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Phone: 0040-264-41.86.52, oeconomica@econ.ubbcluj.ro, http://studiaoeconomica.ubbcluj.ro/

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STUDIA UNIVERSITATIS BABEȘ-BOLYAI OECONOMICA, VOLUME 61, ISSUE 1, 2016

THE MACROECONOMIC RELATIONS OF ADVERTISING EXPENDITURE: AN ANALYSIS OF CENTRAL AND EASTERN EUROPEAN COUNTRIES

Kármen KOVÁCS[*]
University of Pécs, Hungary

Abstract. This paper gives an overview of the macroeconomic relations of advertising expenditure. The paper critically reviews studies about how aggregate advertising expenditure is related to aggregate consumption, economic growth and economic cycles. The cause-and-effect relation between aggregate advertising expenditure and aggregate consumption is not clear. However, a change in advertising expenditure can serve as an indicator at the macro level. Further, the aggregate advertising expenditure of thirteen Central and Eastern European countries (CEECs) is analysed between 2006 and 2011, emphasizing the effect of the economic crisis that started in 2008. According to the findings, an unambiguous relationship between aggregate advertising expenditure and macroeconomic factors cannot be confirmed. However, investigating four CEECs in the longer term, almost all relations are significant.

JEL Classification: E21, E32, M37

Keywords: advertising expenditure, advertising investment, consumption, economic growth, Central and Eastern European countries

1. Introduction

Scrutinizing the financial aspects of advertising has come to the fore increasingly since the middle of the 1990s. It has become important at corporate, market and macroeconomic levels as a result of the increasing uncertainty of the economic environment, with competition becoming more vigorous in markets, increasing advertising 'noise' and the significant expansion of advertising investment. The financial relations of advertising have been researched for a longer time and are at an advanced stage from the corporate, industrial and market aspects than from the viewpoint of macroeconomics. This can be explained basically, on the one hand, by the fact that advertising is a corporate activity towards the market. On the other hand, its macroeconomic analysis has become relevant due to the increasing of advertising

[*] Corresponding author. Address: Faculty of Business and Economics, University of Pécs, 7622 Pécs, Rákóczi Street 80, Hungary, Email: karmen@ktk.pte.hu

expenditure to a considerable level[1] (Chang and Chan-Olmsted, 2005; Nayaradou, 2006). Further, there are differences in countries' advertising investment due to their various economic advanced state, economic structure and social features (Deleersnyder et al., 2009; van der Wurff et al., 2008).

At the micro level the first determinant and still current issues are the effect of advertising on profitability (Comanor and Wilson, 1967, 1974; Schmalensee, 1972) and the optimal level of advertising expenditure in respect of various target market characteristics, the competitive environment and market structures (Chiplin and Sturgess, 1981; Dorfman and Steiner, 1954; Saleh and Mualla, 2001; Simon, 1970). Most companies have regarded advertising expenditure as a long-term cost, treating it as investment[2] (Robinson, 1986; White and Miles, 1996), as established by its multi-period income-generating ability through its intertemporal effects (Dickson, 1994 as cited in White and Miles, 1996: 45; Schultz, 1990), spread as competition is becoming more vigorous in many markets, with the increasing importance of intangible assets in competitiveness. Thus, the role of advertising is relevant in terms of the future performance and possible growth of companies or even their risk reduction (McAlister et al., 2007; Srivastava et al., 1998). Related to these, the return of advertising investments (ROI) is a critical point that is scrutinized by many researchers (Ambler and Roberts, 2008; Danaher and Rust, 1994; Powell, 2008; Schultz and Walters, 1997; Taylor, 2010; Young and Aitken, 2007). However, applying and analysing advertising ROI requires a different approach from that taken for capital investment, especially because advertising investment is carried out more frequently, the risk is usually greater and because there are numerous decision alternatives related to the possible combinations of advertising investment. Further, calculating advertising ROI also involves many difficulties (Lenskold, 2003; Powell, 2002). Regarding the research on advertising expenditure at the micro level, the most pressing issues are the effect of advertising expenditure on shareholder value (Heiens et al., 2007; Osinga et al., 2011; Srivastava et al., 1998) and on the market value of the company (Joshi and Hanssens, 2010), both of which are complex research fields.

The short literature review above identifies the corporate, market and industrial level relations and the varied research alternatives on advertising expenditure. However, this makes research and analysis from the macroeconomic aspect difficult, as verified by the relatively limited amount of literature on this professional field. At macro level investigations (O'Donovan et al., 2000; Molinari and Turino, 2009; Rehme and Weisser, 2007; van der Wurff et al., 2008) are focused on the assumed bi-directional relation between advertising expenditure and macroeconomic factors. Studying this field is essential since the level of advertising investment is significant in developed countries and increases considerably in developing regions. The main issue is how aggregate advertising expenditure, aggregate consumption and economic growth are related to each other. Thus, this paper investigates the macroeconomic relations of advertising expenditure. On the other hand, Taylor (2012), editor of the International Journal of Advertising, emphasizes in his editorial that there is little knowledge about *the advertising of emerging economies* and that more research is

[1] The total advertising expenditure is about one percent of GDP or more yearly in many countries (Nayaradou, 2006).

[2] Due to this the concepts of advertising expenditure and advertising investment are used as synonyms in the following.

needed. Connecting these, my paper is expanded with an analysis regarding the advertising expenditure of Central and Eastern European countries (CEECs) from the macroeconomic aspect. According to the aforementioned, in the literature review section the theories and the research findings about the relationship between advertising expenditure, aggregate consumption and economic growth are pointed out. The factors that influence advertising expenditure at the macro level are also summarized. In the following section, the advertising expenditure of CEECs is analyzed from the macroeconomic aspect.

2. Macroeconomic relations of advertising expenditure

Relationship between aggregate advertising expenditure, aggregate consumption and economic growth

One of the main issues related to advertising expenditure from the macroeconomic aspect is the relationship that exists between aggregate advertising expenditure, aggregate consumption and economic growth. Another relevant topic is how aggregate advertising expenditure is linked with economic cycles. There is no agreement in these crucial areas.

Molinari and Turino (2009) point out that aggregate advertising expenditure[3] affects aggregate consumption. Further, they emphasize that if consumers cover their additional consumption generated by advertisements from their savings, advertising contributes to consumption growth and, on the other hand, to investment decrease. In consequence of this, the net effect of advertising on demand is not obvious. Molinari and Turino (2009) claim that if consumers purchase more expensive goods as a result of advertising, real consumption can decrease through expanding advertising. However, they do not determine in which cases this substitution occurs. It can be assumed that it is valid only for certain product categories and consumer segments. By contrast, O'Donovan et al. (2000), studying New Zealand's advertising expenditure between 1984 and 1995, conclude that advertising does not influence aggregate consumption in the long run; more likely, consumption induces advertising. According to their findings, advertising expenditure has great positive elasticity related to aggregate consumption. Ashley et al. (1980), based on their empirical survey findings regarding U.S. data for the period 1956–1975, emphasize that the aggregate consumption level forecasts the value of aggregate advertising expenditure properly, that is, consumption has an effect on advertising. However, they do not reject the hypothesis that advertising does not induce consumption. Jung and Seldon (1995) argue a bi-directional relationship between aggregate advertising expenditure and aggregate consumption by analyzing U.S. data from 1947 to 1988; that is, not only does advertising influence consumption but consumption also has an effect on advertising. Cowling et al. (2011), adopting also Galbraithian (1958) thoughts, theorize that in modern capitalist economies individuals are continuously dissatisfied with their current consumption as a consequence of the high advertising expenditure level, that

[3] According to Molinari and Turino (2009), aggregate advertising expenditure is the total amount of spending by domestic and foreign companies on advertising in a certain country.

they want to satisfy their emerging desires immediately. In this way they spend more and more of their current income to satisfy their current consumption needs. However, this causes a decrease of the savings rate.

The effect of advertising expenditure on economic growth cannot be explained either by Solow's (1956) neoclassical growth model or by the logic of Molinari and Turino (2009) and Cowling et al. (2011), mentioned above. In the theory of endogenous economic growth, promotion already has a certain role, but advertising expenditure is not a relevant factor.

One early overall survey was conducted by Koch (1971), analysing 55 manufacturing industries between 1958 and 1963. He could not verify either that advertising is conducive to economic growth or that advertising hinders economic growth. Subsequent researches led to various findings. Rehme and Weisser (2007), based on analysing German data between 1950 and 2000, argue that advertising does not Granger-cause economic growth but Granger-causes consumption, and further, that consumption Granger-causes economic growth. As transitivity is not valid for Granger causality, it cannot be claimed that advertising contributes to economic growth through consumption. A bi-directional approach is applied by van der Wurff et al. (2008), who come to the conclusion by analysing 21 developed countries between 1987 and 2000 that the effect of advertising on economic growth is not significant, and rather that it is the value of GDP that influences the level of advertising expenditure. Kopf et al.'s (2011) research findings, covering 63 countries, do not confirm that advertising expenditure contributes to economic growth. However, they find that if the advertising investment rate[4] increases, the growth rate of GDP rises initially, then begins to decrease. In contrast with the aforementioned, Nayaradou (2006) establishes the effect of advertising on economic growth both theoretically and empirically. He explains this connection based on four relevant mechanisms: advertising contributes to the increase of consumption, it accelerates the diffusion of innovation, it makes competition more vigorous and the operation of the advertising industry stimulates the growth of economy. Further, he proves that there is a strong positive correlation between the advertising investment rate and economic growth.

According to the literature review above, there is no agreement related to the interdependence between aggregate advertising expenditure, aggregate consumption and economic growth. A positive correlation between aggregate advertising expenditure and aggregate consumption is proved by more surveys; however, *the cause-and-effect relation is not clear*. Furthermore, most of the researches do not verify that advertising contributes to economic growth.

The connection of aggregate advertising expenditure and economic cycles is essentially determined by how the macroeconomic factors influence the advertising investment of the companies in aggregate in a certain country or region. Companies react to crisis situations and recession in various ways in regard to modifying their advertising expenditure. During a crisis there is no best advertising investment strategy, and it depends on more factors, such as the financial situation, market share and features of supply that are the most practical for a company (Lilien and Srinivasan, 2010). There are arguments and counter-arguments for both increasing and

[4] Advertising investment rate is the ratio of aggregate advertising expenditure to GDP (Nayaradou, 2006).

decreasing advertising expenditure during a recession. Thus, optimal advertising spending should be lower if it is determined as a percentage of sales and sales decreases due to recession. However, if a firm is in a stable financial position and it can increase its advertising expenditure in this way, it can realize a higher market share during a recession. Another argument for decreasing advertising spending is that allocating resources to R&D and product development could be more profitable in the long run (Tellis and Tellis, 2009).

Although the relationship between aggregate advertising expenditure, aggregate consumption and economic growth is not clear, *a change in advertising expenditure can serve as an indicator at the macro level*. Fridriksson and Zoega (2012) find that the quantity of advertising can be regarded as a trendsetting indicator of economic cycles, since its change goes before the change in the level of investment. Similarly, Picard (2001) comes to the conclusion that the level of advertising expenditure changes before the entire economy. Van der Wurff et al. (2008), based on their above-mentioned findings, find the contrary relation to the former.

More researches prove the pro-cyclicality of advertising expenditure (Molinari and Turino, 2009; O'Donovan et al., 2000) and that its volatility is greater than the volatility of GDP and consumption (Deleersnyder et al., 2009; Molinari and Turino, 2009; Picard, 2001). Deleersnyder et al. (2009) point out that the change in advertising expenditure is less cyclic in those countries that can be characterized by a long-term orientation and a high power distance, and it is more cyclic where uncertainty avoidance is high[5]. Esteban-Bravo et al. (2012) analyse the aggregate advertising expenditure of the United States between 1935 and 2007, and prove its anti-cyclicality, which, taking the characteristics of the United States into consideration, confirms Deleersnyder et al.'s (2009) conclusion. According to Picard's (2001) findings, the relative decrease in advertising expenditure is greatest when GDP declines only slightly. However, the reduction of advertising expenditure slows down as the decrease of GDP becomes greater and greater.

Recession influences advertising in different mediums in various degrees. It has a powerful effect on newspaper and magazine advertising, but radio and television advertising is less sensitive to crisis (van der Wurff et al., 2008). The advertising expenditure data by medium of ZenithOptimedia (2010, 2012) also reflect the varied sensitivity of mediums to crisis, but at the same time they implicitly include the competition among mediums and the trend for more and more online ads instead of newspaper and magazine ads. Silk et al. (2002) find the substitute and complementary relationships between various mediums to be weak, while van der Wurff et al. (2008) emphasize that the substitutability among various mediums is changing across time and countries. Furthermore, they claim that the competition among mediums has a limited effect, if any, on the advertising investment rate.

Factors influencing aggregate advertising expenditure

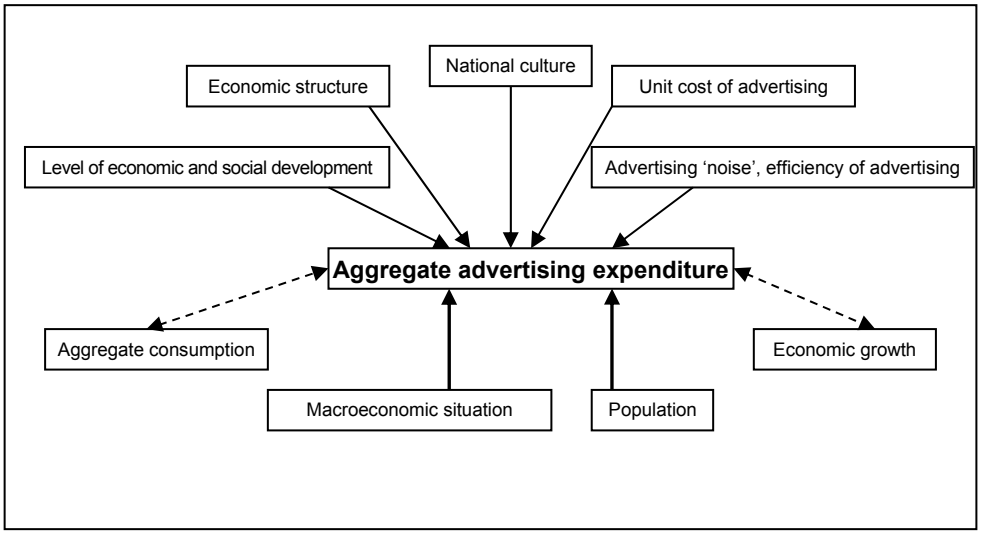
The level of aggregate advertising expenditure and the advertising investment rate, which is regarded as a relevant index, are determined by the economic and social development and the macroeconomic situation of a given country but numerous other factors also affect them. In more developed countries the level of advertising

[5] These are according to Hofstedeian dimensions.

investment is usually higher, on the one hand, because of the developed markets, the vigorous competition and the wider variety of goods and brands, and on the other hand, due to consumers having greater purchasing power and greater expectations of goods and services. (However, in more developed countries the growth of advertising expenditure is less than in developing and emerging countries, which results from the restricted expansion.)

Leff and Farley (1980) explain the relatively low level of advertising expenditure in developing countries by claiming that their economies are based on the production and export of primary goods, that is, on goods that are usually advertised less as a result of their character. Banks (1986), analysing the advertising expenditure of 43 countries between 1968 and 1979, finds that the relative economic importance of the retail, wholesale and service sectors also influences the proportion of GNP that is spent on advertising by a country. Van der Wurff et al. (2008) emphasize that the economic structure has a powerful effect on the level of aggregate advertising expenditure and the advertising investment rate, and that there are certain industries such as tourism in which advertising expenditure is high. Related to this, it is important that the relative level of advertising expenditure is relatively stable across time in various industries; that is, in those industries in which the level of advertising investment was relatively high in the 1950s, it is also currently high, and this is valid independently of the world region and country (Pepall et al., 2008). Furthermore, national culture also influences significantly the differences among countries in respect of aggregate advertising expenditure (Deleersnyder et al., 2009; Kovács, 2010). The level, the change and the differences between countries of aggregate advertising expenditure are also affected, for instance, by the unit cost level of advertising in various mediums, the degree of advertising 'noise' and the efficiency of advertising. Figure 1 summarizes the main factors influencing the level of aggregate advertising expenditure.

Figure 1. Factors influencing aggregate advertising expenditure



Arens (2006) mentions the concept of per capita advertising spending, however, the literature of the field does not underline that the level of aggregate advertising expenditure is also influenced substantially by the population of a country, that is, the number of potential consumers. In spite of that companies establish the volume of their supply and the level of their advertising investment according to the number of potential consumers. Consequently, *aggregate advertising expenditure per capita*, which expresses the level of total advertising investment per capita in a given country in a given year, can be a useful index in certain analyses and surveys. A higher value can indicate more vigorous competition, greater economic and social welfare or even also greater advertising 'noise'.

3. Analysis of the advertising expenditure of Central and Eastern European countries

The role, features and importance of advertising changed as a consequence of the transformation in CEECs to the market economy. This occurred and developed further in various ways in the countries of the region, as is also reflected in the level and change of aggregate advertising expenditure. The growth of advertising expenditure in Central and Eastern Europe is greater than the world average. Before the crisis, the advertising expenditure in the region increased by 18.6 percent in 2006 and by 22.4 percent in 2007 compared to the previous year, while a 5.6 and 5.7 percent increase occurred in the more developed Western Europe and there was a 7.3 and 6.9 percent rise worldwide (ZenithOptimedia, 2008). Apart from the Middle East & North Africa, Central and Eastern Europe reacted the most sensitively to the crisis in respect of advertising expenditure with a 17.9 percent decrease in 2009. However, the advertising market boomed quickly and a moderate expansion began from 2010 (ZenithOptimedia, 2011).

Research goals and questions

The purpose of examining the aggregate advertising expenditure of CEECs is, on the one hand, to explore the relationship between aggregate advertising expenditure and macroeconomic factors. On the other hand, to analyze the level and change of advertising expenditure and the advertising investment rate, emphasizing the effect of the crisis and the differences and similarities among CEECs. In this way, it is analyzed whether there are significant relationships between aggregate advertising expenditure and macroeconomic factors (consumer expenditure, GDP, savings ratio[6], disposable income[7]) in the case of the studied countries in short and long run. Further, which CEECs make up a cluster in terms of the level and change of their aggregate advertising expenditure. The application of aggregate advertising expenditure per capita is also presented.

[6] Savings ratio is taken into consideration since some scholars (e.g. Cowling et al., 2011; Molinari and Turino, 2009) denote a possible relation between advertising and consumers' savings.

[7] This factor is studied as it is often believed that the advertising expenditure is higher in the countries where the society is more affluent.

Research methods

In the international macroeconomic analysis of advertising expenditure, countries that are at similar levels of economic and social development and where advertising as a competitive asset has a very similar same role and importance can be investigated together and can consequently be compared with each other. Taking these and the level of GDP per capita into consideration, 15 of the CEECs are included in the survey: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Russia, Slovakia, Slovenia and Turkey.

For the calculation and the analysis, I determined the annual advertising expenditure of the countries according to the data (in national currency, nominal value) from the Euromonitor by summarizing the available values related to the various mediums (European Marketing Data and Statistics 2013, 2012: 26–32). It is important to emphasize that the alternatives for the investigation of advertising expenditure are restricted, partly because the data are in each country's national currency, with only the last year's (2011) data available also in US dollars, and partly because the earliest and the latest data series can be connected only for certain countries and factors. Hence, the advertising expenditure of the abovementioned countries is analyzed between 2006 and 2011. Furthermore, as data are not available for Cyprus and Malta, they are out of the scrutiny. In the cases of the Czech Republic, Hungary, Poland and Slovenia, longer time series can be studied. Thus, these four countries are also analyzed between 1985 and 2011.

In addition to advertising expenditure, the following variables are taken into the analysis: GDP, GDP per capita, consumer expenditure, disposable income, savings ratio, population. As the advertising expenditure data are given in national currency, the analysis of its relationships with GDP, consumer expenditure and disposable income applies their values in national currency in the same Euromonitor source (European Marketing Data and Statistics 2013, 2012: 110–1, 176–7, 297). (The only one exception is a calculation related to 2011, in the case of which the applied variables are in US dollars; see later.) The Euromonitor (European Marketing Data and Statistics 2013, 2012: 299, 350–1) data are used also in respect of the savings ratio and population. GDP per capita (in US dollars) is needed for the calculation in the interest of comparing companies, where International Monetary Fund (2013) data are applied.

In addition to the investigation of CEECs' advertising expenditure, a correlation analysis is also conducted related to macroeconomic factors. Furthermore, I try to explore by cluster analysis which countries are similar in respect of advertising expenditure. Excel and SPSS were applied in this analysis.

Research findings

First, it is worth reviewing how the level of advertising expenditure of CEECs changed in the studied period (Figure 2). Before the crisis in 2007 the level of advertising expenditure increased by 18.26 percent on average compared with the previous year in the 13 countries studied; that is, the expansion of advertising investment was significant. However, the differences between countries were relatively large, as also indicated by the standard deviation of 8.45 percent. The smallest rise occurred in the Czech Republic (6.37 percent), Slovakia (6.56 percent) and Hungary (6.65 percent), while the most dynamic one was in Estonia (33.28 percent). Figure 2

demonstrates well that the CEECs reacted to the crisis that started in 2008 sensitively and very differently in respect of advertising expenditure (the standard deviation was 22.6 percent in 2009). In 2009 only Croatia and Slovenia increased their advertising expenditure compared with the previous year. This can be attributed to the fact that tourism has a determining role in the economy of these two countries and to sustain tourism revenue advertising investments are presumably considered necessary. Croatia, from its curve, can be characterized by a kind of anti-cyclical advertising investment behaviour which suggests its long-term orientation, according to Deleersnyder et al. (2009). In contrast with Croatia, the other countries cut their advertising considerably. The level of advertising expenditure decreased the most, by 45.64 percent, in Hungary in 2009. However, the largest expansion in advertising spend occurred also in Hungary in 2010. It can be seen from Figure 2 that the advertising market in the region grew steadily in a relatively short time after the crisis developed, as expansion of advertising investment occurred again in most of the studied countries in 2010. Furthermore, the advertising expenditure increased by 13.35 percent on average in 2011. The standard deviation declined considerably at the same time.

Figure 2. Yearly percentage change in advertising expenditure of CEECs between 2006 and 2011
Own calculation based on the data from the Euromonitor

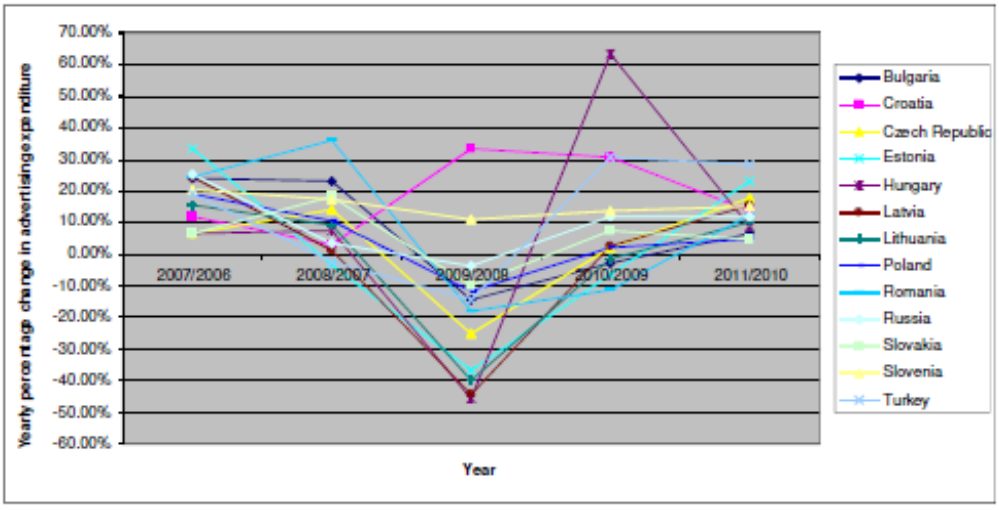


Figure 3 expresses the change in the advertising investment rate between 2006 and 2011. The advertising investment rate is under 1 percent permanently in nine of the countries, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia and Turkey, where its value diminished to a small extent throughout the crisis. The advertising investment rate is 1.5 percent in Bulgaria and a relatively high 2.5 percent in Slovakia. Like the former group of countries, the advertising investment rate of Bulgaria and Slovakia also declined when the crisis began. However, there was a significant increase in Slovenia and especially in Croatia from

2008. The advertising investment rate rose from 1.42 percent in 2008 to 2.13 percent in 2011 in Slovenia and from 1.63 percent to 3.33 percent in Croatia in the same period. This means not only that these two countries expanded their advertising investment during the crisis (Figure 2) but that the advertising also increased considerably its importance in the economy.

Figure 3. Advertising investment rate in CEECs between 2006 and 2011
Own calculation based on the data from the Euromonitor

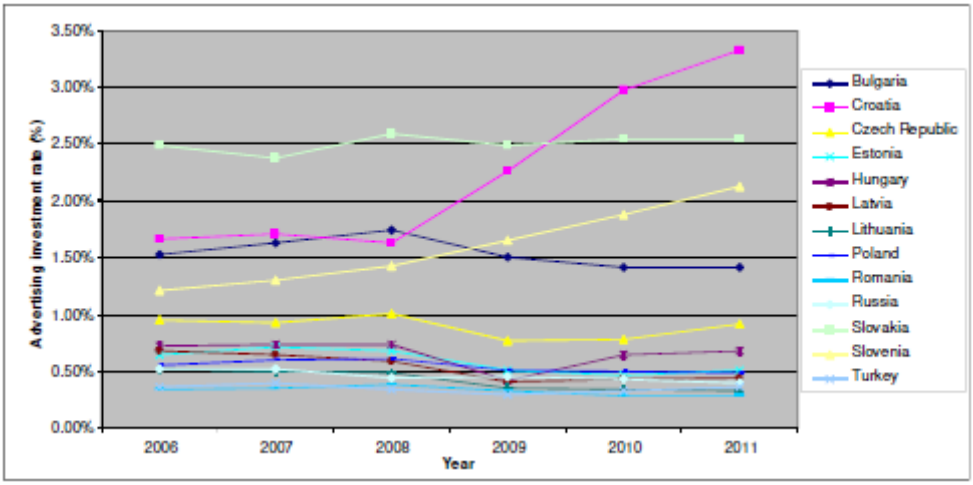


Table 1 summarizes the results of correlation analysis, and the cells show the Pearson correlation coefficient values regarding relationships between advertising expenditure and macroeconomic factors. The relationship between advertising expenditure and consumer expenditure is significant in six countries, all of which denote a strong positive relation. It is worth noting, connected with the former, on the one hand, that the advertising investment rates of these countries are very different from each other. On the other hand, the two factors correlate with each other in Slovenia but not in Croatia where advertising investment expanding during the crisis. However, as the cause and effect relationship between the two variables is not clear, it cannot be determined that it was the increase of consumer expenditure that induced the rise in Slovenian advertising expenditure or that the increased advertising during the crisis was effective. The relationship between advertising expenditure and GDP is significant only in Russia, Slovakia and Turkey, but this is a strong positive one. The correlation between advertising expenditure and the savings ratio is significant in five countries; while the result of the analysis indicates a strong negative relationship in the Czech Republic, Lithuania and Slovenia, that is the savings ratio is lower at a higher advertising expenditure level, there is a strong positive relationship in Romania and Turkey, where the savings ratio is higher at a higher advertising expenditure level. These various findings and the lack of correlation in other countries can presumably be attributed to the fact that the savings ratio is also affected by many factors that have a much greater influence than advertising (e.g. the change of real income level) and that can cancel out the power of advertising. Consequently, the assumed negative

relationship between the two variables cannot be established directly by correlation analysis. Finally, significant correlation between advertising expenditure and disposable income can be revealed in the case of five countries, Bulgaria, Russia, Slovakia, Slovenia and Turkey, where the correlation coefficient values denote a strong positive relationship. In the case of these countries, the correlation between advertising expenditure and consumer expenditure is also significant, which can be mainly explained by the fact that there is a strong positive relationship between consumer expenditure and disposable income according to the findings of the correlation analysis in these countries.

Table 1. Correlation between advertising expenditure and macroeconomic factors in CEECs
Own calculation based on the data from the Euromonitor

Country	Consumer expenditure	GDP	Savings ratio	Disposable income
Bulgaria	0.931**	0.783	-0.274	0.879*
Croatia	0.499	0.452	-0.030	0.543
Czech Republic	0.092	0.300	-0.951**	-0.012
Estonia	0.916*	0.697	-0.667	0.159
Hungary	0.175	0.266	-0.267	0.169
Latvia	0.572	0.562	-0.603	0.345
Lithuania	0.348	0.416	-0.902*	0.063
Poland	0.590	0.612	-0.757	0.564
Romania	0.710	0.670	0.836*	0.804
Russia	0.945**	0.969**	0.364	0.939**
Slovakia	0.928**	0.967**	0.683	0.909*
Slovenia	0.926**	0.672	-0.963**	0.885*
Turkey	0.877*	0.886*	0.883*	0.882*

* Correlation at 5 percent significance level.
** Correlation at 1 percent significance level.

Correlation analysis between advertising expenditure and the macroeconomic variables was also carried out for each year. The results are shown in Table 2, where the cells include the Pearson correlation coefficient values regarding the relationship of the yearly change of advertising expenditure and macroeconomic variables. A significant relation between the change of advertising expenditure and the change of consumer expenditure, GDP and disposable income is verified only for 2007, the year before the crisis. The relationship is insignificant for the years of the crisis, presumably because advertising expenditure is highly volatile and responds to economic changes sensitively (Figure 2 reflects this partly). There is a significant relationship between the change of advertising expenditure and savings ratio only in 2009, and this is a negative intermediate correlation. It denotes that as the crisis became more serious the decreasing advertising investment in most of the studied countries entailed an increase in the savings ratio.

Table 2. Yearly correlation between the change of advertising expenditure and macroeconomic factors
Own calculation based on the data from the Euromonitor

Year	Change of consumer expenditure	Change of GDP	Change of savings ratio	Change of disposable income
2007/2006	0.688**	0.689**	0.264	0.794**
2008/2007	0.327	0.431	0.166	0.392
2009/2008	0.508	0.472	-0.587*	0.395
2010/2009	0.189	0.172	0.163	0.253
2011/2010	0.366	0.326	-0.355	0.351

* Correlation at 5 percent significance level.
** Correlation at 1 percent significance level.

Completing the above, some relations of advertising expenditure are investigated also over a longer period, from 1985 to 2011, in the group comprising the Czech Republic, Hungary, Poland and Slovenia. Figure 4 shows the change in the advertising investment rate in this period. Initially, the advertising investment rate was high in Slovenia probably because it became an independent state at that time and, related to this, communication directed at consumers was necessary and relevant in many respects. From 1995 to 2008, the advertising investment rate increased moderately in all of the four countries, then after the crisis began it rose considerably in Slovenia while it fell slightly in the other countries.

Figure 4. Advertising investment rate between 1985 and 2011
Own calculation based on the data from the Euromonitor

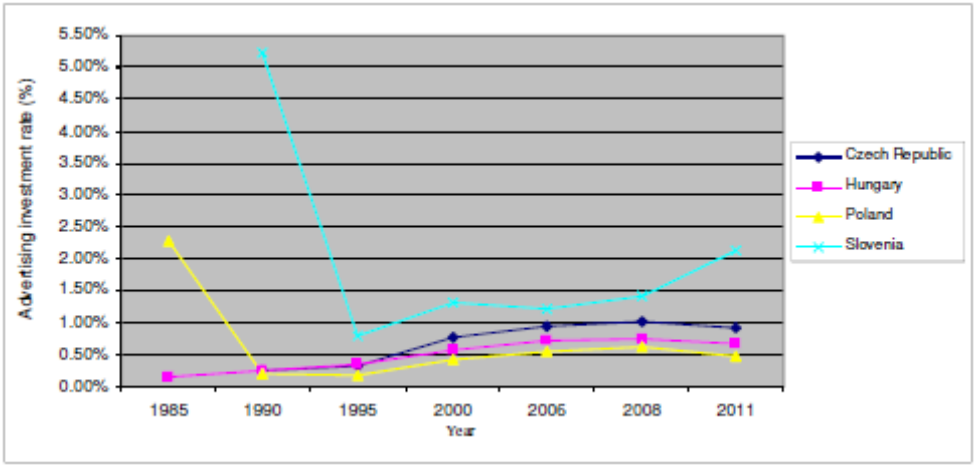


Table 3 summarizes the results of the correlation analysis related to the four studied countries between 1985 and 2011, with the cells showing the Pearson correlation coefficient values regarding the relationships between advertising

expenditure and macroeconomic factors. It can be established that advertising expenditure has a strong positive connection with consumer expenditure, GDP and disposable income in all four countries in the period. It is important that in the analysis related to a shorter period, described above, the advertising expenditure of the Czech Republic, Hungary and Poland does not correlate with any of the three mentioned macroeconomic factors. From this, it can be concluded that in the short run, and especially when an economic crisis or boom occurs, advertising expenditure often does not correlate with macroeconomic factors owing to their sensitivity to economic and social changes and high volatility. Related to this, it is interesting that advertising expenditure and the savings ratio correlate in the short run in the Czech Republic and Slovenia, but in the long run in Hungary and Poland.

Table 3. Correlation between advertising expenditure and macroeconomic factors between 1985 and 2011
Own calculation based on the data from the Euromonitor

Country	Consumer expenditure	GDP	Savings ratio	Disposable income
Czech Republic	0.980**	0.988**	-0.439	0.974**
Hungary	0.993**	0.995**	-0.937**	0.993**
Poland	0.973**	0.977**	-0.956**	0.967**
Slovenia	0.935**	0.915*	0.091	0.925**

* Correlation at 5 percent significance level.
** Correlation at 1 percent significance level.

Cluster analysis is done for the thirteen CEECs to explore which countries are similar to each other and can be considered as members of the same group in terms of the level and change of advertising expenditure. As forming clusters is intended specifically in terms of advertising expenditure, the advertising investment rate expressing the economic importance of advertising and the change of advertising expenditure are taken as variables into the analysis that is implemented by the single linkage method. Cluster analysis is carried out for the years 2007, 2009 and 2011, so before, during and recovering from the crisis separately. The findings for the various years are compared.

Figure 5a shows the position of the countries as a function of the advertising investment rate and the change of advertising expenditure and the clusters according to the findings in 2007. In forming the clusters the change of advertising expenditure has a more relevant role than the other factor since its variability is much higher. One cluster that can be characterized by a slight advertising expenditure increase includes the Czech Republic, Hungary and Slovakia. Another cluster consists of countries (Poland, Slovenia and Turkey) with an increase of about 20 percent in advertising expenditure but the cluster can be expanded by adding Lithuania, which has a moderate advertising rise. The third cluster contains Bulgaria, Latvia, Romania and Russia, which achieve an advertising expenditure expansion to about 25 percent. Two countries, Croatia and Estonia, remain outside the clusters. Other clusters are formed according to the findings for 2009 (Figure 5b). Estonia, Hungary, Latvia and Lithuania

make up a cluster that can be characterized by a significant decrease of about 40 percent in advertising expenditure because of the crisis and because the advertising investment rate is relatively low, about 0.5 percent, at the same time. The other cluster consists of countries where the decline in advertising expenditure is much less than in the previous cluster. However, the standard deviation of the advertising investment rate is much greater in this cluster. Slovenia and Croatia are outliers in 2009 as they achieve significant advertising investment expansion along with a relatively high advertising investment rate. In 2011, Hungary, Lithuania, Romania and Russia make up the cluster in which the countries are the most similar to each other in terms of advertising expenditure at the macro level (Figure 5c). They can be characterized by about 10 percent increase in advertising expenditure and a low advertising investment rate of about 0.5 percent. (They can be considered a larger cluster with Bulgaria, Poland and Slovakia.) The other cluster that can be described by significant advertising investment expansion includes Croatia, Latvia and Slovenia, and additionally the Czech Republic. Estonia and Turkey respond with a considerable advertising expenditure increase to economic recovery, compared with other countries, and they are therefore outliers. However, their advertising investment rates can be considered low at the same time.

Figure 5a. Results of cluster analysis in 2007
Own calculation based on the data from the Euromonitor

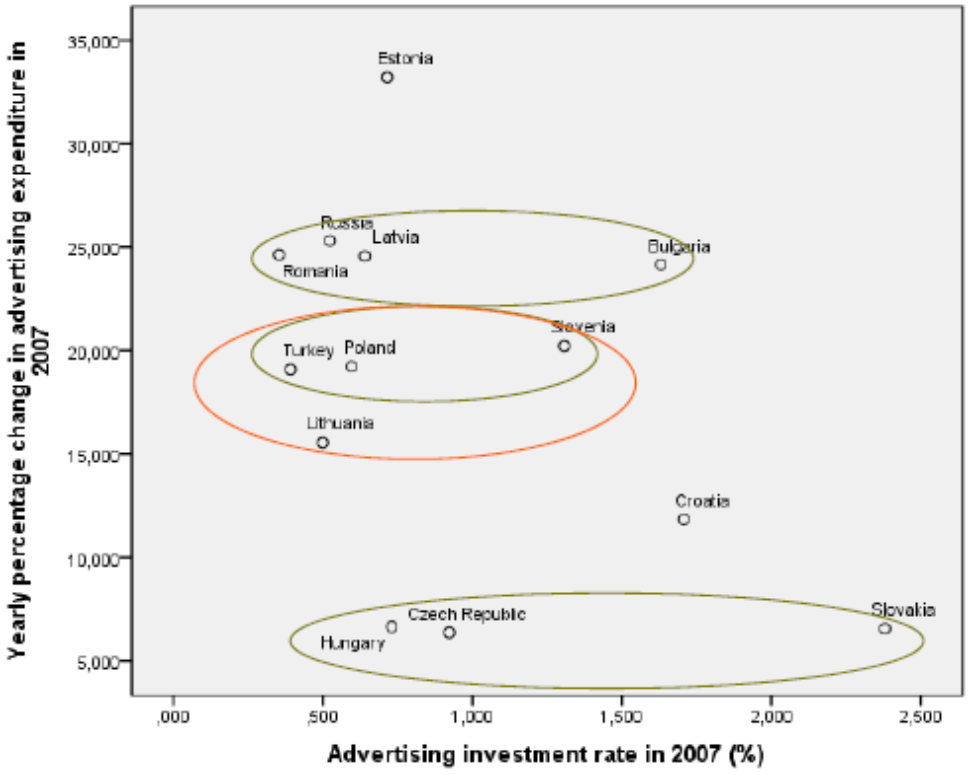


Figure 5b. Results of cluster analysis in 2009
Own calculation based on the data from the Euromonitor

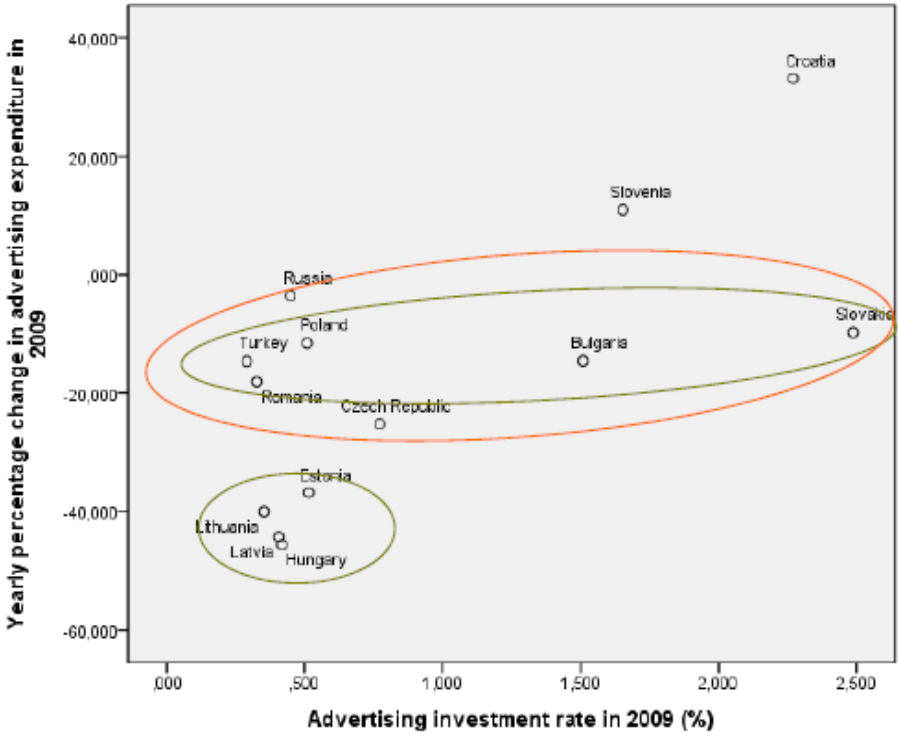
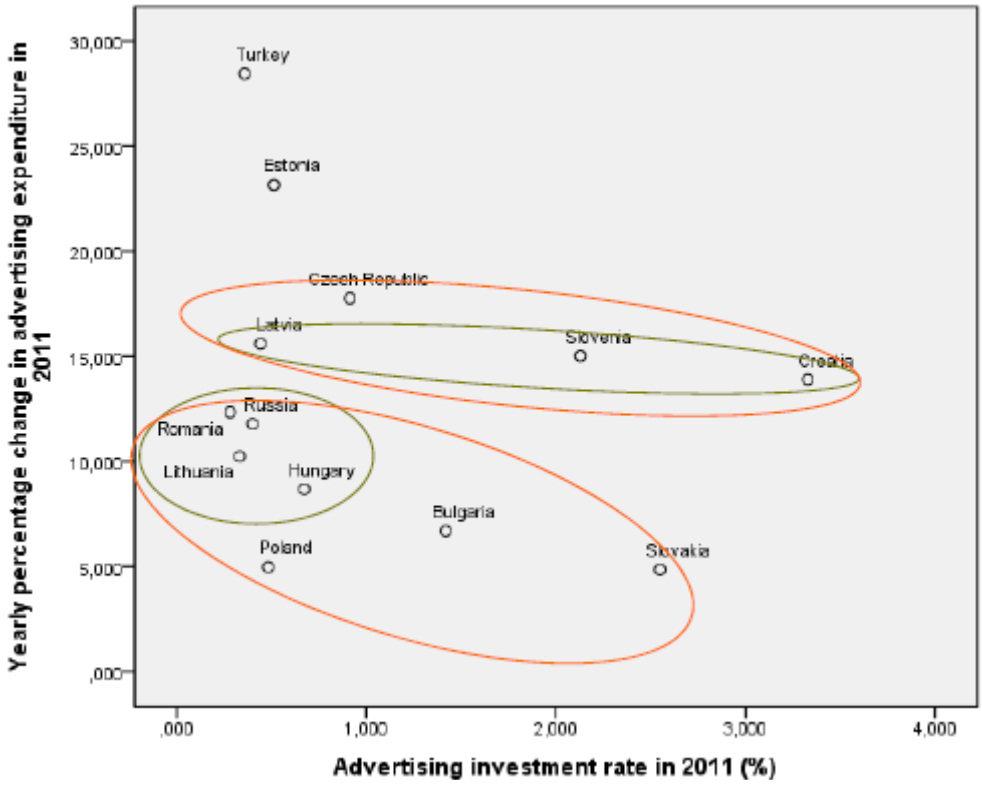


Figure 5c. Results of cluster analysis in 2011
Own calculation based on the data from the Euromonitor

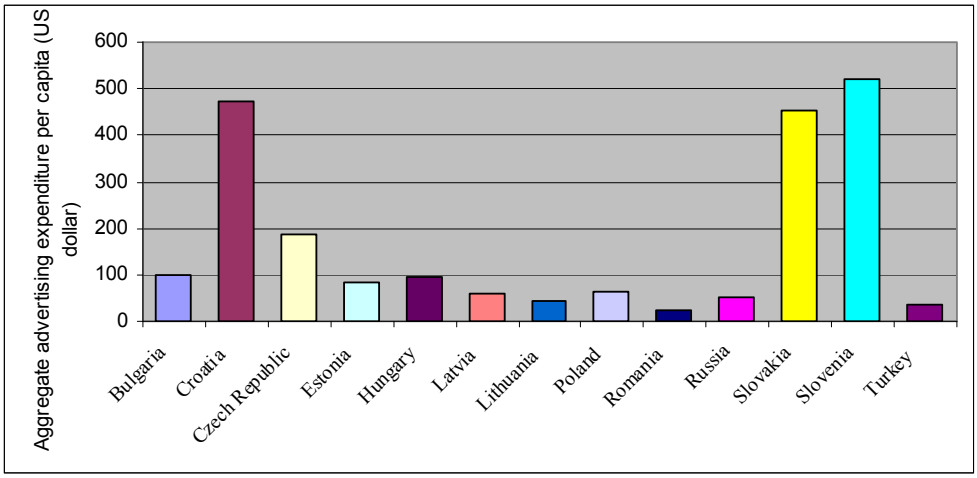


The conclusion drawn from the findings of cluster analysis is that the studied *CEECs respond extremely differently to the macroeconomic changes in terms of advertising expenditure*. *No group of CEECs can be determined which forms a cluster permanently.* The composition of the clusters identified for the given years varies. A relatively close co-movement can be noticed only in the case of Romania and Russia. The lack of permanent clusters can be attributed to the fact that determining and modifying advertising expenditure at a corporate level does not often occur on the grounds of consistent and considered strategic decisions in these relatively new market economies, and consequently advertising expenditure is very volatile. Additionally, the role of advertising in market competition is not yet stable.

In the last part of the analysis *aggregate advertising expenditure per capita* as an useful index is applied. Because the advertising expenditure of the studied CEECs is available in the same currency (US dollars) only in 2011, the investigation is limited to that year. By calculating the aggregate advertising expenditure per capita, the CEECs become easily comparable in terms of their level of advertising investment (Figure 6). The aggregate advertising expenditure per capita is the highest in Slovenia ($521.14), Croatia ($471.91) and Slovakia ($453.1). These countries are significantly ahead of the others, as they spend much more money on advertising than the other

ten countries. The value of the index can be considered relatively high also in the Czech Republic ($187.28). However, the level of advertising investment does not even reach $100 per capita in the other countries.

Figure 6. Aggregate advertising expenditure per capita in CEECs in 2011
Own calculation based on the data from the Euromonitor



The findings of the correlation calculation for aggregate advertising expenditure per capita and macroeconomic factors are shown in Table 4. Aggregate advertising expenditure per capita has a strong positive relationship with consumer expenditure and a medium positive relationship with GDP and disposable income. Its relationship is not significant with the savings ratio. It is worth comparing these findings with the last row of Table 2, which does not show any significant relationship between the changes of the factors. However, in the present case, aggregate advertising expenditure per capita can be considered a well applicable static index for exploring the presumed relations with macroeconomic factors. Finally, it is relevant that there is a strong positive correlation between aggregate advertising expenditure per capita and the advertising investment rate; that is, in those countries where the advertising investment rate is higher, the aggregate advertising expenditure per capita is also higher.

Table 4. Correlation between aggregate advertising expenditure per capita and macroeconomic factors
Own calculation based on the data from the Euromonitor

	Consumer expenditure per capita	GDP per capita	Savings ratio	Disposable income per capita	Advertising investment rate
2011	0.761**	0.638*	0.305	0.680*	0.928**

* Correlation at 5 percent significance level.
** Correlation at 1 percent significance level.

4. Conclusions

Investigating advertising expenditure from the macroeconomic aspect became relevant owing to its dynamic increase, achieving a considerable amount. Both the microeconomic background of this research field and the various theories and research findings that can be found in the literature indicate its complexity. The relationship between aggregate advertising expenditure and aggregate consumption is proved by many researchers (Jung and Seldon, 1995; Molinari and Turino, 2009), but the cause-and-effect relationship is not clear. Most of the investigations (Kopf et al., 2011; Rehme and Weisser, 2007) do not verify the effect of advertising on economic growth. The change of aggregate advertising expenditure is pro-cyclical in general (Molinari and Turino, 2009; O'Donovan et al., 2000), but in the case of certain cultural features such as long-term orientation it is characteristically anti-cyclical (Esteban-Bravo et al., 2012). Further, it is important that its volatility usually exceeds the volatility of GDP and consumption (Deleersnyder et al., 2009; Molinari and Turino, 2009; Picard, 2001). The amount of aggregate advertising expenditure is mainly determined by the level of economic and social development and the economic structure, but the national culture, the unit cost of advertising and the advertising 'noise' also affect it considerably. The number of potential consumers in a given country has also an effect on it (Arens, 2006), and therefore applying aggregate advertising expenditure per capita as an index is suggested in this professional field.

According to the findings of the analysis of thirteen CEECs, the level of aggregate advertising expenditure responds to macroeconomic changes sensitively. However, there are significant differences among the countries. In the countries (Croatia and Slovenia) where tourism is a determining industry of the economy, advertising investment expanded further, in spite of the crisis that started in 2008. In these countries, the advertising investment rate is relatively high, whereas it is permanently lower than 1 percent in most of the studied countries. All this suggests the importance of advertising in the tourism industry. An unambiguous relationship between advertising expenditure and macroeconomic factors cannot be proved. However, in some countries the correlation between advertising expenditure and one or more macroeconomic factors is significant. Investigating four countries in the longer term, almost all relations are significant; that is, relations are better verified in the long term. From the cross-section analysis, no significant relations can be demonstrated regarding the course of the crisis, probably because *in the CEECs advertising expenditure is very volatile mainly due to its sensitivity to economic changes*. The CEECs do not form clusters permanently in terms of the level and change of aggregate advertising expenditure. It can be attributed to the fact that they react to macroeconomic changes variously regarding the level of advertising investment. Finally, aggregate advertising expenditure per capita can be a highly appropriate index for time series analysis and comparing countries.

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OPTIMUM LEVEL OF INVESTMENT IN EDUCATION: SOME LESSONS FROM AN ENDOGENOUS GROWTH MODEL

Ioana VIAŞU[*]
West University of Timisoara, Romania

Abstract. Previous results show that, at equilibrium, the common growth rate is independent of the share of resources spent on education. This paper, not only improves and extends these results, but also justifies some other approaches developed. It develops new results concerning the relationship existing between the economic growth and the resource allocated to education by assuming the case of a two sectors endogenous growth model, with the hypothesis that the share of resources spent on education is a control variable. This hypothesis is in perfect accordance with the economic reality. The share of resources spent on education is chosen by governments or by individuals and thus, this quantity cannot be arbitrarily chosen. As a consequence, it has to be a control variable in an optimal program. In this way, the share of resources spent on education, determined from the optimal problem, coincides almost exactly with that of developed countries.

JEL Classification*:* C61, J22, O41

Keywords*:* education; resource allocation; optimal growth model

1. Introduction

The educational sector plays a crucial role in the process of the creation of human skills, which are the essential element of human capital. Almost all countries with high level of economic growth have labor forces with a high level of education. That is why, as it was pointed out by Lucas (1988), investment in education contributes to economic growth just as investments in the physical capital do. There is a considerable literature on this subject, both at a theoretical and empirical level. The list is extremely large and beyond the scope of the present paper. However we mention here only some papers, the most important on this field, as those of Benhabib and Spiegel (1994), Judson (1998), Mauro and Carmeci (2003), Vandenbussche et al. (2006), Hanushek and Kimko (2000), Hanushek and Woessmann (2008) and Aghion et al. (2009). Some of these papers are theoretical studies, trying to clarify the relationship between human capital and economic growth. Also, a considerable number of papers are empirical studies that confirm the strong impact of education on economic growth. Education plays a critical role in creating

[*] Corresponding author. Address: Faculty of Economics and Business Administration, West University of Timisoara, Pestalozzi, 16, 300115, Timişoara, Romania., Tel. +40.256 59 25 06, Email: ioana.viasu@e-uvt.ro

human capital, which contributes to production and economic growth just as physical capital and labor do. Almost all countries with high level of economic growth have labor forces with high level of education.

Vandenbussche et al. (2006) claim that education will increase the innovative capacity of the economy creating new knowledge and new technologies that generate growth. In fact, education adds new skills to labor and increases the capacity of labor to produce more output. However, some empirical contributions (Benhabib and Spiegel, 1994) find a positive effect on output growth of the stock of human capital and not of human capital accumulation. Other studies on the determinants of economic growth (Hanushek and Kimko, 2000, Hanushek and Woessmann, 2008) find a statistically significant positive effect of the quality of education on economic growth.

An interesting approach is presented in the paper of Aghion et al. (2009). They suggest that the relatively slow growth rate in European Union can be explained by the under-investment in higher education. The European Union invested only 1.1% of its total annual gross domestic product in higher education compared with 3% in the United States. Aghion et al. (2009) give some answers, concentrating their analysis on the economy of the United States, by means of two models - one with migration and the other without migration. A similar procedure is presented in the paper of Judson (1998), where she introduces a measure of efficiency's allocations of educational resources. The conclusion is that countries whose allocations are inefficient by this measure are gaining little from their investments in education: compared to countries whose allocations are more efficient. This finding has important implications for investment in education: if countries want to spur growth through investment in human capital, they must not invest indiscriminately. Of course, we can admit that the measure of efficiency introduced by Judson can be an argument to consider the share of resources spent on education as a control variable, but only a preliminary argument. We shall explain later the true argument and as we can see, it is connected to the neoclassic theory.

Mauro and Carmeci (2003) propose a model of endogenous growth with inefficiencies in the production of human capital caused by unemployment. Their model implies a negative long run relationship between growth and equilibrium unemployment. As was indicated by both authors, in spite of the previous results in the literature, if we can control the rate of unemployment, then the human capital accumulation has positive effects in the long run on economic growth.

In a recent paper, Chilarescu and Viasu (2014) develop a new model of endogenous growth, in which the dynamics of human capital is determined, not only by the stock of human capital and by the percentage of time dedicated to schooling, but also by the share of resources spent on education. However, in the model developed by Chilarescu and Viasu (2014), the growth rate is not affected by the amount of resources invested in education. In order to improve these results another model of endogenous growth is developed here. This time, the share of resources spent on education is a control variable. This approach is not just a simple alternative to the model developed in the cited paper, but more than this. As it is well-known, the share of resources spent on education is chosen by governments or by individuals and this quantity cannot be arbitrarily chosen. Of course, different alternatives are conceivable, but the only one that corresponds to the neoclassical theory is that where the choice is made in an optimal way. That is why this paper considers that the share of resources spent on education must be a control variable in an optimal program.

This paper is organized as follows. The second section contains the theoretical model, the third section determines the equations describing the optimal path, the fourth section studies the balanced growth path and gives some numerical simulations and the final section contains conclusions and reflections on our results.

2. The research model

This section recapitulates the Chilarescu and Viasu (2014) model, assuming a different function for the accumulation of human capital, which takes into account the amount of resources allocated to education. That is why we consider the same case of a two-sector growth model, where the first one is the goods sector that produces physical capital and the second sector is the education sector that produces human capital, both of them under conditions of constant returns to scale. The output in the good sector is produced using a Cobb-Douglas technology. Without loss of generality, we suppose that the economy is populated by a large and constant number of identical individuals, normalized to one, so that all the variables can be interpreted as per capita quantities.

$$y(t) = f[k(t), h(t), u(t)] = A[k(t)]^{\beta}[h(t)u(t)]^{1-\beta}, \beta \in (0,1) \qquad (1),$$

where $k(t)$ is physical capital, $h(t)$ is human capital that means the individual skill level, assumed to be identical for all persons employed and $u(t)$ is the fraction of time-labor allocated to the production of physical capital. β is the elasticity of output with respect to physical capital and A is a positive technology parameter. The equation describing the resources constraints of the economy is:

$$y(t) = I_e(t) + I_k(t) + c(t), \qquad (2)$$

where $I_e(t)$ means investment in education, $I_k(t)$ means investment in physical capital and $c(t)$ means per-capita consumption.

As it is well known, one of the main purposes of the resources invested in education is to increase human skills that mean human capital. The amount of the resources invested in education will be chosen by the individual or by the government. In contrast to the paper of Chilarescu and Viasu, we suppose here that $I_e(t)$ is a variable percentage of total output, that is $I_e(t) = \pi(t)y(t)$.

Naturally these variables are all functions of time, but when no confusion is possible, we write simply y, k, h, π and u. Substituting $I_e = \pi y$ into the resource equation (2) we can write following standard differential equation that describes the dynamics of physical capital:

$$\dot{k} = (1-\pi)Ak^{\beta}(hu)^{1-\beta} - c. \qquad (3)$$

Differently from the original model of Lucas I consider that the dynamics of human capital is determined not only by the fraction of time devoted to education, but also by the amount of resources allocated to education, and can be described by the following differential equation:

$$\dot{h} = \delta\pi(1-u)Ak^{\beta}(hu)^{1-\beta}, \qquad \delta > 0, \qquad (4)$$

where $\delta > 0$ is the efficiency parameter of the educational sector. As a consequence of this assumption, we can observe that if $\pi > 0$, then each individual can allocate a fraction $1-u$ of his budget of time to the educational sector and if $\pi = 0$, then each individual will allocate his budget of time only to the production sector, that means $u = 1$.

Accordingly, to the above formulations, the standard utility function is not applicable. We cannot assume that consumers' utility, at instant t, depends only on consumption at instant t. Simply because the utility function will be affected by the amount invested in education, of course, with future positive consequences. What we need is an utility function that is not separable in consumption and share of resources spent on education. For more details see the papers of Alonso-Carrera et al. (2005) and Pintus (2007). Consequently, the instantaneous utility function that we propose takes the following form:

$$U(c,\pi) = \frac{c^{1-\theta}(1-\pi)^{\gamma(1-\theta)} - 1}{1-\theta}, for\ all\ \theta > 0, \theta \neq 1\ and\ \gamma\ \in (0,1). \qquad (5)$$

γ and θ are constant parameters. γ tries to attenuate the effect of investment in education on current consumption, and θ is the elasticity of marginal utility with respect to consumption and coincides with the inverse of the constant elasticity of inter temporal substitution when γ = 0. When θ tends to one, it not difficult to show that

$$U(c,\pi) = \ln(c) + \gamma \ln(1-\pi).$$

This utility function is inspired by the papers of Alonso-Carrera et al. (2005), Bennett and Farmer (2000), Carroll et al. (1997) and Pintus (2007). The instantaneous utility function is obviously a concave function for all $\theta > \frac{1}{1+\gamma}$, increasing in consumption and decreasing in share of resources invested in education.

3. The optimal path

Without loss of generality we assume that *A* = 1 and thus the optimization problem can be written as follows.

Definition 1. *The set of paths {k, h, c, u, π} is called an optimal solution if it solves the following optimization problem:*

$$V_0 = \max_{u,c,\pi} \int_0^{\infty} \frac{c^{1-\theta}(1-\pi)^{\gamma(1-\theta)} - 1}{1-\theta} e^{-\rho t} dt, \qquad (6)$$

subject to

$$\begin{cases} \dot{k} = (1-\pi)Ak^{\beta}(hu)^{1-\beta} - c \\ \dot{h} = \delta\pi(1-u)Ak^{\beta}(hu)^{1-\beta} \\ k_0 = k(0) > 0,\ h_0 = h(0) > 0. \end{cases} \qquad (7)$$

The system (7) gives the resources constraints and initial values for the state variables *k* and *h*. To solve the problem (6) subject to (7), we define the Hamiltonian function:

$$H = \frac{c^{1-\theta}(1-\pi)^{\gamma(1-\theta)} - 1}{1-\theta} + \left[(1-\pi)Ak^{\beta}(hu)^{1-\beta} - c\right]\lambda + \delta\pi(1-u)Ak^{\beta}(hu)^{1-\beta}\mu.$$

The boundary conditions include initial values for human and physical capital and the transversality conditions:

$$\lim_{t\to\infty} \lambda(t)k(t)e^{-\rho t} = 0, \qquad (8)$$

$$\lim_{t\to\infty} \mu(t)h(t)e^{-\rho t} = 0. \qquad (9)$$

In this model, there are three control variables, *c*, *u* and π and two state variables, *k* and *h*. In an optimal program the control variables are chosen so as to maximize *H*. We note that along the optimal path, λ and μ are functions of *t* only. The necessary first order conditions for the (*c*, π, *u*) to be an optimal control are:

$$\begin{cases} \dfrac{\partial H}{\partial c} = 0 \Rightarrow \lambda = c^{-\theta}(1-\pi)^{\gamma(1-\theta)}, \\ \dfrac{\partial H}{\partial \pi} = 0 \Rightarrow [(1-\pi)y + \gamma c]\lambda = \delta(1-\pi)(1-u)y\mu, \\ \dfrac{\partial H}{\partial u} = 0 \Rightarrow (1-\beta)(1-\pi)\lambda = \delta\pi[(2-\beta)u - (1-\beta)]. \end{cases} \qquad (10)$$

Log differentiating the first equation of the system (10) we get

$$\frac{\dot{c}}{c} = -\frac{1}{\theta}\frac{\dot{\lambda}}{\lambda} - \frac{\gamma(1-\theta)}{\theta}\frac{\dot{\pi}}{1-\pi}.$$

As expected, we can observe from this relation that the control variable *c* doesn't evolve independently from the control variable π. From the second and the third equations of the system (10) it immediately follows that

$$u = \frac{(1-\beta)(1-\pi)^2 y + \pi(1-\beta)[\gamma c + (1-\pi)y]}{(1-\beta)(1-\pi)^2 y + \pi(2-\beta)[\gamma c + (1-\pi)y]}, \qquad u \in (0,1).$$

$$\frac{\partial H}{\partial h} = \lambda\beta(1-\pi)\frac{y}{k} + \delta\beta\pi(1-u)\frac{y}{k}\mu,$$

and we can determine the following two differential equations describing the trajectories of λ and *c*.

$$\frac{\dot{\lambda}}{\lambda} = \rho - \beta\frac{y}{k} - \frac{\gamma\beta\pi}{1-\pi}\frac{c}{k}, \qquad (11)$$

$$\frac{\dot{c}}{c} + \frac{1-\theta}{\theta}\frac{\dot{\pi}}{1-\pi} = -\frac{\rho}{\theta} + \frac{\beta}{\theta}\frac{y}{k} + \frac{\gamma\beta\pi}{\theta(1-\pi)}\frac{c}{k}, \qquad (12)$$

$$\frac{\partial H}{\partial h} = \lambda(1-\beta)(1-\pi)\frac{y}{h} + \mu\delta\pi(1-\beta)(1-u)\frac{y}{h}$$

$$\frac{\dot{\mu}}{\mu} = \rho - \delta\pi u\frac{y}{h}$$

Under the hypothesis $(2-\beta)u > 1-\beta$, log differentiating the last equation of the system (10) we get

$$\frac{(2-\beta)\dot{u}}{(2-\beta)u - 1 + \beta} + \frac{\dot{\pi}}{1-\pi} = -\beta\frac{y}{k} - \frac{\gamma\beta\pi}{1-\pi}\frac{c}{k} + \delta\pi u\frac{y}{h}.$$

After some algebraic manipulations and denoting by $z = \frac{hu}{k}$ and $\chi = \frac{c}{k}$ we can close the system and write down the final form

$$\begin{cases} \dfrac{\dot{k}}{k} = (1-\pi)z^{1-\beta} - \chi, \\ \dfrac{\dot{h}}{h} = \delta\pi u(1-u)z^{-\beta}, \\ \dfrac{\dot{c}}{c} + \dfrac{1-\theta}{\theta}\dfrac{\dot{\pi}}{1-\pi} = -\dfrac{\rho}{\theta} + \dfrac{\beta}{\theta}\dfrac{y}{k} + \dfrac{\gamma\beta\pi}{\theta(1-\pi)}\chi, \\ \dfrac{(2-\beta)\dot{u}}{(2-\beta)u-(1-\beta)} + \dfrac{\dot{\pi}}{1-\pi} = -\beta z^{1-\beta} - \dfrac{\gamma\beta\pi}{1-\pi}\chi + \delta\pi u^2 z^{-\beta}, \\ \dfrac{\dot{\lambda}}{\lambda} = \rho - \beta\dfrac{y}{k} - \dfrac{\gamma\beta\pi}{1-\pi}\chi, \\ \dfrac{\dot{\mu}}{\mu} = \rho - \delta\pi u^2 z^{-\beta}, \\ u = \dfrac{(1-\beta)(1-\pi)^2 y + \pi(1-\beta)[\gamma c + (1-\pi)y]}{(1-\beta)(1-\pi)^2 y + \pi(2-\beta)[\gamma c + (1-\pi)y]}. \end{cases} \quad (13)$$

4. The balanced growth path

This section is dedicated to analyze the balanced growth path (*BGP* for short), defined as the situation in which the growth rates of per-capita quantities are constant (different from zero) and the growth rates of the share of resources spent on education π, and the fraction of time-labor allocated to the production of physical capital *u*, equal to zero. The following proposition reveals the main result of the paper and examines the properties of the balanced growth path.

Proposition 1 *Let* $\gamma \in (0,1)$ *and* $\theta > 1$. *If there exists a finite* $t_* > 0$, *such that for all* $t \geq t_*$, $r_\pi = r_u = 0$, *then the above system reaches the BGP and the following statements are valid*

1. $r_k = r_c = r_h = r_y = r$, *where* r_x *denotes the growth rate of variable x.*
2. *r is solution of the following nonlinear equation*

$$\frac{[\delta\rho(1-\beta)]^{1-\beta}\beta^\beta}{[\theta+\gamma(\theta-1)]r+\rho(1-\gamma)}\left[\frac{\theta r+\rho}{[(\theta+1)r+\rho]^2}\right]^{1-\beta} = \left[\frac{(\theta+\beta-1)r+\rho}{[\beta+(1+\gamma)(\theta-1)]r+\rho(1+\gamma)}\right]^2. \quad (14)$$

3. $$\chi = \frac{c}{k} = \frac{(\theta-1)r+\rho}{\beta}. \quad (15)$$

4. $$u = \frac{\theta r+\rho}{(\theta+1)r+\rho} \in (0,1). \quad (16)$$

5. $$\pi = \frac{\theta r+\rho-\beta(r+\chi)}{\theta r+\rho+\gamma\beta\chi}. \quad (17)$$

6. *r and* χ *are increasing functions of* π, *but u is a decreasing function of* π.

Proof of Proposition 1. From the second equation of the system (13), the hypothesis of constancy of r_h, π and u, for all $t \geq t_*$, implies the constancy of z^{β} from where we get $r_k = r_h$. From the first equation of the system (13), it follows that χ will be also constant and therefore we obtain $r_c = r_k$. Let r be the common growth rate of these three variables. Hence we can write

$$\begin{cases} (1-\pi)z^{1-\beta} = r + \chi, \\ \delta\pi u(1-u)z^{-\beta} = r, \\ (1-\pi)z^{1-\beta} + \gamma\pi\chi = \dfrac{1-\pi}{\beta}(\theta r + \rho), \\ \beta z^{1-\beta} = \delta\pi u^2 z^{-\beta} - \dfrac{\gamma\beta\pi}{1-\pi}\chi, \\ u = \dfrac{(1-\beta)(1-\pi)^2 z^{1-\beta} + \pi(1-\beta)[\gamma\chi + (1-\pi)z^{1-\beta}]}{(1-\beta)(1-\pi)^2 z^{1-\beta} + \pi(2-\beta)[\gamma\chi + (1-\pi)z^{1-\beta}]}. \end{cases} \tag{18}$$

In order to solve the system above we need the following steps. In the first one we eliminate the variable z and thus obtain the system below:

$$\begin{cases} \left[\dfrac{\delta\pi u(1-u)}{r}\right]^{1-\beta} = \left(\dfrac{r+\chi}{1-\pi}\right)^{\beta}, \\ \dfrac{r + \chi + \gamma\pi\chi}{1-\pi} = \dfrac{ru}{\beta(1-u)}, \\ \pi = \dfrac{\theta r + \rho - \beta(r+\chi)}{\theta r + \rho + \gamma\beta\chi} \Rightarrow 1 - \pi = \dfrac{\beta(r + \chi + \gamma\chi)}{\theta r + \rho + \gamma\beta\chi}, \\ u = \dfrac{(1-\beta)(1-\pi)(r+\chi) + \pi(1-\beta)(r+\chi+\gamma\chi)}{(1-\beta)(1-\pi)(r+\chi) + \pi(2-\beta)(r+\chi+\gamma\chi)}. \end{cases} \tag{19}$$

In the second step we eliminate the variable π to obtain the following system

$$\begin{cases} \left[\dfrac{\delta\pi u(1-u)}{r}\right]^{1-\beta} \dfrac{[\theta r + \rho - \beta(r+\chi)]^{1-\beta}}{\theta r + \rho + \gamma\beta\chi} = \left[\dfrac{r+\chi}{\beta(r+\chi+\gamma\chi)}\right]^{\beta}, \\ [(2-\beta)(\theta r + \rho) - \beta(r+\chi)]u = (1-\beta)(\theta r + \rho), \\ u = \dfrac{\theta r + \rho}{(\theta+1)r + \rho.} \end{cases} \tag{20}$$

In the third step we eliminate the variable u and thus we get

$$\begin{cases} \left[\dfrac{\delta\rho(\theta r + \rho)}{[(\theta+1)r + \rho]^2 r}\right]^{1-\beta} \dfrac{[\theta r + \rho - \beta(r+\chi)]^{1-\beta}}{\theta r + \rho + \gamma\beta\chi} = \left[\dfrac{r+\chi}{\beta(r+\chi+\gamma\chi)}\right]^{\beta}, \\ \chi = \dfrac{(\theta-1)r + \rho}{\beta}. \end{cases} \tag{21}$$

We can now substitute _ into the first equation of the above system and thus we finally obtain the following nonlinear equation

$$\frac{[\delta\rho(1-\beta)]^{1-\beta}\beta^{\beta}}{[\theta + \gamma(\theta-1)]r + \rho(1-\gamma)}\left[\frac{\theta r + \rho}{[(\theta+1)r + \rho]^2}\right]^{1-\beta} = \left[\frac{(\theta + \beta - 1)r + \rho}{[\beta + (1+\gamma)(\theta-1)]r + \rho(1+\gamma)}\right]^2$$

that can be solved only by means of a numerical procedure to determine *r*. Let us now denote by

$$F(r) = \frac{[\delta\rho(1-\beta)]^{1-\beta}\beta^{\beta}}{[\theta+\gamma(\theta-1)]r+\rho(1-\gamma)}\left[\frac{\theta r+\rho}{[(\theta+1)r+\rho]^2}\right]^{1-\beta} - \left[\frac{(\theta+\beta-1)r+\rho}{[\beta+(1+\gamma)(\theta-1)]r+\rho(1+\gamma)}\right]^2 \qquad (22)$$

The derivative of the function *F* with respect to *r* is strictly negative and therefore the function *F* is strictly decreasing. Consequently because

$$F(0) > 0 \; and \; \lim_{r\to\infty} F(r) < 0,$$

there exists a unique positive *r* that satisfies the equation *F*(*r*) = 0. We have now to prove that $\pi \in (0,1)$. Because $\beta(r+\chi) > 0$, what we need is to prove that $\theta r + \rho - \beta(r+\chi) > 0$. We can write

$$\theta r + \rho - \beta(r+\chi) = (\theta-\beta)r - \beta\chi + \rho = (\theta-\beta)r - (\theta-1)r = (1-\beta)r > 0$$

for all *r* > 0 and therefore $\pi \in (0,1)$.
Substituting χ from Eq. (21) into the third Eq. of (19) we obtain

$$r = \frac{\rho(1+\gamma)\pi}{1-(\theta+\gamma\theta-\gamma)\pi} \qquad (23)$$

and the derivative of *r* with respect to π is then given by

$$\frac{dr}{d\pi} = \frac{\rho(1+\gamma)[1+(\theta+\gamma\theta-\gamma)(1-\pi)]}{[1-(\theta+\gamma\theta-\gamma)(1-\pi)]^2} > 0.$$

Taking the derivative of *u* with respect to π into the Eq. (16) we get

$$\frac{du}{d\pi} = \frac{du}{dr}\frac{dr}{d\pi} = -\frac{\rho}{[(\theta+1)r+\rho]^2}\frac{dr}{d\pi} < 0.$$

Taking now the derivative of χ with respect to π into the Eq. (15) we get

$$\frac{d\chi}{d\pi} = \frac{d\chi}{dr}\frac{dr}{d\pi} = \frac{\theta-1}{\beta}\frac{dr}{d\pi} > 0.$$

We have now to check whether the steady state found above, satisfies the transversality conditions. For the two transversality conditions, given by Eqs. (8) and (9), we have that

$$\lim_{t\to\infty}\left[\frac{\dot{k}}{k}+\frac{\dot{\lambda}}{\lambda}-\rho\right] = \lim_{t\to\infty}\left[\frac{\dot{h}}{h}+\frac{\dot{\mu}}{\mu}-\rho\right] = -(\theta-1)r-\rho < 0,$$

and thus the proof is completed.
As we can observe from Eqs. (17) and (23), the variables π and *r* and consequently also *u* and χ, are affected by the level of the constant parameter γ. Numerical simulations show that along the steady state equilibrium, the variables *r*, χ and π are decreasing functions of γ and *u* is an increasing function of γ. Unfortunately, I am unable to prove this assertion, and hope that this open problem could be solved by future researches.

Finally I present the results of a numerical simulation procedure. The benchmark values for the economy we consider are the following: β = 0.25, δ = 0.06, ρ = 0.04, γ = 0.10 ÷ 0.15, θ = 1.5 and coincide with those estimated by Lucas (1988) or considered later by Benhabib and Perli (1994), and Caballe and Santos (1993). The results are presented in the next table.

Table 1. Numerical simulation

γ	r(%)	π(%)	u(%)	$\chi = \frac{c}{k}$	$\psi = \frac{h}{k}$	$z = \frac{y}{k}$
0.10	0.54	7.77	89.86	0.1708	0.2127	0.1911
0.11	0.53	7.61	89.97	0.1707	0.2118	0.1906
0.12	0.53	7.46	90.08	0.1706	0.2109	0.1900
0.13	0.52	7.31	90.19	0.1704	0.2101	0.1894
0.14	0.51	7.16	90.30	0.1702	0.2092	0.1889
0.15	0.50	7.02	90.40	0.1701	0.2083	0.1884

5. Conclusions

Before giving some comments and conclusions onto the numerical simulations, some remarks are necessary. The first part of the paper tries to argue why a different approach is necessary in order to understand better the impact of investment in education on economic growth. Differently to the paper of Chilarescu and Viasu (2014), this paper introduces a new utility function and a new control variable. The two properties of the utility function, non separability and concavity in both variables, are crucial properties that enable us to obtain these results. Of course, the results obtained are quite different from the previous results and this is not at all surprising. In this paper, the share of resources spent on education is a result of the optimization problem, not a fixed quantity as in the cited paper. Another result is also worthy to be pointed out. The share of resources spent on education, determined from the optimal problem, coincides almost exactly with that of developed countries. This is not at all a surprising result. More than this, it is just a confirmation of the validity of the two new hypotheses of the model.

Consequently, a general conclusion is almost obvious. It was proved in this paper, considering the part of resources allocated to the education as a control variable, that this one will increase the skills of human capital and turns out to have significant and positive effects on the long-run economic growth. This evidence goes in favor of a positive growth effect of investment in education that has been questioned in the literature since the contribution of Benhabib and Spiegel (1994).

The results of the numerical simulations are fully consistent with the above theoretical assertions and reinforce earlier results cited in our paper. Namely, investments in educations are the number one investment priority in the developed countries, and our results confirm that this level is close to 7.5% of *GDP*, and it almost coincides with those of developed countries.

One of the main limits of this paper consists in the fact that the solutions obtained are not analytical solutions. Also, the equation that enables us to determine the optimal level of variables can be solved only by numerical simulations. In a future paper we will try to introduce a new utility function and a new equation describing the trajectory of human capital and thus, this approach will improve substantially the findings obtained in this paper.

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MANAGING THE PRECOMBINATION PHASE FOR ENHANCED MERGER AND ACQUISITION SUCCESS

Andrej NARALOČNIK[*]
IEDC Bled School of Management, Slovenia

Andrej BERTONCELJ
University of Primorska, Slovenia

Abstract. The aim of this paper is to investigate the precombination phase of merger and acquisitions (M&As). The study of two implemented M&A cases in Slovenia shows that the precombination phase and related groups of success factors highly contribute to overall success with M&A. The proposed paradigmatic model may serve as an additional reminder when companies join forces. Study results show that precombination phase considerations lead to the notion of compatibilities and complementarities between combining companies; commonly referred as strategic, organizational and financial 'fit' and that indicated groups of strategic, financial and organizational success factors can be classified towards such 'fit' areas.

JEL Classification: E 22, D 23, G 34

Keywords: mergers and acquisitions, precombination phase of M&A, strategic intent, strategic fit, financial fit, organizational fit, Slovenia

1. Introduction

While 2014 was a record-breaking year in terms of mergers and acquisitions activity (hereinafter referred as M&A) in excess of US$ 3.5 trillion worth of transactions, forecasts point toward an even higher level of M&A activity for 2015 (Thomson Reuters, 2014). Empirical studies suggest that more than half of them fail to produce results at best they are break-even situations (Schraeder and Self, 2003; Bertoncelj and Kovač, 2008; Hassan et al., 2007). Billions of euros are spend on M&A with diminishing results.

This study examines two M&A case practices being adopted in the pre-combination phase of an M&A – 'a period that typically has not been utilized by leaders to put deals on the track toward success' (Marks and Mirvis, 2015:1). The focus of

[*] Corresponding author. Address: IEDC Bled School of Management, Prešernova cesta 33, 4260 Bled, Slovenia, Email: andrej.naralocnik@siol.net

the paper is pre-combination M&A phase; 'it encompasses strategizing, scouting, assessing and selecting a partner, deal structuring and preparing for eventual combination' (Marks in Mirvis, 2010:53). Precombination phase is understudied and thus appealing to M&A scholars and practitioners (Very and Schweiger, 2001; Hubbard, 2001; Bruner, 2004; Harding and Rouse, 2007). Underlying presumption is that thoroughly prepared, effectively organized and competently led acquirers can better obtain, accumulate and apply essential M&A related knowledge throughout the transaction. As such, they can continuously improve and build on their corporate M&A capabilities. Being able to proactively build such strategically vital capabilities, at best, greater than those from emerging competitors, implies distinctive competitive advantage. As a result, sought for strategic objectives are more likely to be achieved and distinctive M&A related core competencies can be developed.

The research objective was to identify what were the most important groups of strategic, financial and organizational success factors in the context of pre-combination phase and how acquirers' strategic motive-intent (Bower, 2001) for M&A factored in. More specifically, study aim is to identify the most relevant groups of strategic, financial and organizational success factors in the context of precombination phase. Such precombination considerations lead to the notion of compatibilities and complementarities between combining companies; commonly referred as strategic, organizational and financial 'fit' (Lee and Pennings, 1996; Clemente and Greenspan, 1998; Harding and Rouse, 2007; Sirower, 1997). Acquirer's strategic M&A intent (Bower, 2001; Hubbard, 2001; Marks and Mirvis, 2010) with accompanying strategic objectives predisposes most suitable level of 'pre-combination fit' in above mentioned areas (Naraločnik and Bertoncelj, 2015). Related complexity of postcombination integration challenges (Naraločnik and Bertoncelj, 2015; Hubbard, 2001) are the result of the foregoing.

This paper is structured as follows: first, the development of a research based conceptual model for developing M&A capabilities in precombination phase is discussed. Next, the research methods used are described, including the selection and properties of the sample, data collection method and the technique of qualitative content analysis. Third, the analysis and results of the study are presented and, following that, in the concluding section, the findings and their implication are discussed.

2. Pre-combination M&A capabilities and competences

2.1 Precombination M&A leadership capabilities and related competencies

M&A processes are organizational change processes that demand powerful M&A leaders and fully engaged followers (Jackson and Parry, 2011; Ladkin, 2010; Haslam et al., 2011). Pre-acquisition organizational formation and specific M&A related leadership competences are crucial for increasing the success rate of M&A deals (Dunbar, 2014). Implementation of M&A initiatives cannot come to life if the leaders fail to influence and motivate numerous organizational followers toward such a high reaching purpose and goals (Porter and Mc Laughlin, 2006). Particular leadership behavior–style can affect the level of successful completion of M&A organizational change processes. Already in precombination phase, the characteristics of both leaders (of combining companies) need to be addressed through the perspective of the possibilities for reaching agreement. Whether both leaders possess traits of mutual incompatibilities, such as for example extreme arrogance behaviour on each side, this kind of risks needs to be taken seriously and negotiation strategy adjusted accordingly.

Sometimes the incompatibility can be shown as simple as to disagreement of who should get the top jobs (Stahl and Sitkin, 2002). By doing so, we can identify early on, which higher level leaders and also middle level managers of both companies can be retained after the deal and which leadership competencies must be consolidated in the integration phase.

2.2 Precombination corporate M&A capabilities and related competencies

M&A work context requires specific organizational capabilities and resultant competencies. In order to effectively conduct M&A related projects, a team of M&A knowledgeable employees need to be identified and called upon early in the process (Marks and Mirvis, 2010; Uhlander and West, 2011). Whether such individuals exist and such specific M&A knowledge is institutionalized (being transferred) throughout the organization it can become organizational core competency-its strategic strength. According to Connerty and Lavoie (2014) it is very unusual for a company's core competencies to overlap with the competencies required for executing M&A related strategies. Companies typically do not consider M&A related knowledge as an intended core competency, so the rarely institutionalize it into organization. The skills that frequent acquirers develop and that give them M&A advantages are related to the ability of effective translation of the acquisition strategy to their own operations and personnel. Such preparation accompanied with institutionalized learning (supported by M&A policy, procedures and guidelines), accelerates the development of a distinctive core competency.

2.3 Precombination strategic intent and related objectives

Strategic intent (Bower, 2001) has to be well defined already in a preparation phase of a combination and related business cases supporting or arguing against the deal need to be taken into consideration (Marks and Mirvis, 2010). Strategic intent of a combination is the rationale for the combination thus presenting the objectives for the newly created-integrated organization. The results set a direction for increased growth, profitability, and market penetration or diversification opportunities (Hubbard, 2001). With regards to strategic intent selection (Haspelagh and Jemison, 1991) acquirer has to ensure, that the proposed acquisition support the company's overall corporate renewal strategy. Giving limited information and the need for secrecy and speed such process entails, the development of a meaningful justification for 'the right' acquisition is even more demanding. In practice, there is an on-going search for appropriate balance between strategic (buying) opportunism and detailed planning of the integration process that follows.

2.4 Precombination analysis of strategic, financial and organizational fit

Possible effect of strategic, financial and organizational compatibility-and-complementary; i.e., fit between combining companies on mergers-and-acquisitions-outcomes is crucial for understanding the evolution of the newly created organization (Marks and Mirvis, 2010; Haspelagh and Jemison, 1991; Sirower, 1997; Lee and Pennings, 1996; Clemente and Greenspan, 1998; Bruner, 2004; Herd and Perry, 2004). According to Sirower (1997:19), 'many acquirers do little precombination planning and even those that do, achieve rather limited synergetic gains'. Managing for synergy or synergetic gain is thus in many ways like managing a new business. Based on such notion, relevant groups of strategic, financial and organizational fit factors

should be identified and assessed already in the precombination phase. By identifying and assessing their positive and negative implications toward the achievement level of predefined M&A objectives, 'factors can become a useful tool that can be controlled by management' (Bertoncelj and Kovač, 2008:216).

3. Integrated conceptual framework

The conceptual framework was developed in which it is emphasised the importance of interconnectedness between the case specific strategic M&A intent (Bower, 2001; Weber at el., 2011) and the degree of required and achieved level of fit between combining companies.

Figure 1: Conceptual framework for developing M&A capabilities in precombination phase

<table>
<tr><td colspan="5">Degree of Required and Achieved Integration</td></tr>
<tr><td rowspan="3">Strategic intent and associated risks</td><td rowspan="2">Developing M&A Capabilities</td><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Strategic Fit</td><td>Financial Fit</td><td>Organizational Fit</td></tr>
<tr><td>A particular case study M&A intent</td><td>Degree of required and achieved FIT</td><td>Degree of required and achieved FIT</td><td>Degree of required and achieved FIT</td></tr>
</table>

Subsequent post-combination integration challenges (Hubbard, 2001; Haspelagh and Jemison, 1991; Duncan and Mtar, 2006) correlate with the level of sought for and (likely) achieved fit in the strategic, financial and organizational areas (Marks and Mirvis, 2010; Sirower, 1997; Lee and Pennings, 1996; Clemente and Greenspan, 1998; Cartwright and Cooper, 1995; Bruner, 2004). Well-organized acquirers should strive to pre-design a fit (i.e., match) between combining companies and efficiently execute the integration process that follows (Marks and Mirvis, 2010). Induced M&A capabilities and resulting competencies should be pre-developed and institutionalized throughout organization (Connerty and Lavoie, 2014).

Comprehensive estimates that derive from conceptual framework suggest the possible lack of required fit and point to the consequent risks areas (e.g., organizational culture incompatibility (Marks and Mirvis, 2010; Weber et al., 1996) and resulting cultural clash. With such a comprehensive considerations, a well-organized acquirer can take precautionary steps and thoroughly prepare for the challenges ahead.

Our argument is that deep understanding of the strategic intent of the acquirer as well as serious examination of the corresponding strategic, financial and organizational fit factors between the companies serves as a road map, to guide the combination and show how it might work. We want to further emphasise that M&A processes substantially differ from one another depending of the pre-combination strategic intent of the acquirer and associated complexity of post-combination integration challenges.

4. Methodology

In order to examine the object of study - positive or negative contributions of precombination phase and related success factors to M&A success, inductive - qualitative case study research approach and related roadmap for building grounded theory was applied (Yin, 1984, 1981; Eisenhardt 1989; Mintzberg and McHug, 1985; Harris and Sutton, 1986; Pettigrew, 1988; Hesse-Biber and Leavy, 2004). Multiple case study (and comparison) of two Slovenian M&A cases, one representing an M&A within the finance (insurance) industry and the other M&A within the food processing (coffee) industry was used. This approach was chosen because of small number of executed M&A deals in the territory of Slovenia (10 in 2014, 7 in 2013 and 14 in 2012) (ATVP, 2015). Furthermore, access to the data of such complex processes is highly restricted to outsiders. We had the unique possibility to reach the highest level executives involved in the chosen cases and have used it to explore the precombination phase M&A activity.

4.1 Sampling method

The sample for this study was drawn from the population of two implemented M&A cases between insurance (Case 1) and food-processing (Case 2) companies during the 2005-2006 periods. A combined and extended dual case study approach was used. With respect to the extended nature, the focus was on a very deep dive into each case. The dual refers to the two case studies developed which afforded comparison and contrast of the data enriching our ability to analyse the data. Moreover, the cases came from different industries, and while similarities were certainly present, the differing nature of the industries also diversified the data we were able to work with. In both cases, acquirers had similar strategic intents such as to roll up competitors through consolidation in relatively maturing industries and the initial intention to fully integrate acquired companies (i.e., by means of horizontal integration). To avoid possible sample bias, no individuals that were relevant to the research topic were excluded. The sample was intentionally purposive and restricted to only those executives and acquisition project managers who had been included in the M&A process from the very beginning and were aware of most relevant factors that determined the implementation. This screening procedure resulted in a sample of 30 interviewees, of that 25 interviewees confirmed their participation in the study. In this way, we executed 14 interviews to collect data related to the M&A of Case 1 and 11 interviews related to Case 2. Considering that the performance of acquisitions is generally viewed as an extremely sensitive topic, the response rate of 83-percent is considered very satisfactory.

4.2 Data Collection Method

For the purposes of study and finding answers to research questions we used the semi-structured interview method. It allowed us the ability of creating framework topics and questions (i.e., interview-protocol), we intended to ask the interviewees (Yin, 1984). We tried to avoid possible biases of studying past events (collecting retrospective data) by applying the structured nature of interview protocol instrument that allowed respondents to freely speak about the events from their own perspective. Conversations with informants were aimed at understanding

the views and experiences the informants gained through their direct involvement in the studied M&A cases. The interview protocol was thus comprised of 28 questions, which were divided into 8 topics. Adjustments were made with regards to the preliminary interviews findings (Harris and Sutton, 1986). The first set of questions was designed to obtain general information about the research participants and the observed M&A case. They were followed by questions about the characteristics and structure of the team in the observed M&A case. The third set of questions was about strategizing about possible combinations. In particular, we asked the research participants to evaluate the earliest phases of the M&A process and describe the sequence of events in this phase. With the fourth substantive set of questions we wanted to identify and assess the influence of incentivizing and disincentivizing factors to the success of the precombination phase of the M&A case. The topic of the fifth set of questions was focused on the interviewee's assessment of levels of integration in the area of strategy, finance and organization. In the sixth set of questions, we asked the informants about the realization of the objectives of the combination. With the seventh set of questions we were looking for answers regarding the acquired knowledge and experience and documenting these. The final set of questions was focused on the abstraction of informants' opinions about the value/impact of precombination phase in future M&A projects.

Individual, oral, face to face, open type of investigative-semi-standardized-design of interview was applied (Lamnek, 1995). Interviews were recorded, notes were taken. Additionally and to enrich our findings, our aim was to analyse data from companies' dossiers, resulting from documentation, created during preparation and implementation of discussed M&A cases. In total 215 pages of documents were examined. Such multiple data collection methods (triangulation) provided even stronger substantiation of constructs (Eisenhardt, 1989).

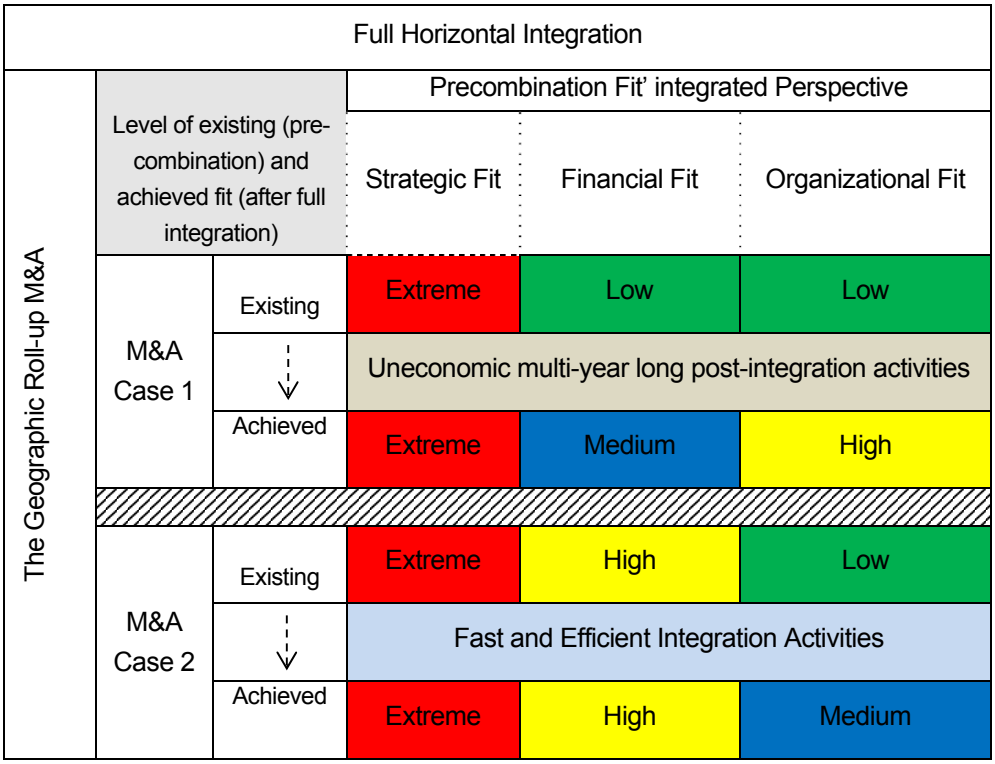
4.3 Qualitative Content Analysis

The main objective of qualitative content analysis was the creation of concepts, hypotheses and explanations, namely a grounded theoretical formulation, which reads like a narrative (i.e., story) about a phenomenon, namely the object of study. The central part of the qualitative content analysis was thus the process of coding within which the meaning (by attaching concepts and categories) of individual segments of collected empirical material is interpreted or defined. The primary purpose of the analysis was the clarification of the research phenomenon by identifying and explaining the relationships among qualitative data and designing of theoretical formulations (Saunders et al., 2007; Hesse-Biber and Leavy, 2004). We achieved this by dividing the entire process of data analysis into several steps or phases (Stirling, 2001), which we summarized after (Saunders et al., 2007): processing of material, defining of topics and units of coding, open coding, attributing concepts to empirical material, agglomeration of related concepts into categories, axial coding and analysis of characteristics of concepts and categories, selection and definition of relevant concepts and categories, summarizing thematic networks or designing of a paradigmatic model and creation of interpretation or final theoretical formulations.

5. Results

In the context of planning and implementation of precombination phase we note that integrations of Case 1 and Case 2 were fairly similar. In both cases the nature of primary motivators was strategic (i.e., strategic synergies in the context of strengthening market share and expansion of distribution channels as well as stronger product portfolios and resulting enhanced reputation) and in both cases pre-combination phases were not comprehensively and systematically pre-planned. They were also not conducted in accordance with theoretical concepts that define methods of their preparation / implementation (Jamison and Sitkin, 1986; Galpin and Herndon, 2000; Connerty and Lavoie, 2014; Ahammad and Glaister, 2013). We found out that both studied companies were not thoroughly prepared for such an undertaking and struggled to fully realize pre-combination stated objectives in a timely and cost efficient manner. As such, they were unable to amplify the benefits arising from them.

Figure 2: Degree of required and achieved level of fit



Here we note that the decision for M&A in Case 1 and Case 2 was a direct 'echo,' namely an intuitive impulse of doing business. They did not do their due diligence. Synergy studies, namely evaluations of potential risks of integrating two companies,

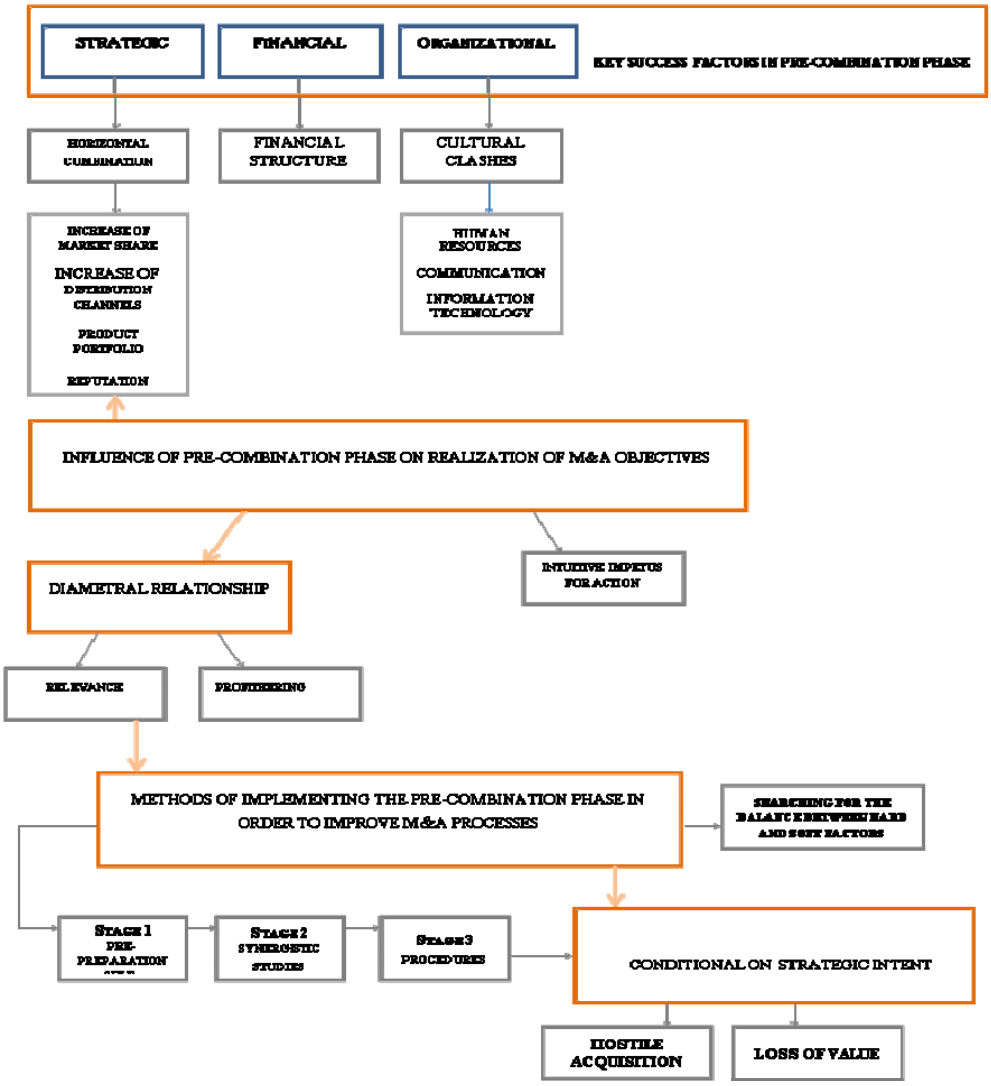
were also not done. An inadequately managed precombination phase negatively impacted financial (Case 1) and organizational factors (Case 1 and Case 2) influencing the process of integrating the two companies. Expectations on strategic fit, such as complementarity of markets, distribution channels and product portfolio were successfully met in both studied cases. We found out that the reason why pre-combination phase was not implemented was caused, on one side by a hostile method of acquisition (Case 1) and overreliance on previous 'success' with acquisitions (Case 2). On the other hand, it was a result of a lack of M&A experience and knowledge by key decision-makers / stakeholders involved in the purchase and integration. In Case 1, the precombination phase was not implemented and there were also no studies of potential (negative) synergies in the area of finance. The aforementioned are the reasons why during first attempts at integration there were no positive synergies in the financial area. Above all, the failure to execute a precombination phase resulted in a need for a multi-year rehabilitation of the organizational area. Although it seems at times that having a strategic fit is the most important aspect of studied M&A cases, and that (lack of) financial and organizational fit between acquirer and target are merely a consequence or an adjustment to the strategic fit, we conclude that all three areas are interlinked and therefore require systematic and integrated treatment during precombination phase of M&A processes (as indicated in Figure 1).

5.1 Tripartite paradigmatic model for improving M&A performance

Adoption of assumptions that implementing a precombination phase in an M&A process represents a specific capability (of acquirer), and that pre-combination phase positively impacts the successful realization of M&A objectives is, in our opinion, conditional with how exactly a precombination phase was implemented. Drawing on the analysis of empirical material in order for pre-combination phase to improve successfulness of M&A, it should itself be designed in stages. The first stage would be focused on the importance of preparing the acquiring company for potential M&A processes in advance. It is a process of self-assessment of acquirer and / or self-assessments of companies that 'wish' to be sold. It means that a company conducts an internal audit of its own structures in order to identify strengths and weaknesses related to M&A processes. The second stage is tied to performing synergistic studies. In doing so, we note that synergies should be evaluated gradually. Evaluation of synergies should primarily focus on verification of acquiring company's and target's existing business plans. In this segment an evaluation of company's past financial performance, its sales structure, structure of its profitability in relation to product groups, markets or market units. Such getting to know oneself enables identification of potential synergistic fits between acquirer and its target.

Connecting the categories was done in a way that we determined their position within the resulting paradigmatic model (see Figure 3). We emphasise that interpretation of data (results), presented in the next chapter, is contextually bound; this means that it is a middle range theory, which only applies in specific environments or under specific circumstances (Yin, 1984).

Figure 3: Tripartite paradigmatic model for improving M&A success by implementing precombination phase



6. Discussion and managerial implications

Interpretation of the impact of precombination phase on successfulness of achieving M&A objectives highlights a diametric attitude regarding the relevance of precombination phase in M&A processes. It is assumed that realistic synergy studies or assessments of strategic fit cannot be performed during precombination phase, because at this stage one does not possess all the relevant information. However,

based on our study which enabled us to become aware of the correlation between insufficiently (or not at all) implemented precombination phase and indirect (and often unfavourable) consequences for the realization of mainly organizational synergies, we lean toward confirming the thesis that the impact of precombination phase in order to effectively achieve intended strategic, financial and especially organizational objectives is not negligible.

Precombination phase is important in terms of showing systematic scenarios or strategies as well as in terms of evaluating potential risks associated with M&A processes. Every company deciding to initiate M&A processes should have a clear strategy and implement their M&A activities in line with that strategy. A well-executed precombination phase increases quality and reduces cost of M&A processes, because during precombination phase a company can perform an audit and remedy the negative aspects of M&A processes. In order for precombination phase to improve successfulness of M&A it should be designed in stages.

The first stage should be focused on the importance of preparing the acquiring company for potential M&A processes in advance. It is a process of self-assessment of acquirer and / or self-assessments of companies that 'wish' to be sold. It means that a company conducts an internal audit of its own structures in order to identify strengths and weaknesses related to M&A processes.

The second stage is tied to performing synergistic studies. It is important that synergies are evaluated gradually. Evaluation of synergies should primarily focus on verification of acquiring company's and target's existing business plans. During the second step of estimating possible synergies an assessment of areas where there are synergies between individual companies within the planned M&A processes is supposed to be performed. The second stage of precombination phase is also intended for finding a balance between soft and hard factors of integration, since they both affect how long the realization of M&A processes will take.

The third stage of evaluating synergies is the evaluation of identified synergistic areas, which are supposed to provide an improvement over 'stand-alone' positions of companies. The preparation of synergistic studies is crucial in terms of valuing a particular company during precombination phase of M&A processes. This is due to the fact that the valuation is a starting point for determining the exchange ratio between two companies. It is meant for a precise definition of 'project tasks or procedures' in two respects. After identifying key stakeholders during the third stage of precombination phase, project teams should be established and stakeholders, who are responsible for specific functional areas which are subjects of synergies and for which it is estimated they will become subjects of synergies, should be defined.

The strategic intent of M&A can affect the manner in which the precombination phase is implemented, as well as the degree of integration fit of companies engaged in M&A in strategic, financial as well as organizational areas.

7. Conclusion

Companies should learn from their past mistakes as well as successes in a way that enhances their awareness of what it takes to outdo competing acquirers in the acquisition game. (Ashkenas et al., 1998 as cited in Marks and Mirvis, 2010).

Based upon this study, and with respect to the above, the preacquisition organizational formation and explicit M&A related competences are crucial to the achievement of comprehensive M&A success. Our findings further suggest that it is the experience curve by which the magnitude of organizational learning from numerous M&A projects is deployed, positively contribute to such success. Those companies that missed the opportunity to invest sufficiently in their M&A knowledge and becoming acquirers themselves unintentionally grow into the M&A targets.

The M&A activity should be supported by organizational routines and implementation procedures that derive from accumulated M&A knowledge and continuously benchmark best practice M&A cases. Related distinctive M&A organizational - vocabulary 'needs to be enforced'. The design parameters provide strong control over M&A processes, reducing uncertainty and potential risk of neglecting the obvious. To be efficient in such a risky endeavour, a great deal of complacency is needed. However, the score of pragmatic and systematic approach is more favorable. Radical improvements of M&A outcomes are not a result of combining companies resource exploitation, but rather exploration of new opportunities.

The study advocates the notion of Prahalad and Hamel (1990) that companies' ability to identify, cultivate and exploit core competencies that make growth possible will be the most powerful way to prevail in global competition. Such core competencies are the collective learning in the organization, communication, involvement, and a deep commitment to working across organizational boundaries (Prahalad and Hamel, 1990). Their specific is that they do not diminish with use or like physical assets deteriorate over time, they are enhanced as they are applied and shared. They need to be nurtured and shared.

M&A activity is still young in emerging market of Slovenia relative to longer running market economies. Our research was limited to the active acquirers and associated (only) two implemented M&A cases in a very small Slovenian economy. As previously noted, 'the number of M&A has not significantly increased in 2014 (10) comparing to the previous year (7) (ATVP, 2015:15) and remains much lower from the number that was common before financial (economic) crisis'. However, with respect to on-going intentions of Slovenia to sale of state-owned companies (SDH, 2016), the over-indebtedness of Slovene companies and related number of non-performing loans which are for sale (DUTB, 2016) and recent economic breakdown of large Slovenian consolidators, it is expected that the number of M&As will likely increase in the future. In order to build economies of scale and scope, successful companies might search for consolidation possibilities, rolling up competitors and consolidating their markets-industries.

A further limitation is that the measurement of the construct is biased by the ex-post rationalization of respondent's actions and no possibility to directly measure the construct by the use of the secondary data. Despite these limitations, the study results will help to better understand which fit areas and related success factors are dealmakers or breakers in the eyes of executives, industry experts and practitioners. Nevertheless, the research was extensive, further research into the discussed phenomena of high failure rate of M&A activity is required. To date and by our current knowledge, no comprehensive research about discussed pre-combination aspects of the deal making was conducted in Slovenia. We consider presented Conceptual Framework to offer numerous research questions to be answered and various hypothesis to test. An interesting question to be addressed is: 'How can an

organization enable and coordinate emerging M&A activity dynamics, without suppressing their adaptive, learning and creative capacity-fostering M&A based innovation possibilities'? Or: 'What is the creative value of M&A activity based tension - 'we versus them' antagonism'?

The study results reflect the above mentioned limitations and further research is recommended to be done in developed market economies and by using not only qualitative but also quantitative methods and techniques and also over longer period of time.

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HIGHER EDUCATION FOR PROVIDING SERVICES COMPANIES WITH GOOD RESULTS

Eugenia CÂMPEANU-SONEA[*]
Babeș-Bolyai University, Romania

Adrian SONEA
Petru Maior University, Romania

Abstract. This paper presents the results of a sociological survey regarding the opinions of a group of 304 students (in Management and Tourism) on the level of trust in the organizations they own or are employed by. The findings highlight the status of organizational trust in the surveyed companies. On the other hand, we follow the opinions of the students regarding the possibilities to improve the education and learning process, for a better training of managers and employees in service providing companies, for high efficiency of activities and to improve the relationship with the clients. The objective of this approach is to obtain a global image of the level and results of organizational trust in the companies where the students work, but also to identify the common, respectively, the different aspects of the improvement of teaching curricula and processes in the two faculties, the final reason being to increase the efficiency in service providing and to recover the activity in the field of tourism.

JEL Classification: O15

Keywords: competence, concern for employees and customers, job satisfaction, professional development, specialization in management / tourism

1. Introduction

Following a period of relative stability (between 2010 and 2013), when the service added value was around 50% of the GDP, in 2014 over 60% of the Romanian economy relied on this sector (*The World Bank, 2015*).

The commerce and IT sectors set the tone of the unexpected economic growth during the first half of this year, 3.7% more than in the same period last year. These two branches of the economy gathered over 50% of the GDP growth. The industry contributed by only a seventh of the economic growth and the agriculture had no contribution" (Pană, 2015).

[*] Corresponding author. Address: Faculty of Economics and Business Administration, Department of Management, Teodor Mihali Street, No. 58-60, 400591, Cluj-Napoca, Romania, Email: eugenia.sonea@econ.ubbcluj.ro

The providers of services in and for tourism turn to account the most important resources of Romania: natural environment and the human resource. The effect of the natural environment on national and foreign tourists (in terms of recreation, leisure, sport, health) is very well known. Sanger, an American captain, lawyer by profession, who was temporary deployed at the M. Kogălniceanu military base, stated about Romania: "The word Paradise is not strong enough to describe this country" (reproduced after Abrudan, 2012, p. 59-63). The organization and administration of activities in tourism service provision in Romania are not as efficient and effective as expected, which also prevent the capitalisation of an extremely important resource: the human resource.

According to the statistics of the National Institute of Statistics, in July 2015 both the number of arrivals and the number of nights spent in tourist accommodation units increased by 24.8% respectively 20.8% compared to the same month the previous year. However, authentic tourism: the seaside, the Danube Delta and the spa tourism is decreasing. The increases announced by the National Institute of Statistics are guaranteed by the arrivals in Bucharest and other county capitals – meaning business trips or personal travel (Diaconu, 2015).

Even though the efficiency and the effectiveness of the activity of a company is more and more related to modern technique and technology, the organizational culture has a defining role for the quality of the service provision to the customer and for the good relationships with the customer. During the past decades, researchers from different fields of science have studied the concept of *organizational trust*, a concept which refers both to the employees of the company and to the users of the service provisions, investors, etc. In the devoted literature we can find the approach of organizational trust notion at multinational enterprise level (Garfinkel, 1963; Luhmann, 1988), at group, organization and nation level (Barber, 1983, p. 164-165), or even at individual level (Lewis and Weigert, 1985, p. 971; Arrow, 1994; Hollis, 1998; Kreps, 1990; Miller, 1992; Robinson, 1996, p. 576). Also, the concept was approached from different points of view: philosophical (Hosmer, 1995, p. 399), sociological (Coleman, 1990), psychological (Hardin, 2002, apud Kramer 2009, p. 3), economical (Schelling, 1960; Williamson, 1993) and political (Burt and Knez, 1996, p. 70; Hardin, 1992; 2002), with particular importance for the company managerial process (Hollis, 1998; March, 1994).

The cognitive models of organizational trust (Fine & Holyfield, 1996, p. 25) ware created in order to emphasise the content, structure and evolution of the concept.

We took from the speciality literature and adopted the organizational trust model conceived by Pamela Shockley-Zalabak and collaborators in 2000. This model was later modified from the authors and applied to a larger sample of subjects (Shockley-Zalabak et al, 2010).

Our research presented in this paper is based on a sociological survey, and the questionnaire contains the indicators (Appendix 1) conceived after bibliography and accordingly to our previous experience (Sonea, 2014; Sonea et al, 2015).

The specificity of the service provision activity and the special characteristics of the processes in this field determine the aspects specific to the management activity. The intangible character of the service provision changes the way in which the customer assesses the quality of the result obtained. That is the

reason why the provider's competence (Q1) and the concern towards the customer (Q6) are more important than in the production of tangible goods, where the quality parameters represent an objective basis for the assessment of the product, made by the consumer. Service providers must be open to customer psychology and must meet their expectations (Câmpeanu-Sonea, 2012).

2. Methodology

We conceived a *questionnaire* following the study of the basic concepts and some bibliography examples (Câmpeanu-Sonea & Sonea, 2011; Shockley-Zalabak et al, 2010; Shockley-Zalabak, 2015) and organized a sociological survey over 751 students, who work in different companies and, in the same time, study in some universities from Transylvania – Romania.

Based on the responses of the subjects, the level of organizational trust in the studied companies are measured on a Likert scale, from 0 to 5, and the answers were processed with an SPSS software.

A part of the results of this sociological survey, presented further on, regards the opinions of a *sample* of 304 students in Management (M – economic specialisation) and Tourism (T - geography), on the level of trust in the organizations they own or are employed by. Our aim is to analyse several aspects related to the activity of the service providing companies, especially tourism services, compared to the companies producing tangible goods.

The purpose of this approach is to determine how high the level of trust is in the organizations where the young people are integrated and which are the useful betterments in the education process, according to the respondents' opinions, in the schools where they study, so that the activity they carry out in the companies evolves towards a "high-trust organization" system.

The *hypotheses* we started from were:

- the existence of considerable differences between the opinions of the students from the two faculties, regarding the level of trust in the organizations where they belong, taking into account the differences in thinking between the economists (management) and those specialising in geography (tourism).
- the existence of important differences between the opinions of the students from the two faculties, regarding the necessary knowledge and abilities "for building the high-trust organization", which the school they attend fail to provide.

3. Data and Empirical Results

Model of High Trust Organization in the Case of our Sample

All the values of the codes for the 5 "key drivers" (Q1-Q5) are higher, in the opinion of the students in Management, for the tangible goods production companies compared to the service providers, while the opposite applies to the students in Geography of tourism (see table 1).

Moreover, without exceptions, the students in Tourism have more favourable opinions about the level of competence, honesty, concern for the employees, etc. in the companies where they work, compared to the opinions of the students in Management. Even if the codes level is generally lower, the comparison ratio is the same, similarly for the assessment of the respondents of the results (Q6-Q8) on To and respectively on the global result – Tr. Taking into consideration the great diversity of the companies where these students work, we consider that the difference of opinions comes from the fact that students in Management are more critical, and because they can get good jobs easier, they are more demanding.

Table 1. Sample structure according to answer Q1 – Q5 by the two faculties and types of companies – services and production (codes average)

Faculties	Types of companies	Size of sample (N)	Q1	Q2	Q3	Q4	Q5	To
M	Services	135 – 72.9%	4.08	3.80	3.58	3.82	3.62	3.81
	Production	41 - 22.1%	4.23	3.90	3.72	4.02	3.67	3.94
	TOTAL	185 - 100%	4.12	3.84	3.62	3.88	3.64	3.85
T	Services	93 – 78.2%	4.30	4.11	3.84	4.00	3.88	4.03
	Production	20 – 16.8%	4.23	3.95	3.73	3.95	3.82	3.94
	TOTAL	119 – 100%	4.28	4.07	3.78	3.97	3.88	4.00

Source: The data was processed using SPSS Software

According to previous studies of the labour market, the economic faculties are preferred by pupils with good grades, as the chances to find better jobs are higher for the graduates of these schools, as compared to other fields of education.

The difference of opinions of the culture of the production and service organizations (considering such a clear alignment – see tables 1 and 2), must be influenced by the capacity of integration of students, determined by the preferences for a certain field of activity. Respectively, students in Tourism are inclined to integrate in service providing, they are also trained (theoretically and practically) for this field and they follow and understand better the problems and difficulties of the activity and are interested in overcoming them.

The idea of a better integration of students in Tourism is also supported by the fact that the companies where they work are generally small companies: **M** – S – companies with 100 up to 500 employees; **M** – P – companies with over 1000 employees; **T** – S and **T** – P – companies with up to 10 employees.

Table 2. Sample structure according to answer Q6 – Q8 by the two faculties and types of companies – services and production (codes average)

Faculties	Types of companies	Size of sample (N)	Q6	Q7	Q8	Tr
M	Services	135 – 72.9%	3.55	3.54	3.44	3.51
	Production	41 - 22.1%	3.81	3.83	3.68	3.77
	TOTAL	185 - 100%	3.61	3.60	3.51	3.58
T	Services	93 – 78.2%	3.73	3.93	3.65	3.77
	Production	20 – 16.8%	3.39	3.56	3.49	3.48
	TOTAL	119 – 100%	3.63	3.81	3.61	3.69

Source: The data was processed using SPSS Software

Another influence factor could be the source of the capital invested in the survey companies. The vast majority are private capital companies, but for the Tourism companies the capital is mostly Romanian, the management of the company is closer to the subordinates, while the companies where the students in Management work are mostly foreign or mixed capital (Romanian and foreign) companies.

On the other hand, the answers to Q17, the question regarding the revenues from their jobs show that the monthly income of the subjects is: **M** – S – between 1500 and 2000 RON; **M** – P – between 2000 and 3000 RON; **T** – S – below 1000 RON; **T** – P – between 1000 and 1500 RON. If we take this important aspect into account, all those working in production companies should have more favourable opinions than those working in service providing, especially as the codes value for Q8 (Job satisfaction) is relatively modest compared to the rest of the values in tables 1 and 2. On the other hand, the analysis of the frequency of the codes to the answers in the questionnaire show that students in Tourism, employed in service providing companies stand out with the higher proportion of code 5 and with the lowest number of questionnaires with codes 1 and 0, respectively with missing answer.

The Correlation between Organizational Trust (To) and Global Result (Tr)

Table 3. Correlations between the five „key drivers" and the global result (Tr) by faculties and types of companies – services (S) and production (P)

Tr . Average of Q6 - Q8	Q1	Q2	Q3	Q4	Q5
M - S N = 135	0.543**	0.483**	0.496**	0.568**	0.590**
M – P N = 41	0.447**	0.530**	0.386*	0.532**	0.596**
TOTAL N = 185	0.519**	0.490**	0.480**	0.561**	0.572**
T – S N = 93	0.593**	0.580**	0.593**	0.668**	0.566**
T – P N = 20	0.432	0.710**	0.617**	0.659**	0.634**
TOTAL N = 119	0.577**	0.626**	0.602**	0.700**	0.566**

* Correlation is significant at the 0.0 level (1-tailed)

** Correlation is significant at the 0.00 level (2-tailed)

Source: The data was processed using SPSS Software

The respondents from the entire sample were very serious while filling in the questionnaire (see table 3 and 4) after the Pearson correlation, of good intensity (0.386 – 0.699) and very good intensity (0.700 – 0.758). The subjects of our survey prove receptivity and understanding of the purpose of research.

Table 4. Correlations between organizational trust (To) and the results by two faculties and types of companies - services (S) and production (P)

To. Average of Q1 - Q5	Q6	Q7	Q8	Tr
M – S N = 135	0.512**	0.542**	0.659**	0.564**
M – P N = 41	0.502**	0.537**	0.636**	0.598**
TOTAL N = 185	0.507**	0.531**	0.657**	0.568**
T – S N = 93	0.521**	0.537**	0.758**	0.680**
T – P N = 20	0.699**	0.536*	0.753**	0.746**
TOTAL N = 119	0.579**	0.557**	0.762**	0.704**

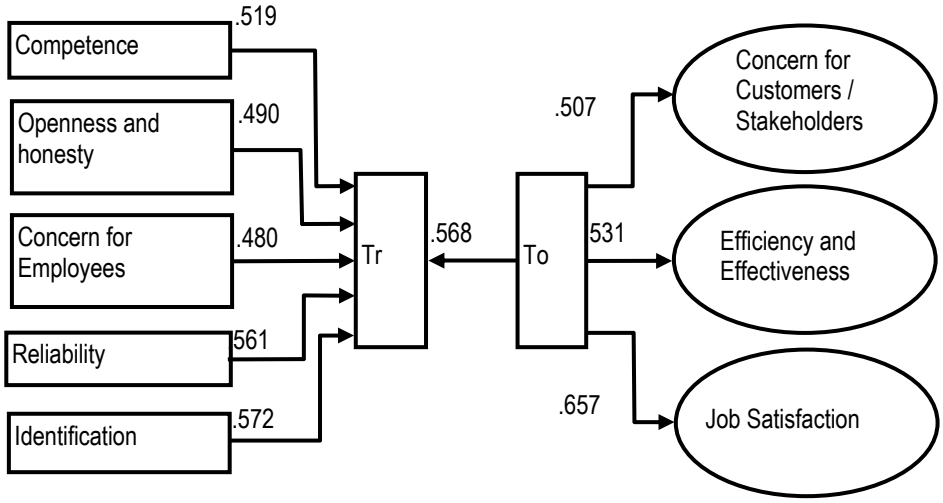
* Correlation is significant at the 0.0 level (1-tailed)

** Correlation is significant at the 0.00 level (2-tailed)

Source: The data was processed using SPSS Software

The only problem regarding the correlation validity (with the help of the Sig. significance threshold) relates to the extremely reduced number of Tourism respondents working in production companies (20 persons), which forces us to be reserved when analysing these correlations. When processing the answers to the questionnaire, *for the total of the two samples,* for the two survey faculties (table 3 and 4), with the help of correlations of To with the three categories of results (Q6, Q7 and Q8) as well as of the global result, Tr, with the five key drivers of organizational trust (Q1, Q2, ..., Q5), we created a pattern, inspired by Shockley-Zalabak et al, (2010, p. 28) and modified according to our previous research (figure 1 and figure 2).

Figure 1. Model of Organizational Trust (To) and the global result (Tr).
Pearson correlation coefficients based on the students' opinions from **M** Faculty



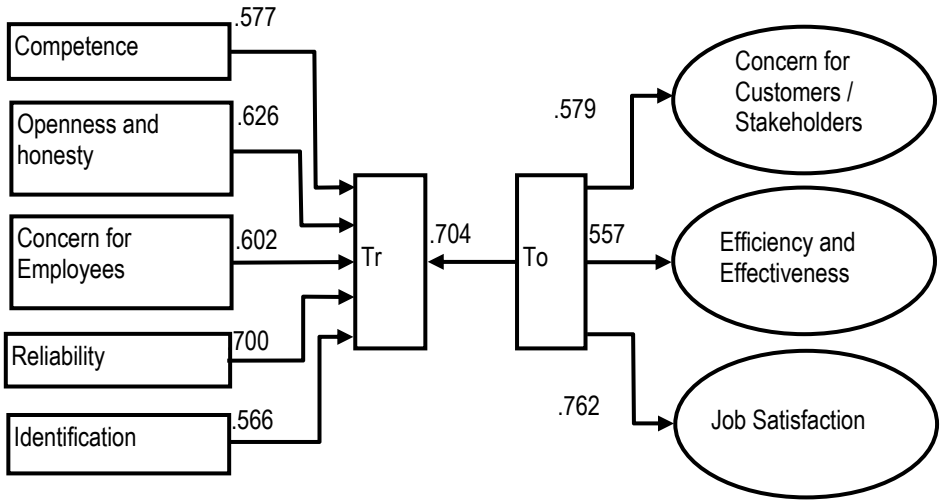
The general level of organizational trust, as well as the relationship between To and the results obtained are better appreciated by students in Tourism, such as shown by the level of codes for the values of To and Tr. But because in the service providing industry, especially for tourism, the competence of the company employees is essential for the quality of the service and for the relationship with its user, we observed in details a few aspects of the correlations obtained.

Employees' and managers' competence (Q1) and job satisfaction (Q8)

The preponderant level of training of the respondent students could be assessed through the value of the grades declared by them: between 7 and 8, which means a good level, but not too high. Moreover, an important part is represented by students who do not work in the field they are training for in this moment, which affects the general level of competence.

According to table 5, the correlations between Q1 and the other 4 "key-drivers" are of a high intensity level, showing a clear link (according to the declarations of the subjects) between the efforts of the management of the company for high competence (on the one hand) and the open, honest attitude and the concern towards the problems of the employees, safety, stability and identification with the company (on the other hand).

Figure 2. Model of Organizational Trust (To) and the global result (Tr).
Pearson correlation coefficients based on the students' opinions from **T** Faculty



However, there is very clear, especially in the large groups (where the significance of the level of coefficients can be accepted without reserves), a decrease of the intensity of the correlations of Q1 with the results of the organizational trust (Q6, Q7 and Q8). Given that the quality of the service provision, as perceived by the user, is essential to the efficiency of the activity and the concern towards the customer depends decisively on the involvement of the employee and on the satisfaction given by the work carried out, we followed the correlations of Q6 (Concern for the customers), Q7 (Efficiency and effectiveness of the activity) and Q8 (Employees' job satisfaction).

Table 5. Correlations between the Competence (**Q1**), the other "key-drivers", and the results, by faculties and types of companies - services (S) and production (P)

Types of companies	Size of sample (N)	Q2	Q3	Q4	Q5	Q6	Q7	Q8
M - S	135	0.745**	0.704**	0.714**	0.620**	0.491**	0.529**	0.600**
M - P	41	0.665**	0.490**	0.698**	0.564**	0.386*	0.340*	0.505**
TOTAL	185	0.728**	0.659**	0.707**	0.603**	0.464**	0.477**	0.579**
T - S	93	0.759**	0.746**	0.665**	0.580**	0.469**	0.500**	0.618**
T - P	20	0.473*	0.327	0.487*	0.482*	0.478*	0.382	0.273
TOTAL	119	0.719**	0.698**	0.647**	0.564**	0.490**	0.496**	0.568**

* Correlation is significant at the 0.0 level (1-tailed)
** Correlation is significant at the 0.00 level (2-tailed)

Source: The data was processed using SPSS Software

As expected, the concern for the customers and other beneficiaries and stakeholders (**Q6**) is very tightly related to the level of efficiency and job satisfaction of employees, for the companies involved in the study. The correlations with the

open attitude (which means especially a fairer communication management), concern towards the employees, safety, stability and identification with the company are of a more modest intensity. A somewhat better situation appears in the group of students in Tourism, hired in production companies, where trust in the validity of the results is very poor.

As for Q6, the links of **Q7** (Efficiency and effectiveness of the company activity) are very close to Q8, but the correlation coefficients with the five key drivers of organizational trust, which lead to the stabilisation of the To level, have more reduced values.

Table 6. Correlations between the Employee's job satisfaction (**Q8**) and the "key-drivers", by faculties and types of companies - services (S) and production (P)

Types of companies	Size of sample (N)	Q2	Q3	Q4	Q5	Q6	Q7
M - S	135	0.569**	0.574**	0.559**	0.615**	0.703**	0.663**
M - P	41	0.570**	0.410**	0.542**	0.606**	0.721**	0.855**
TOTAL	185	0.571**	0.549**	0.564**	0.605**	0.707**	0.690**
T - S	93	0.670**	0.688**	0.723**	0.638**	0.654**	0.718**
T - P	20	0.694**	0.781**	0.737**	0.619*	0.609**	0.724**
TOTAL	119	0.675**	0.684**	0.746**	0.631**	0.669**	0.712**

* Correlation is significant at the 0.0 level (1-tailed)

** Correlation is significant at the 0.00 level (2-tailed)

Source: The data was processed using SPSS Software

Compared to the situation of Q6 and Q7, in case of Q8 the situation is much better: the correlation coefficients are much better and the degree of significance (with one exception: in Q5, T - P) is the higher. The best values are for students in Tourism. Generally, the very good coefficients are related to safety and stability (Q4), but Q3 (Concern for the employees) is also among the highest values.

Table 7. Correlations between the Employee's job satisfaction (**Q8**) and Openness and honesty (**Q2**), for Tourism students, services providing companies (T - S)

	Q8. Employee's job satisfaction
Q2.7. The management wants to learn about employees' problems and to solve them.	0.527**
Q2.8. There is trust between employees and the management.	0.515**
Q2.9. People are informed about market trends.	0.508**
Q2.10. We are informed about the organization's direction of development.	0.534**
To. Organizational trust	0.758**
N = 93	

** Correlation is significant at the 0.00 level (2-tailed)

Considering that our interest, in this context, concerns especially the tourism service providers, we described in details some of the aspects obtained from the research upon the students of these companies.

Thus, the best correlations of Q8 with Q2 are shown in table 7. The Pearson correlation coefficients with values between 0.508 and 0.758 (see table 7) highlight the existence of a good communication management - employees (Q2.9; Q2.10), a satisfactory level of trust (Q2.8) and the concern of the studied companies' management to solving the problems of employees (Q2.7).

Table 8. Correlations between the Employee's job satisfaction (**Q8**) and Concern for the employees (**Q3**), for Tourism students, services providing companies (T - S)

	Q8. Employee's job satisfaction
Q3.1. Our organization uses transparent performance evaluation systems.	0.464**
Q3.2. The reward for group achievements is fair.	0.483**
Q3.3. The reward for individual achievements is fair.	0.488**
Q3.4. In our organization we listen to and consider others' opinions.	0.548**
Q3.5. In our organization decisions concerning employees are impartial and fair.	0.676**
Q3.6. Our organization promotes a healthy balance between work (professional life) and family (private life).	0.666**
To	0.758**
N = 93	

** Correlation is significant at the 0.00 level (2-tailed)

The correlations of Q8 with Q3 are shown in details in table 8.

Table 9. Correlations between the Employee's job satisfaction (**Q8**) and Reliability – safety and stability (**Q4**), for Tourism students, services providing companies

	Q8. Employee's job satisfaction
Q4.4. In our organization people invest time in building trust relationships.	0.592**
Q4.5. There are available resources for individuals with health problems, social integration, etc.	0.569**
Q4.6. Our organization offers support to employees in solving personal problems.	0.487**
Q4.7. In our organization there are available resources for training and development.	0.504**
Q4.8. People are rewarded to facilitate the training and development process.	0.466**
Q4.9. Our organization encourages people to think ahead.	0.553**
To	0.758**
N = 93	

** Correlation is significant at the 0.00 level (2-tailed)

Although the salary level is the lowest for this group of our sample, the general image is that the organization uses transparent reward systems, which are fair at individual and group level (Q3.1; Q3.2; Q3.3). Moreover, the collaboration (Q3.4), equity (Q3.5) and concern for the balance between work and personal life of the organization members (Q3.6) are appreciated (see table 8).

The best correlations of Q8 with Q4 are shown in table 9. Based on the table 9, we show again the aspect related to a good level of trust in the organization (Q4.4) and to the concern for the problems of the employees (Q4.5; Q4.6). We also notice again a good correlation of the results (Q8) with the interest of the management for professional development and for people's involvement in the companies' evolution (Q4.7; Q4.8; Q4.9).

Table 10. Correlations between the Employee's job satisfaction (**Q8**) and Identification with the organization (**Q5**), for Tourism students (T - S)

	Q8. Employee's job satisfaction
Q5.2. Our organization is connected through people's loyalty and mutual trust.	0.610**
Q5.3. In our organization, people treat their colleagues with respect.	0.554**
Q5.4. Groups are confident about how the organization will react to their suggestions.	0.579**
Q5.5. Peoples' devotion to the organization is very strong.	0.568**
To	0.758**
N = 93	

** Correlation is significant at the 0.00 level (2-tailed)

The best correlations of Q8 with Q5 are shown in table 10.

The table 10 (correlation coefficients between 0.554 and 0.758) highlights a good level of trust of employees in the organizations and the people's identifying themselves with the company, by loyalty (Q5.2), respect (Q5.3), spirit of collaboration and devotion (Q5.4; Q5.5).

Students' opinions on the useful knowledge for organizational trust development

The second part of the questionnaire consists of, among others, questions regarding the knowledge and skills that the students consider useful for building an organization based on a high level of trust, in the companies where they work, knowledge and skills that the education institutions fail to provide to a sufficient extent.

Q9. To enhance the level of employees' trust in your organisation do you need theoretical information / notions, not provided in school?
Q9.1. related to labour organisation;
Q9.2. related to production organisation;
Q9.3. related to the use of resources and work efficiency;
Q9.4. in the relationship / communication with colleagues and employees;
Q9.5. in the relationship / communication with customers;

Q9.6. related to negotiations and social dialogue;
Q9.7. related to modern computer technologies;
Q9.8. related to the study and use of foreign languages.
Q10. To enhance the level of employees' trust in your organisation do you need practical skills and abilities, not acquired in school?
Q10.1. related to labour organisation;
Q10.2. related to production organisation;
Q10.3. related to the use of resources and work efficiency;
Q10.4. in the relationship / communication with colleagues and employees;
Q10.5. in the relationship / communication with customers;
Q10.6. related to negotiations and social dialogue;
Q10.7. related to modern computer technologies;
Q10.8. related to the study and use of foreign languages.
The students' answers are synthesized in the tables 11 and 12.

Table 11. Sample structure according to answer Q9 by faculties and types of companies - services (S) and production (P) (answers' frequency - %)

Types of companies	Size of sample (N)	Q9.1	Q9.2	Q9.3	Q9.4	Q9.5	Q9.6	Q9.7	Q9.8
M - S	135	32.59	13.33	31.11	31.11	41.48	41.48	22.22	27.41
M - P	41	53.66	51.22	24.39	39.02	36.59	53.66	29.27	14.63
TOTAL	185	37.43	21.79	30.17	32.96	40.22	43.58	24.02	24.58
T - S	93	37.63	18.28	30.11	27.96	41.94	41.94	12.90	27.96
T - P	20	70.00	35.00	25.00	45.00	20.00	25.00	5.00	25.00
TOTAL	119	44.07	21.19	29.66	31.36	38.14	38.14	13.56	27.96

Source: The data was processed using SPSS Software

If the people in the organizations involved in our study are satisfied, to a large extent, with the companies where they work, we wondered: the failures of the service providers are influenced by factors outside of the company (such as the poor infrastructure for tourists, the administrative activity, the Romanian economic and social policies) or by the lack of a proper training, which also depends on the education process? We looked for some of the answers in the information synthesised in table 11 and 12.

Table 12. Sample structure according to answer Q10 by faculties and types of companies - services (S) and production (P) (answers' frequency - %)

Types of companies	Size of sample (N)	Q10.1	Q10.2	Q10.3	Q10.4	Q10.5	Q10.6	Q10.7	Q10.8
M - S	135	28.15	20.00	31.85	31.85	35.56	30.37	25.19	20.00
M - P	41	46.34	46.34	26.83	39.02	26.83	43.90	31.71	17.07
TOTAL	185	32.40	25.70	30.73	33.52	32.96	32.96	26.82	19.55
T - S	93	37.63	21.51	29.03	25.81	33.33	37.63	9.68	24.73
T - P	20	50.00	40.00	25.00	35.00	25.00	30.00	5.00	25.00
TOTAL	119	39.83	24.58	29.03	27.12	32.20	35.59	9.32	25.42

Source: The data was processed using SPSS Software

It is clear that production companies need a better training of the youth in the field of work and production organization, both theoretically and practically. The need of a better training in work organization is also very important for the employees of the service providing companies, especially those in Tourism, but we have answers with high importance for service providers (and employees in production) regarding the training improvement needs for communication with colleagues and clients, for negotiation and social dialogue.

A better training in using resources and the efficiency of activities is also considered necessary, although to a lesser extent. In the end, we understand that the level of theoretical and practical training in using foreign languages is not satisfying and the students in Management feel the need for a better training in using modern computing technology.

4. Conclusions

We consider that the comparative study of the opinions of the students in the two faculties is useful, even if the analysis must be continued and detailed separately for each faculty. *The two hypotheses are validated*. There are indeed noticeable differences and the more developed critical spirit of the students in Management helps us understand the issues in a clearer manner than the generous attitude of the students in Tourism (figures 1 and 2).

Given that the starting points were the issues that prevent a more rapid development of Romanian tourism companies, we notice the favourable appreciations on Q1 (Employees' and managers' competence), where the level of codes is the best and it correlates better with the four key drivers of organizational trust (To), but less with the Tr (global result) and its components. On the other hand, the links between Q6 (Concern for the customers and the other stakeholders), Q7 (Efficiency and effectiveness) and Q8 (Employee's job satisfaction) are very close, but less intense with the five key drivers of trust, which lead to establishing the level of To.

In what Q8 is concerned, however, the correlation coefficients are much better, especially for students in Tourism, and the details highlight the assessment of aspects related to improvement of training and competence development (Q1), concern for employees (Q3), safety and stability (Q4), identification with the organization (Q5). But, the code of Q8 is 3.65 (table 2). So, *the level of organizational trust* in the tourism companies (according to opinions of students from the T – S group) is *over the average level*, but not quite very good (meaning code 5).

Regarding professional improvement, the students in Tourism who work in service provision consider that they lack theoretical knowledge and practical skills especially in organizing the work, customer relationship and communication, negotiation and social dialogue, but also in the efficient use of resources and use of foreign languages.

Further research. The conclusions can be used to outline some improvements of teaching curricula and education processes in the two faculties, the final reason being to increase the efficiency in service providing companies and to recover the activity in the field of tourism.

Limits of the research. In the two studied faculties, there is not clear evidence on the number of students, who are employed or own their own business. So, we could not establish the size of analysed sample based on devoted mathematical relation.

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APPENDIX 1

Model of organizational trust (To) and the global result (Tr)

INDICATORS

To (organizational trust) and the five "key drivers":
Q1 - Employees' and managers' competence;
Q2 - Openness and honesty;
Q3 - Concern for the company employees;
Q4 - Reliability – safety and stability;
Q5 - Identification with the organization.
Tr, the global result of the organizational trust:
Q6 - Concern for the customers and the other stakeholders of the company;
Q7 – Efficiency and effectiveness of the activity and
Q8 – Employee's job satisfaction (Sonea, 2014; Sonea et al, 2015).

CHARACTERISTICS OF LOGISTICS SERVICE PROVIDERS AND THEIR SERVICES

Zoltán KOVÁCS[*]
University of Pannonia, Hungary

László SZABÓ
University of Pannonia, Hungary

Beáta Sz. G. PATÓ
University of Pannonia, Hungary

ABSTRACT. Services are becoming increasingly important in the economic life. Among them, the logistics services contribute to the successful implementation of the processes in many areas. This paper examined the main attributes, such as size, profile, ownership structure of service providers and the nature of their services. The paper found a wide variety of providers in all examined aspects: size, location, extent of activity. There were differences in the composition of the offers by the size and the ownership of the companies. The focus of providers showed a mixed picture. There were diverse and focused offers from small and large companies. In spite of the business challenge, the companies did not plan to change the company profile. The selection of their offers will not be changed in the future. The paper also examined the lead time of transport services.

JEL Classification: J23

Keywords: logistics, services, size – focus matrix, supply chain

1. Introduction

Logistics service providers play important role in supply chains. They are involved in almost all sectors with wide variety of services such as transport, storage, packaging and many other, adding more values to products and services.

While production companies – focusing on their own core competencies – use less kinds of operations (Skinner, 1974), logistics service operators have become more diverse by taking over additional tasks such as finishing products, operating distribution channels. Postponement centers are good examples for this. Modular production, vendor managed inventories also increased the importance of logistics activities (Walker, 2015).

[*] Corresponding author. Address Faculty of Business and Economics. Address: Veszprém, Egyetem u. 10, 8200, Hungary. Phone: 0036 88 62 4324. E-mail: kovacsz@gtk.uni-pannon.hu

These two opposite trends raise the question: what kind of services are offered and will be offered by logistics service providers?

There are different logistics related players in supply chains: shipper, consignee, freight forwarders, courier companies (CEP: courier, express, parcel services). These parties cooperate in different combinations. The generally accepted categories are:

1PL: is done by the shipper or the consignee themselves. It can be a manufacturer, trader, importer/exporter, wholesaler, retailer, governmental institution or an individual.

2PL: is done by the actual, independent carrier. It is called 'asset-based carrier', which actually owns the means of transportation, warehousing. Typical 2PLs are transport companies.

3PL: a third-party logistics provider offers outsourced or 'third party' logistics services to companies. They offer multiple logistics services such as transportation, warehousing, cross-docking, inventory management, packaging, freight forwarding, customs clearing.

4PL: manages the whole logistics process, regardless of what carriers, forwarders, or warehouses are used. A fourth-party logistics provider (4PL) is an independent, singularly accountable, non-asset based integrator who combines the resources, capabilities and technology of its own organization and other organizations, including 3PLs, to design, build and run comprehensive supply chain solutions for clients.

5PL: can be defined as e-business related complex service provision. A 5PL provider aggregates the demands of the 3PL and others into high volume for negotiating more favorable rates with 2PLs. 5PL highly integrates the business processes of partners, and has direct impact on profitability.

An alternative category (mostly for the often debated 4LP interpretation) is LLP (lead logistics provider) which is a company that takes the full responsibility for organizing the whole transport chain from producer to their customers.

In this paper we present an analysis of the provision of logistics services in west Hungary.

2. Literature review

Logistics services are among the oldest and most often used services. Peng (2012) emphasizes that "the good choice of service suppliers is the key to success in logistics outsourcing". According to Huemer (2012) "the last few years have seen increasing recognition of the work of logistics service providers, as well as the significance of functioning supply relationships".

According to Armstrong & Associates' Inc. "Eighty-six percent of Domestic Fortune 500 companies use 3PLs for logistics and supply chain functions". The annual growth forecast by Research and Market is 2.46 % over the period 2013-2018.

Logistics services are integrated deeper and deeper into supply chains, sometimes performing production tasks such as finishing products. In other cases, they play significant role in the organization and operation of supply chains, such as the management of the distribution or collection of products. Berglund et al. (2012) describe three waves of entrants into the 3PL industry and a taxonomy for value creation by logistics providers.

Today a logistics service provider (LSP) offers wide variety of services, such as materials management (including sourcing, transport, storage), value added services (assembly, installation) and many other, often non-logistics types of services (cleaning, maintenance, ICT services). LSPs can be seen that provide services, performing all or part of a client company's logistics function (Coyle et al. 2003; Delfmann et al. 2002).

Early research on 3PL was done by Larson and Gammelgaard (2001) in Denmark. Their results suggest that Danish logistics providers focus on the domestic market with limited scope. Firms offered a wide range of services, including transport in high ratio. Information systems and supply chain design had little share.

Numerous studies emphasize the opportunities in cooperation and collaboration especially regarding the value (co-)creation (Liu et al., 2015, Wang et al, 2016). Lieb and Lieb (2015) carry out 3PL survey among managers in the USA annually. They forecast the expected growth.

Outsourcing of the logistics function has become increasingly important and LSPs have been well positioned to turn into the indispensable links in the chain of commerce (Liao and Kao, 2014). Tarnai gave a good overview and classification of logistics services (Tarnai, 2004). She presented the concept of logistics centers in Hungary. This concept has become real only partly. Interestingly in certain areas such as ROLA, regression occurred. Originally three ROLA terminals were created. Today none of them work. There were also changes in the container traffic.

Hsiao et al. (2010) identified and analyzed the outsourcing of four levels of logistics activities: transportation (level 1), packaging (level 2), transportation management (level 3), and distribution network management (level 4). While the first is simple, the last is a complex with more added value.

United Nations sees development opportunities in logistics services. A good compilation – including definitions and classification - promotes the applications (UNESCAP, 2013). Customers might come not only from business. O'Connor et al. (2015) dealt with the urban and regional impacts of logistics services. They pointed out considerable functional and structural change within the services. In our sample we had also municipal firm and firms with urban interactions.

Classification of services helps the structured analysis. A previous research (Large and Kovács, 2001 p. 42) examined the customer side, the purchasing of logistics services. They made distinction between simple and complex services: "low-level logistics-services (e.g. a truckload transportation from point A to B, an individual warehousing service to open up a bottleneck in storage capacity or a simple exterior packaging service) and complex high-level contract logistics services covering a broader range of integrated service offerings. High-level logistics services consist of several types of logistics activities and include the co-ordination and control of these services. An example is the entire third-party distribution encompassing transport, warehousing, picking, packing, materials handling, inventory management and distribution resource planning."

The other option for classification is the role in supply chain, or logistics functions, such as purchasing, storage, material handling, distribution. They can be simple or complex.

The third option for classification is the distance of the services to logistics. There are services such as container or vehicle repair, equipment rent, accommodation that cannot be seen as logistics services, but they are offered by logistics service providers in or out of a logistics service package. In our research model we used all the classifications mentioned above. (Figure 1.)

Szabó et al. (2014) also examined the role of logistics services in municipal strategy including implications in regional development. This study is the direct forerunner of the presented research in this paper. Research and consulting companies such as Gartner, Aberdeen Group often publish reports on logistics services in practice (KPMG, 2009; Aberdeen Group, 2006, Report Linker, 2015).

However the importance of transport lead time is long-standing (Liao and Shy, 1991) and often (eg. Arikana et al., 2014, Fleischmann et al., 2014,) mentioned, there is no specific report about empirical investigation. Our analysis fills this gap.

3. The applied research database and methods

The research was exploratory in nature. The research was limited to a region covered by Zala county which is located in west Hungary. Companies working on the area were the main information sources. Statistical data helped to identify the population. Sampling aimed at to include the majority of the population of relevant logistics service providers in the examined region.

We have contacted 121 companies. 64 of them started to fill in the questionnaire, 53 of them were usable for this investigation.

Partly the literature review and partly previous results identified the range of services to be analyzed. Based on the existing services in the given region, only 1-3PL services were in focus. (4-5PLs often can not be bound to a certain geographical area.)

Local service providers and international operators were in the sample as well. 60 % of the samples are small and medium size enterprises (SME) (Table 1).

Table 1. Size distribution of sample based on the number of employees.

Company size (Headcount)	Percentage
1-9	30
10-49	30
50-249	25
over 250	15

We used Limesurvey for data collection, MS Excel and PASW Statistics 18 for data analysis, which included frequency, correlation and cluster analysis.

Questionnaire included information about the company, sectoral characteristics, the offered services, available infrastructure, application of ICT tools. In this paper we present the service provision related results. In this paper we deal with services related answers.

4. The research model

The research model is based on the CSCMP definition of logistics management (CSCMP, 2004): “Logistics management is that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements”.

The other basis of the research model was the mentioned classification of logistics services (Large and Kovács, 2001 p. 42).

We have used different sources to collect the set of possible services (Prezenszki, 2010, Skjott et al., 2007, Coyle et al., 2003). The ‘basic’, ‘additional’, ‘other’ classification is also from Prezenszki (2010).

The focus of the research was on the material flow between sending and receiving points. Information flow is the carrier of control information, such as measurement, processing, decision making. Both flows are bidirectional.

We have analyzed the services in two-dimensional way: their role in the processes and complexity. (Figure 1)

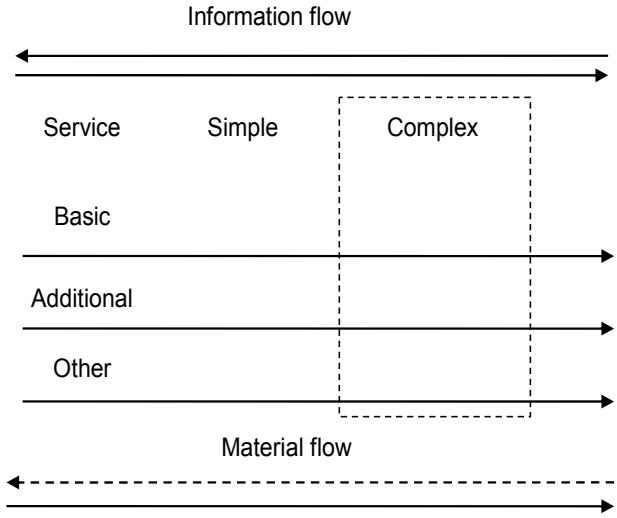

Figure 1. The research model.

5. Findings

5.1. General characteristics

Sectors in which the examined LSPs operate, are determined by the regional economic structure. This follows from the fact that they serve mostly local needs at least. Table 2 shows the sectoral split.

Trade and industry are natural partners, however the service related highest ratio indicates a service dominant business environment. We note that the region is partly and traditionally a trade center in combination with recently depressed industry. (There was a forced industrialization in years 1950-80.)

Table 2. The sectoral split of logistics service providers.

Sector	Percentage
Service	58.5
Trade	37.7
Industry	35.8
Automobile industry	26.4
Agriculture	22.6
Electronics	22.6
Food industry	15.1
Health care	11.3

Two-thirds (74 %) of the companies do not belong to a holding. Holding members have more employees (Table 3).

Table 3. Holding membership and size.

Does it belong to a holding?	Number of employees (Headcount)			
	1-9	10-49	50-249	>250
Yes	3	1	4	5
No	13	14	7	3

The generated revenue groups and relative frequencies can be seen in Table 4.

Table 4. Distribution of size based on the income from logistics services.

Annual revenue	Percentage
0-5 million HUF	17
5-20 million HUF	4
20-50 million HUF	13
50-200 million HUF	15
200-400 million HUF	17
more than 400 million HUF	34

More than half of the examined LSPs has international operation. It can be explained by the near border location, and partly by the holdings, and by the international customers such as General Electric, Flextronics, Honeywell, and oil industry ventures (Table 5).

Table 5. Distribution of service area.

Area covered by services	Percentage
International	57
Full domestic coverage	20
Partial domestic coverage	17
Small area coverage	6

Three out of the four neighboring countries are members of the European Union. It allows relatively easy cross border traffic, resulting a larger customer market. (The proximity of the borders itself generates export-import related logistics service demand.)

5.2. Service characteristics

Frequency of data shows that LSPs provide mostly traditional services such as unimodal transport and storage. The frequency of companies who offer multimodal transport is less than half of those who offer unimodal one (Figure 2).

We can observe also that simple services are dominant (Table 6).

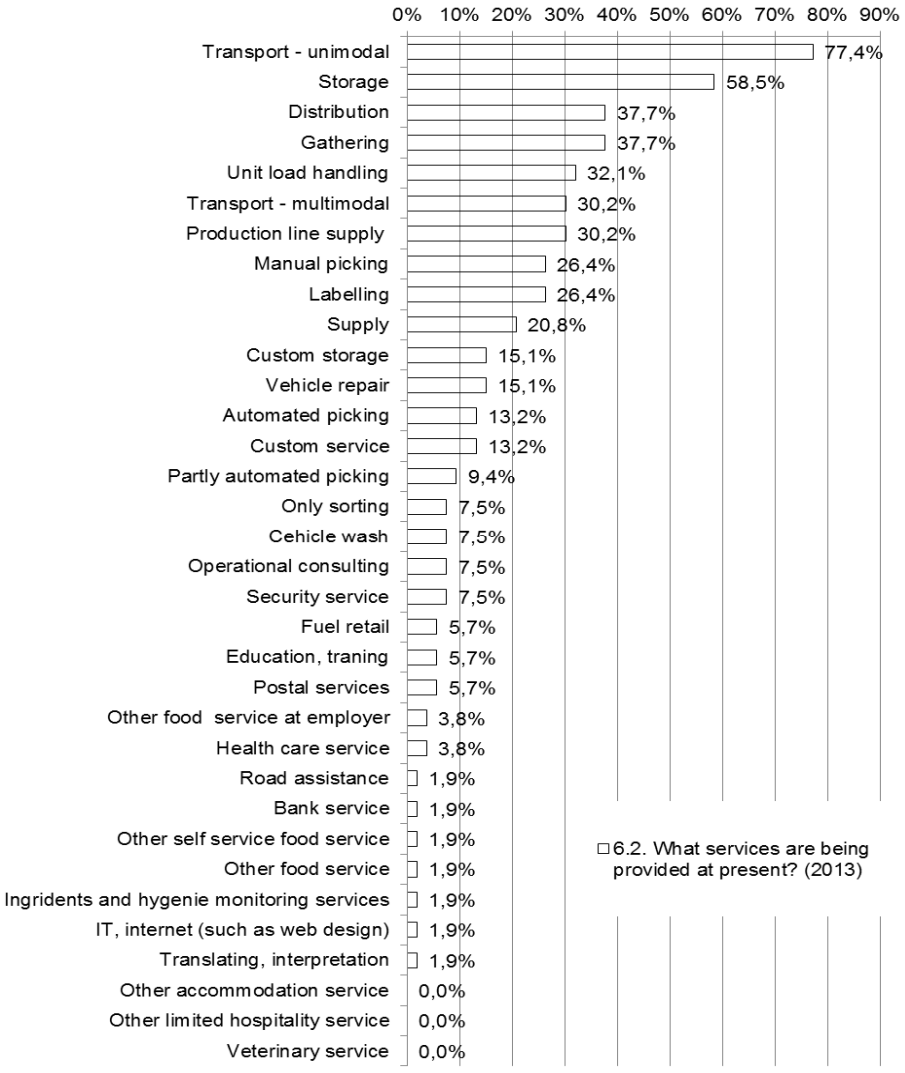

Figure 2. Distribution of provided services

Table 6. The predominance of simple services, small changes over time

Service	Simple/ Complex	Past	Present	Future
Storage	S	69.8%	58.5%	50.9%
Transport – unimodal	S	88.7%	77.4%	60.4%
Transport – multimodal	S	28.3%	30.2%	37.7%
Distribution	C	37.7%	37.7%	39.6%
Gathering	C	34.0%	37.7%	34.0%
Supply	C	15.1%	20.8%	20.8%
Production line supply	S	28.3%	30.2%	30.2%
Unit load handling	S	26.4%	32.1%	22.6%
Automated picking	S	11.3%	13.2%	17.0%
Partly automated picking	S	11.3%	9.4%	17.0%
Manual picking	S	32.1%	26.4%	15.1%
Only sorting	S	3.8%	7.5%	7.5%
Labelling	S	22.6%	26.4%	17.0%
Custom storage	S	17.0%	15.1%	15.1%
Custom service	S	15.1%	13.2%	13.2%
Vehicle repair	S	18.9%	15.1%	20.8%
Vehicle wash	S	9.4%	7.5%	18.9%
Road assistance	S	3.8%	1.9%	5.7%
Fuel retail	S	5.7%	5.7%	7.5%
Operational consulting	S	11.3%	7.5%	5.7%
Security service	S	7.5%	7.5%	7.5%
Bank service	S	1.9%	1.9%	3.8%
Other accommodation service	S	0.0%	0.0%	5.7%
Other self service food service	S	1.9%	1.9%	0.0%
Other food service	S	0.0%	1.9%	1.9%
Other food service at employer	S	3.8%	3.8%	1.9%
Other limited hospitality service	S	0.0%	0.0%	1.9%
Ingredients and hygiene monitoring services	S	1.9%	1.9%	3.8%
Health care service	S	3.8%	3.8%	5.7%
Veterinary service	S	0.0%	0.0%	1.9%
IT. internet (eg. web design)	S	5.7%	1.9%	5.7%
Education. training	S	9.4%	5.7%	7.5%
Translating. interpretation	S	1.9%	1.9%	5.7%
Postal services	S	5.7%	5.7%	7.5%

We asked not only about the presently offered services, but offerings in the past and their plan in the future. Table 6 also shows that there were little change in the past and willingness to change in the future. The planned change in the case of one specific service can be noticeable, however the implication for the whole profile is not significant, 1-2 %. One can assume that in this case the forecast error is comparable to the experienced difference.

The correlation between the size of company (based on the number of employees) and number of provided services shows an interesting picture. The correlation coefficient between the size group rank (which is not rational) and the number of provided services is 0.478, p=0.00, significance=100%. Large companies have the capability to offer more kinds of services.

However not each of them does it. Some of them stay focused. Figure 3 shows on a rational scale that large companies (in the highest number of employee group) provide wide variety of services. Small business are diversified beyond proportional.

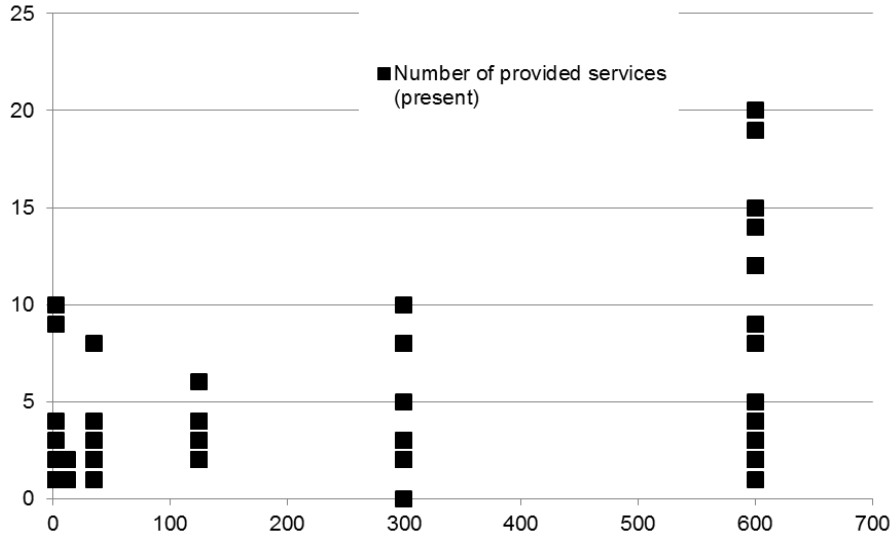

Figure 3. Larger companies (by number of employees) can be more diversed or stay focused.

In this case the correlation coefficient is 0.471, p=0,004. The maximum number of services show linear regression, with the exception of the non focused small companies. (On the left side of the diagram.)

When we see the LSP size based on the revenue, it reinforces that thesis. (Table 7. shows frequencies in the sample.)

Table 7. Larger companies by revenue can be diversed or focused as well.

Number of provided services	Revenue (million HUF)					
	0-5	5-20	20-50	50-200	200-400	>400
1	4	1	1	0	1	1
2	1	1	3	3	2	3
3	1	0	1	2	2	2

Number of provided services	Revenue (million HUF)					
	0-5	5-20	20-50	50-200	200-400	>400
4	1	0	1	2	0	2
5	0	0	0	0	1	1
6	0	0	0	1	0	0
7	0	0	0	0	0	0
8	0	0	1	0	2	1
9	1	0	0	0	0	1
10	1	0	0	0	1	0
11	0	0	0	0	0	0
12	0	0	0	0	0	3
13	0	0	0	0	0	0
14	0	0	0	0	0	1
15	0	0	0	0	0	1
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	1
20	0	0	0	0	0	1

It is interesting, that both small and large companies (based on revenue) offer mostly less than five kinds of services. It can be seen clearly also that only large companies are able to offer large number of services. While in the case of SMEs focusing is a must, in the case of large companies, it is a decision.

In order to classify the ventures based on the number of services we carried out cluster analysis. Result – dendogram in Figure 4 - shows that the reasonable number of clusters is 4. Companies 7-8. create a small group, almost ‘lonely wolves’. They are large international companies, offering 19 and 20 kinds of services. The next greatest number of services is 15, went to an other group.

The next cluster includes five companies: 40, 41, 21, 28, 35. They are midsize, internationally present companies, which have one or two main (core) businesses and other services.

Eight companies 17, 30, 29, … 1, 2 offer 8-10 services. They are midsize logistics service providers or logistics part of a company with other main profile such as trade.

The largest group consists of 38 companies. They are focused based on their own decision or due to the lack of capabilities.

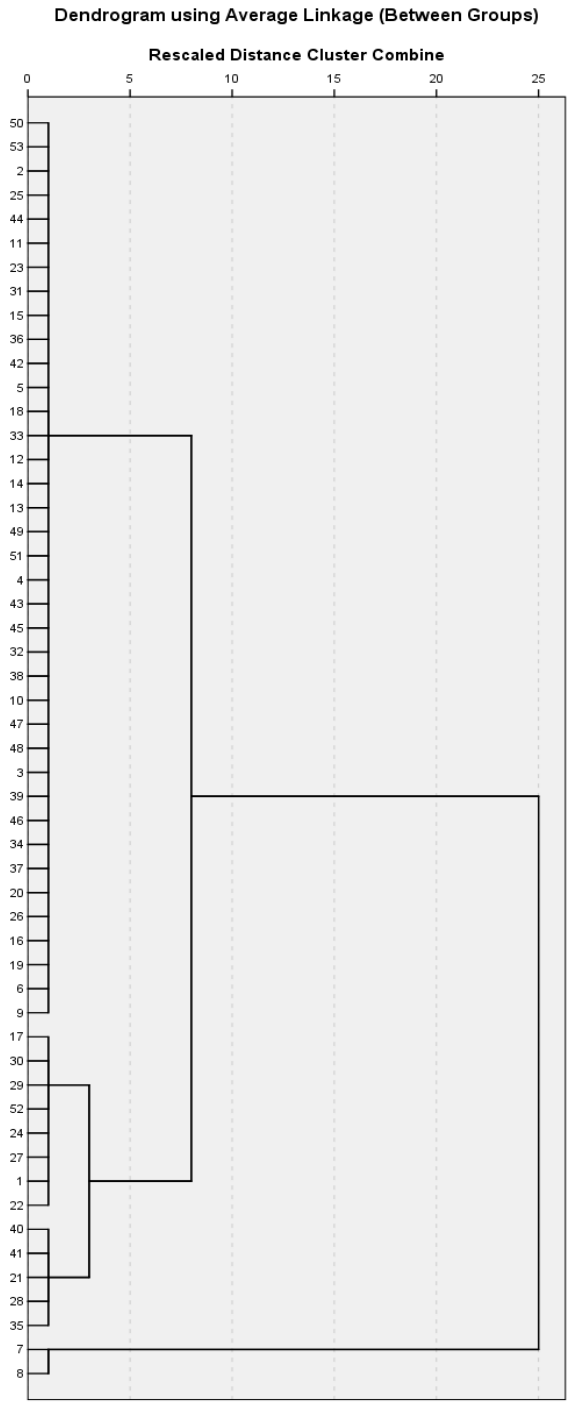

Figure 4. Clusters based on the number of services.

However the result of cluster analysis suggests that there is a tie between the size of covered (geographical) area and number of services, the Pearson correlation coefficient 0.13, (p=0.34) does not prove that hypothesis. The reason can be that larger area is covered by large companies which are more focused.

Focusing can be examined inside the transport. The number of transferred cargo type is a good indicator. Frequencies in Table 8 show that some large companies are really focused while others transport more type of cargos.

Table 8. Transport activity of large companies is more focused than their small competitors'.

Number of cargo types	Revenue (million HUF)					
	0-5	5-20	20-50	50-200	200-400	>400
0	2	0	3	0	0	1
1	2	1	2	1	2	7
2	2	0	0	3	3	4
3	0	0	2	0	1	1
4	2	1	0	1	1	0
5	1	0	0	1	1	0
6	0	0	0	1	0	3
7	0	0	0	1	1	1
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	1

In the right (>400) column - which represents large companies - more companies (7+4+1=12) transfer 1-3 type of goods than 4-10 goods (5 companies). This means focusing. However large number of cargo type (>6) occours at large companies. It comes from their technological enablers.

The correlation coefficient between the number of cargo types and the revenue of the company is 0.181, p=0.196.

What kind of materials, products are transported?

Almost 2/3 (60%) of the companies (with transport profile) transfer paletted cargo. Surprisingly high (almost 40%) is the ratio of wrapping material, such as boxes. Food and furinture equally mentioned (30 - 30%). Then the ranking: bulk cargo (24.5%), chemicals (22.6%), postal parcel and dangerous goods (17 - 17%), automobile (15%), waste (9.4%). It does not draw far-reaching conclusions. This share depends on the economic structure of the examined region.

Lead time of services is an important effectiveness indicator. We defined it as the time in workdays between sending the order and shipping. Figure 5 shows the distribution of transport lead time in normal case, when there is no delay or urgent request.

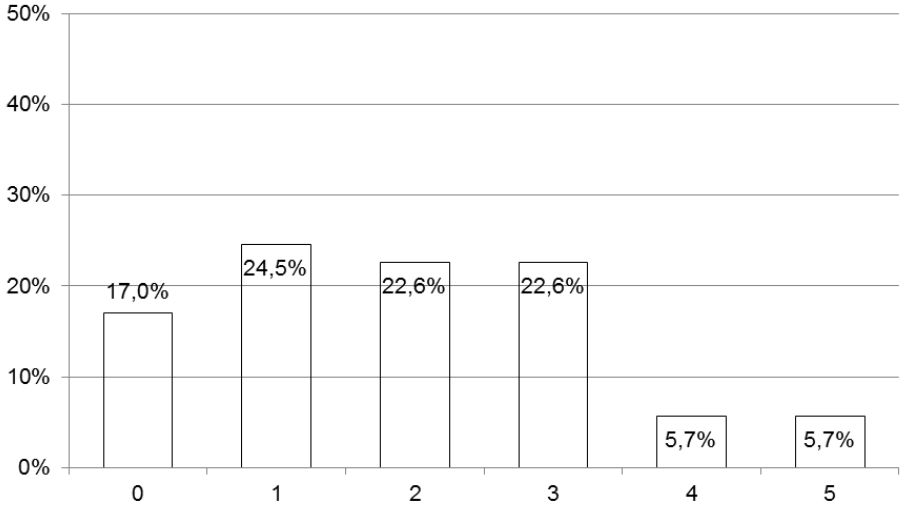

Figure 5. The distribution of transport average lead time.

Most often (24.5%) LSPs start the shipping the following day of the order, however in 17% they start it on the same day.

We asked not only the distribution in normal case, but optimistic and pessimistic values also. Figure 6 shows the values. (Due to the combination of two diagrams, we used frequencies.)

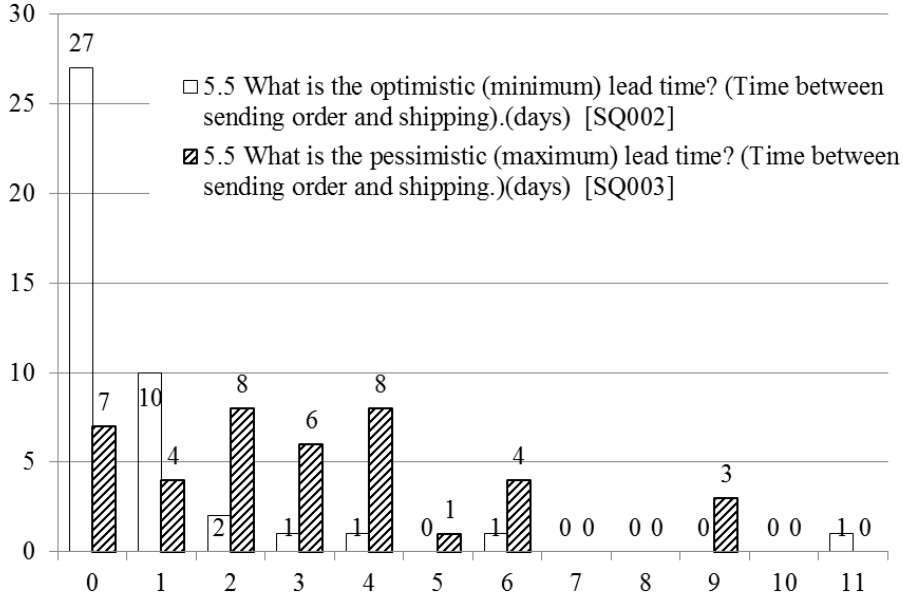

Figure 6. Distribution of lead time in best and worst case.

6. Conclusions

The last decades were spent focusing on the world of production. However logistics service providers took over more and more activities from producers, such as purchasing, warehousing (VMI!) raw material or finishing, labelling, distribution of products.

Our results show a mixed picture. They do not confirm the trend of the increasing rate of complex services in the examined geographical area. There is not a high ratio at present, and it is not anticipated by the providers to change. Still transport and storage are the most popular services. However it is interesting that the fourth most popular service is complex, namely the distribution. It seems that the situation is similar to what Carbonea and Stoneb (2004) found few years ago: "A few market leaders offer a wide range and scope of services, while most other firms have a diversified portfolio of interests." The 'wide range' has different meaning in European and county scale of course.

Services loosely related to logistics in categories "additional" and "other" are present in the sample at low rate. It might come from the lack of large, diversified logistics centers.

Regarding the focus we can classify the LSPs based on the size and focusing/diversification as Table 9 shows.

Table 9. Size – focus matrix.

<table>
<tr><td colspan="3" rowspan="2"></td><td colspan="2">Focus</td></tr>
<tr><td>Low</td><td>High</td></tr>
<tr><td colspan="2"></td><td>Determinant</td><td>Customers' demand
(Effectiveness)</td><td>Efficiency</td></tr>
<tr><td rowspan="2">Size</td><td>Small</td><td>Limited internal resources</td><td>Strained.
Requires partnership.
(External resource.)</td><td>Natural.
Fits to the limited capabilities such as resource and technology limitations.</td></tr>
<tr><td>Large</td><td>Internal decision</td><td colspan="2">Depends on decision.
Fits to the available (more or less) capabilities such as resource and technology limitations.</td></tr>
</table>

In the case of small companies focusing would be the natural behavior due to their limited resources, such as capacity, variety of available technologies. In spite of that some of them force the diversification, possibly in order to meet customers' demand. They sacrifice efficiency in order to survive.

In the case of large companies 'diverse or focus' is a decision to make. They may choose 'and' (both in different times), instead 'or'.

The average lead time is not bad. Hopefully large values came from the international transports. (We did not ask relation specific times.)

Strange that responders can not see changes for the future. It is hard to believe – especially on the way coming out of an economic crisis situation – that there would not be changes in customer needs. Rather the poor willingness and ability of planning and the necessary forecast can be the explanation. It is not local characteristics, Crisan et al. (2010) pointed out similar problems.

Capgemini Consulting annually performs surveys of 3PL logistics (Capgemini, 2013). The 2013 survey result is shown in Table 10. The Capgemini study provides more detailed picture than others because it examines the different regions separately and provides agregate result.

The other similar investigation is the above mentioned KPMG study (KPMG, 2009), however there is a time gap in between. Table 10 shows the ranking of provided services based on the frequency.

Table 10. The comparision of investigations.

This study (2013)	Capgemini (2013)	KPMG (2009)
Transport – unimodal	International transportation	International freight forwarding
Storage	Domestic transportation	Warehousing
Distribution	Warehousing	Domestic freight forwarding
Gathering	Freight forwarding	Value added services
Unit load handling	Customs brokerage	Custom services
Transport – multimodal	Reverse logistics (defective, repair, return)	Domestic transport
Production line supply	Cross-Docking	Logistics planning
Manual picking	Product labeling, packaging, assembly, kitting	International transport
Labelling	Transportation planning and management	Supply chain management
Supply	Inventory Management	Reverse logitics
Custom storage	Freight bill auditing and payment	After sale logistics
Vehicle repair	Order management and fulfillment	International distribution

The comparison is made difficult by the fact that KPMG study asked about value-added services separately. Their ranking:

- repackaging, labelling,
- inventory recordkeeping,
- kitting,
- barcoding,
- assembly, configutation,
- vendor managed inventory (VMI)
- paying
- billing,
- receiving, handling order.

These researches show strong transport and related activities. Complex services are not as strongly present as they were expected before.

Mitra (2006) argues that major problems to the growth of the 3PL market are the lack of trust and awareness. It is an cultural issue.

Min (2013) presents the outsorced services from customer view. His ranking is based on the share of a certain outsorced service. This rank differs from the LSP's ranking of offer:

- customs clearance/brokerage
- port services
- freight bill audit and payment
- freight forwarding
- import/export documentation
- shipment consolidation/in-transit merge
- shipment tracking/event management
- freight brokering
- security management
- inbound traffic control
- e-logistics/
- e-(online)purchasing

The complete set of services overlap with those that we have discovered.

There are inforrmation about the type and volume of cargos, vehicles, applied technologies in the database. It allows further analyses such as the usage of ITC tools by logistics service providers.

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