did not use it to increase wages and thus preserve their company’s financial performance during the crisis. Therefore, the statements that cross-border acquisitions realized in Serbia resulted in higher real wages can only be accepted in part.

There are two important limitations to our research. The first refers to available data. Official financial statements submitted to the Serbian Business Registers Agency were used. However, there was no mechanism to check whether these financial statements underwent independent audit, or to see the auditors’ reports, so as to allow us to eliminate companies receiving adverse opinion, or disclaimer of opinion. Secondly, the sample of cross-border acquisitions made in 2008 was relatively small – it consisted of only 23 companies. Therefore, the obtained results should be considered with care.

Finally, our analysis allows us to make some suggestions for further research. For instance, a larger sample size would enable researchers to examine the trends in the number of employees, employee productivity, and real wages in internationally acquired companies by the different industries as well, so as to examine any industry-specific trends. Secondly, research could also be expanded to a wider geographic region, such as Southeast Europe. Since Southeastern European countries had different initial levels of economic development and their transitions are progressing at a different pace, researchers could try to determine the relationship between these two factors and the impact of cross-border acquisitions on the number of employees, employee productivity, and wages.
LITERATURE


APPENDIX 1 – EMPLOYMENT

Legend
ABC – Acquisitions realized before the crises
DBC – Domestically owned companies before the crisis
AAC – Acquisitions realized after the crisis
WSAC – Whole sample after the crisis
i – index refers to the number of years that passed after an acquisition was made. For example, i = 3 refers to the third year after the acquisition.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC₀</td>
<td>34</td>
<td>498.50</td>
<td>759.47</td>
<td>705.549</td>
<td>58</td>
<td>3,084</td>
</tr>
<tr>
<td>ABC₃</td>
<td>34</td>
<td>422.00</td>
<td>637.88</td>
<td>656.399</td>
<td>40</td>
<td>2,504</td>
</tr>
<tr>
<td>ABC₆</td>
<td>34</td>
<td>318.50</td>
<td>454.76</td>
<td>384.475</td>
<td>35</td>
<td>1,789</td>
</tr>
<tr>
<td>ABC₉</td>
<td>34</td>
<td>303.50</td>
<td>375.74</td>
<td>295.532</td>
<td>22</td>
<td>1,238</td>
</tr>
<tr>
<td>DBC₀</td>
<td>27</td>
<td>392.00</td>
<td>704.11</td>
<td>753.037</td>
<td>60</td>
<td>2,505</td>
</tr>
<tr>
<td>DBC₃</td>
<td>27</td>
<td>456.00</td>
<td>600.00</td>
<td>599.019</td>
<td>60</td>
<td>2,505</td>
</tr>
<tr>
<td>AAC₀</td>
<td>23</td>
<td>386.00</td>
<td>1029.96</td>
<td>2,494.607</td>
<td>11</td>
<td>12,182</td>
</tr>
<tr>
<td>AAC₃</td>
<td>23</td>
<td>283.00</td>
<td>878.00</td>
<td>1,991.711</td>
<td>19</td>
<td>9,650</td>
</tr>
<tr>
<td>WSAC₀</td>
<td>79</td>
<td>379.00</td>
<td>664.08</td>
<td>1,388.087</td>
<td>16</td>
<td>12,182</td>
</tr>
<tr>
<td>WSAC₃</td>
<td>79</td>
<td>310.00</td>
<td>543.30</td>
<td>1,110.360</td>
<td>9</td>
<td>9,650</td>
</tr>
</tbody>
</table>

Table 2. Sign Test

<table>
<thead>
<tr>
<th>Test Statistics a</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC₃ - ABC₀ ABC₆ - ABC₀ ABC₉ - ABC₀ DBC₃ - DBC₀ AAC₃ - AAC₀ WSAC₃ - WSAC₀</td>
</tr>
<tr>
<td>Z</td>
</tr>
<tr>
<td>Asymp. Sig. (1-tailed)</td>
</tr>
<tr>
<td>Exact Sig. (1-tailed)</td>
</tr>
</tbody>
</table>

a – Sign Test;
b – Binominal distribution used
APPENDIX 2 – EMPLOYEE PRODUCTIVITY

Legend
ABC – Acquisitions realized before the crises
DBC – Domestically owned companies before the crisis
AAC – Acquisitions realized after the crisis
WSAC – Whole sample after the crisis
\( i \) – index refers to the number of years that passed after an acquisition was made.
For example, \( i = 3 \) refers to the third year after the acquisition.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC(_0)</td>
<td>34</td>
<td>1,451,658.60</td>
<td>2,304,937.72</td>
<td>2,529,713.927</td>
<td>1,599.00</td>
<td>12,227,077.72</td>
</tr>
<tr>
<td>ABC(_3)</td>
<td>34</td>
<td>3,345,717.30</td>
<td>4,382,118.26</td>
<td>3,555,750.875</td>
<td>2,504.00</td>
<td>13,801,295.48</td>
</tr>
<tr>
<td>ABC(_6)</td>
<td>34</td>
<td>3,818,683.51</td>
<td>4,902,226.96</td>
<td>3,794,939.790</td>
<td>457.00</td>
<td>15,553,372.21</td>
</tr>
<tr>
<td>ABC(_9)</td>
<td>34</td>
<td>4,512,973.87</td>
<td>7,941,139.97</td>
<td>11,004,409.390</td>
<td>385.00</td>
<td>64,065,830.23</td>
</tr>
<tr>
<td>DBC(_0)</td>
<td>27</td>
<td>1,158,954.02</td>
<td>2,014,618.95</td>
<td>2,204,021.044</td>
<td>206,915.36</td>
<td>8,451,000.00</td>
</tr>
<tr>
<td>DBC(_3)</td>
<td>27</td>
<td>1,898,522.32</td>
<td>2,508,858.84</td>
<td>2,160,126.504</td>
<td>150,801.51</td>
<td>7,624,026.39</td>
</tr>
<tr>
<td>AAC(_0)</td>
<td>23</td>
<td>1,883,199.78</td>
<td>3,494,972.93</td>
<td>5,222,322.901</td>
<td>174,015.32</td>
<td>22,967,468.79</td>
</tr>
<tr>
<td>AAC(_3)</td>
<td>23</td>
<td>1,765,353.29</td>
<td>3,678,164.39</td>
<td>4,209,668.887</td>
<td>408,475.79</td>
<td>18,780,437.99</td>
</tr>
<tr>
<td>WSAC(_0)</td>
<td>79</td>
<td>3,342,908.51</td>
<td>4,790,262.06</td>
<td>3,839,206.991</td>
<td>174,015.32</td>
<td>15,948,568.64</td>
</tr>
<tr>
<td>WSAC(_3)</td>
<td>79</td>
<td>3,655,233.97</td>
<td>5,862,786.27</td>
<td>5,459,746.167</td>
<td>206,070.11</td>
<td>30,359,286.20</td>
</tr>
</tbody>
</table>

Table 2. Sign Test

<table>
<thead>
<tr>
<th></th>
<th>Test Statistics(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ABC(_3)-ABC(_0)</td>
</tr>
<tr>
<td>( Z )</td>
<td>-5.316</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
<tr>
<td>Exact Sig.</td>
<td>.0175(^b)</td>
</tr>
</tbody>
</table>

\(^a\) – Sign Test;
\(^b\) – Binominal distribution used
APPENDIX 3 – REAL WAGES

Legend
ABC – Acquisitions realized before the crises
DBC – Domestically owned companies before the crisis
AAC – Acquisitions realized after the crisis
WSAC – Whole sample after the crisis
i – index refers to the number of years that passed after an acquisition was made.
For example, i = 3 refers to the third year after the acquisition.

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Median</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC0</td>
<td>34</td>
<td>308,906.00</td>
<td>305,992.47</td>
<td>148,110.868</td>
<td>1,599.00</td>
<td>739,542.00</td>
</tr>
<tr>
<td>ABC3</td>
<td>34</td>
<td>528,303.50</td>
<td>558,151.88</td>
<td>257,906.975</td>
<td>2,504.00</td>
<td>1,274,639.00</td>
</tr>
<tr>
<td>ABC6</td>
<td>34</td>
<td>526,754.50</td>
<td>580,930.03</td>
<td>299,105.938</td>
<td>457.00</td>
<td>1,584,286.00</td>
</tr>
<tr>
<td>ABC9</td>
<td>34</td>
<td>525,343.50</td>
<td>580,930.03</td>
<td>299,105.938</td>
<td>457.00</td>
<td>1,584,286.00</td>
</tr>
<tr>
<td>DBC0</td>
<td>27</td>
<td>223,877.00</td>
<td>292,417.40</td>
<td>159,483.025</td>
<td>80,282.00</td>
<td>762,207.00</td>
</tr>
<tr>
<td>DBC3</td>
<td>27</td>
<td>432,986.00</td>
<td>475,680.96</td>
<td>208,210.934</td>
<td>181,523.00</td>
<td>938,024.00</td>
</tr>
<tr>
<td>AAC0</td>
<td>23</td>
<td>378,905.00</td>
<td>486,239.61</td>
<td>313,393.248</td>
<td>221536.00</td>
<td>1,587,688.00</td>
</tr>
<tr>
<td>AAC3</td>
<td>23</td>
<td>445,056.86</td>
<td>512,524.57</td>
<td>258,545.706</td>
<td>225,207.47</td>
<td>1,032,556.07</td>
</tr>
<tr>
<td>WSAC0</td>
<td>79</td>
<td>590,842.00</td>
<td>591,255.18</td>
<td>242,805.171</td>
<td>221,536.00</td>
<td>1,342,382.00</td>
</tr>
<tr>
<td>WSAC3</td>
<td>79</td>
<td>575,637.00</td>
<td>609,697.09</td>
<td>293,537.247</td>
<td>203,330.00</td>
<td>1,793,242.00</td>
</tr>
</tbody>
</table>

Table 2: Sign Test

<table>
<thead>
<tr>
<th></th>
<th>ABC3 - ABC0</th>
<th>ABC6 - ABC0</th>
<th>ABC9 - ABC0</th>
<th>DBC3 - DBC0</th>
<th>AAC3 - AAC0</th>
<th>WSAC3 - WSAC0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-5.316</td>
<td>-4.630</td>
<td>-4.287</td>
<td>-4.619</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Asymp. Sig. (1-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.500</td>
<td>.2025b</td>
</tr>
<tr>
<td>Exact Sig. (1-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a – Sign Test;
b – Binomial distribution used

Received: February 02, 2016
Accepted: December 13, 2016