

Concentration of Entrepreneurs as Response to Business Challenges and Risks

Kruno Skendrović and Mirela Karabatić

University of Applied Sciences Velika Gorica, Velika Gorica, Croatia

ABSTRACT

The risk when making business decisions is present every day due to the complexity of the modern market on which the business activity is taking place. The biggest challenge and at the same time the biggest risk faced by the entrepreneurs on the Croatian territory is the expected accession of the country into the European Union. The questionable level of competitiveness of the business subjects brings uncertainty of survival of the small and mid-size entrepreneurs (SMEs). One of the possibilities of strengthening the economic power of national entrepreneurs lies in merging and concentration. Merging of entrepreneurs in fragmented activities should contribute to the strengthening of the market position of the participants as well as to the maintenance of the competitive advantage, and eventually the benefits should be felt by the consumers. The concentration of entrepreneurs should not exceed the legally prohibited level, nor should it endanger the market competition in the observed activity. The aim of the paper is to study the level of concentration of participants in the selected activities on the Croatian territory, measured by a greater number of concentration indices, in the period from 2007 to 2012, establish the intensity and orientation of correlation between the level of concentration, the dynamics of total revenues and the occurrence of recession, and identify the similarities and the differences in the structure of the studied activities.

Key words: concentration of entrepreneurs, competitiveness, recession, merging

Introduction

Challenges and risks are an integral part of business management but without taking risks and confronting new challenges we cannot expect to create added value and to achieve success and growth of entrepreneurial ventures. Recession is a period when investment in general, investment in the financial markets or bank loans is not in full swing. Investors, ranging from those who have billions of dollars to their disposal and operate in the global economic market to small investors who invest their personal savings, are conducting twice as many checks and analysis from what is considered usual before they place their money and invest in a particular activity. All of the above in turn leads to the reduced economic activity that enhances the effects of the recession. Strategies that may have been planned by the participants of a particular activity are varied and depend upon the structure of the business or industry in question. One of the models is to maintain the market shares and positions without the tendency to acquire new markets, and to create a kind, permitted by law, of a partner instead of com-

petitive relations with other stakeholders in the market. Another model aims to increase the market share via mergers or takeovers of the smaller competitors. The profitability of the industry is higher if the industry has a stable competitive structure, a more favourable position with regard to its suppliers, customers and replacement industries and lower risk of other businesses entering the industry. On the other hand, the industry's profitability is lower if the industry has a variable and non-competitive structure, a weaker position in relation to its suppliers, customers and replacement industries, and if there is a strong danger of other companies entering it¹. One of the ways of defining industrial profitability is to measure the concentration of stakeholders within a particular industry. Measuring the concentration is a useful indicator which points to the degree of market competitiveness. Those should also be supplemented by other information pertinent to the market to determine the structure of the said market. Three major limitations of using only the concentration measures of market

structure are errors in determining the geographic scope of the markets, errors in defining the entry barriers and the market and industry conformity².

Some forms of the competition, particularly with regard to the price competitiveness, are very unstable and will most likely leave the entire industry in a worse position in terms of the profitability³. Market stability is desirable for the investors and those markets where the concentration of the majority of entrepreneurs is present are largely stable. Such markets are often dominated by several large businesses, which fight for market share lead not through price competitiveness, but through the variety and quality of services provided. The entry of new players in such markets can disrupt relationships and destabilize the said market. The best example of this situation is the entry of a telecommunications company, Tele2 Ltd, in 2005 on the Croatian telecommunications market, and with a model which offered the lowest prices of telecommunication services, Tele2 achieved significant and rapid growth in that year, as well as in the following. The leading companies of that time, HT Ltd and Vipnet Ltd had to, very quickly, lower the prices of their services, and had to significantly invest in marketing and in expanding their range of services in order to »defend« themselves from the new competitor. After several years a repositioning of the 3 entities occurred, but the concentration in the telecommunications market continues to remain high.

The aim is to examine the level of concentration of participants in the selected sectors in Croatia, measuring the number of concentration indices. In the period from 2007 to 2011 the data for four different activities have been observed and analysed in order to determine the dynamics of total revenues, the impact of the recession on the increase or decrease in income-tested activities and to define the degree of concentration as well as the correlation between the recession and the degree of concentration. In the early 2007, the activities were the different levels of concentration of the consolidated activities on one hand whilst being highly fragmented on the other. The analysis included the activities in telecommunications, energy, private colleges and universities as well as business recruitment agencies. This five-year period was chosen because in Croatia during the 2007 and 2008 the prevailing state of general satisfaction was present coupled with very good economic activity. During 2009 the recession started with a declining trend in employment, falling standard and general decline in economic activity continuing in 2010 and 2011.

The selected activities are telecommunications and energy, which are part of consolidated activities with high concentration of entrepreneurs, due to the fact that HT PLC and HEP PLC are giants that have been dominating within the said activities for a long time. The third activity is that of the private colleges and universities that have seen a significant increase in student enrollment. Investing in education is even now recognized as a good investment in Croatia. The last activity to be

analysed includes employment agencies, which showed high fragmentation in the initial year of research.

Hypotheses

H1: The emergence of the recession is in positive correlation with the level of concentration of activities that were, before the recession, fragmented.

H2: Due to the impact of the recession, those activities that were highly consolidated before the recession held their approximate level of concentration in the recession.

Based on the defined objectives and hypotheses the completed studies are listed in chronological order. Collecting revenue data for selected activities in the period from 2007 to 2011, as well as the revenue of certain activities of the participants which together account for over 90% of total revenue activity, we began the process of research. Revenues generated by activities contain within themselves the impact of the price and thus have been converted into real value. Deflation is conducted on the basis of the consumer price index from the year 2007. Deflated values were processed and analysed using statistical methods to measure the degree of concentration.

Material and Methods

In this paper the concentration measures were used to compare the concentration levels in the four tested activities, namely the telecommunications, energy, private colleges and universities, and employment mediation services – employment agencies. The period of monitoring the level of concentration of the activities in question refers to the period starting in 2007 up to and including the year 2011. In this period, it is possible to monitor the impact of the recession on total revenues generated by sectors and to achieve that a regression analysis of the linear correlation coefficient is used. In measuring the concentration, a greater number of the concentration indexes was utilised (concentration ratio of order 2, 5 and 8, the Gini coefficient and the standardised Gini coefficient, entropy, Herfindahl-Hirschman index and standardised Herfindahl-Hirschman Index, Exponential index, the index of industrial concentration) and graphical measures of the Lorenz curve. Lorenz curve is a graphical representation of a specific concentration, which shows the distribution total of a numeric sequence to its members. Constructed in the first quadrant of the rectangular coordinate system, this curve consists of the points that have coordinates determined by certain members of the cumulative series of proportions. The direction of equality of distribution is expressed through $F_x(X_i) = F_T(T_i)$. The equivalence would be achieved if the cumulative share of the income or other assets belonged to an equal largest cumulative share holder of the property. In that case, 10% of the population would hold 10% of assets, 20% of the population would hold 20% of assets, etc. The other extreme is extreme inequality, where all the property is in the hands of a single individual. Between the two extremes, lies the Lorenz curve⁴.

The ease of use and minimal requests for data make the concentration ratios most commonly used measures to calculate the concentration⁵. The values of the concentration ratio range from $1/N$ and 1. The high levels of coefficient indicate a high level of concentration in the market and the low level of competitiveness. This measure of concentration is only slightly influenced by changes in the number of participants in the industry. Small organizations or businesses below the rank of r do not affect the numerator and have very little effect on the denominator. $Cr=1$ or 100% – monopoly has the highest index of concentration. $C4$ greater than 0.60 indicates a higher degree of concentration, and thus the existence of an oligopoly between the market participants. A concentration ratio of less than 40% indicates the existence of competition between market participants.

The value of r varies in the measurement of concentration ratios in different industries and countries. Problems arise when one needs to compare the concentration in different industries, different countries and at different time points⁶. For that purpose, a summary or a global measure of concentration would be required.

The main sources of data used in the preparation of this paper are official data published on the website of FINA and the business portals: www.poslovna.hr and www.boniteti.com. Part of the data is collected from the sites of the surveyed businesses, that is, from their public annual financial statements. Limitations of the research are reflected in the inability to obtain data for all the participants for the whole period of 2007–2011, especially with regard to the activity of private colleges and universities. Additional limitation is reflected in the fact that some businesses' revenues come from several types of activities, meaning there is no possibility of a precise analysis of their total income in correlation with their activity which creates a problem during the statistical analysis of the data because the revenues from various activities, to a lesser extent, overlap.

Results

Telecommunications activity

The observed business subjects connected with telecommunications activities include the provisioning of landlines, mobile services and the data transmission of data for natural and legal persons on the territory of the Republic of Croatia. This activity is one of the most profitable activities in Croatia as within the particular range of services gross margins of up to 69% can be achieved. In support of the aforementioned number goes the fact that the largest telecom operator, HT PLC, is the most profitable company in the Adriatic region in 2010, according to Deloitte's assessment⁷, and this trend is still holding strong. Although Croatia is not a big market, if viewed by population numbers, we have an average of 1.16 mobile devices per capita. The number of users of telephone services in the mobile network in Croatia in the reporting period showed a constant growth up until 2011 when a decline of 19.60%, in comparison to 2010, was shown. In

addition to this data, it is important to note that for the period leading up to 2011, the operators variously defined active users, which generated a drop in the number of users in 2011. The fixed (landline) telephony follows the world trends and there is a perceptible drop in the number of users, but the number of 1.6 million users and 0.36 fixed telephone lines per capita is still significant^{8,9}. The market share of the total number of users divided between HT and other operators was 57.65% in favour of HT. In general, the data traffic is on the rise and it represents an increasing share of total revenues of the telecommunications companies. In the period of 2007–2010 the number of broadband Internet users increased by 762,210. In times of crisis and economic recession, not only in Croatia but in the world, this activity is still among those showing the highest profits even if the total revenue did decrease.

The effects the recession had on the revenues from telecommunication activities were examined for the period of 2007–2011. The linear correlation coefficient was -0.841 , and the change in total revenue from telecommunication activities in the reporting period was 70.7%, which has been explained by the impact the recession had. The regression model was statistically important on the level of 1% of the test significance, and it shows that the recession revenues from the telecommunication activities fell by 3.1173 billion kunas. The average annual decline in total revenues, expressed in constant prices during 2007, was in the telecommunication business 7.27%, which resulted that in the reporting period, 2007–2011, the reduction of the revenue totalled 26.07%.

We examined the connection between the impact the recession had with the concentration level of activity in telecommunications, which in the initial year of 2007 was highly consolidated. The linear correlation coefficient is negative in direction in all three cases, which means that the level of concentration is inversely proportional to the impact the recession has in a highly consolidated industry. Gini coefficient and the concentration coefficient are highly correlated with the variable impact of the recession during the observed activity. The conducted analyses gave us the opportunity to conclude that the recession negatively affected the total revenues in the telecommunications as well as the level of concentration in the examined period.

The data (Table 1) show that the first two participants in the activity, as well as the first five, managed to increase their income in comparison to total revenues which were in decline in the reporting period.

At the level of the entire activity there is a drop in the concentration levels for new participants entering the market because they have little impact on the changes at the top so that is why the results showed two opposite directions in which the concentration moved at the level of business telecommunications. Lorenz curve of concentration, in the case of telecommunications activities, graphically shows that the concentration for the year 2011, compared to 2007, decreased in intensity. The curve was quite a distance away from the direction of

TABLE 1
COMPARATIVE ANALYSIS AND ENTROPY MEASURES THE CONCENTRATIONS OF TOTAL REVENUES FROM TELECOMMUNICATION ACTIVITIES IN CROATIA FOR PERIOD OF 2007–2011¹⁴

Index name	Designation	Year 2007	Year 2011	Feature of the index
Concentration ratios	C_2	60.5500	73.9400	Increase in concentration C_2 – the first two participants in the activity increased their revenues which resulted in a dominant position
	C_3	66.1600	86.4400	Growth index of concentration C_3 – growth of the top 5 market participants
Entropy, H		1.1206	1.3927	Increase in entropy – decrease in concentration
H_{max} , Maximal entropy		2.1972	2.3026	Due to the change of participants there is a rise on the market
H_0 , Normal entropy		0.5099	0.6048	The increase of H_0 – decrease of concentration
e^{-H} , Exponential index		0.3261	0.2484	Decrease in index e^{-H} – decrease in concentration
H_7 , Herfindahl-Hirshman		0.4320	0.3741	Decrease in H_7 – decrease in concentration
H^* , Standardized Herfindahl-Hirshman		0.3610	0.3045	Decrease in H^* – index decrease in concentration
Gini concentration coefficient G		0.7255	0.6739	Decrease in G – decrease in concentration
G^* , Standardized Gini concentration coefficient		0.8161	0.7488	Decrease in G^* – decrease in concentration
F , Lorenz curve		–	–	Lorenz curve has a shift towards the uniform distribution course – decrease in concentration

equality in 2007, which means that the said concentration is on the verge of allowable concentrations as prescribed by the Competition Act¹⁰. In 2011, a shift of the curve was observed toward the line which speaks in favour of the reduction of dangerous levels of concentration in the telecommunications area.

Figures 1 and 2 that show the Lorenz curve of the concentration of participants in the activities of telecommunications provide a vivid display of reducing the level of concentration, which in 2007 was at the border of the legally permissible concentration and in 2011 it decreased by 13.40% according to the Herfindahl-Hirschman index of concentration.

Activity – energy

The observed business subjects in the field of energy generated their revenues by providing the following services electricity, gas, steam and air conditioning. Energy and companies engaged in power generation are of stra-

tegic interest to every society, including Croatian. Economic development, the needs of small households, maintenance of major infrastructure facilities and many other services, without which today’s life and economic activity would be unthinkable, are covered by this activity. The market leader in Croatia is the HEP Group and its subsidiaries.

The energy sector is inevitable, and therefore more resistant to the effects of the global economic recession. The problem in the collection of receivables, especially from troubled economic giants and part of citizenship blocked by FINA, represents an increasingly important item in a reduced revenue stream, but also accentuates the need for additional or new large infrastructure investments (e.g. the Dalmatian pipeline), further reduce the profitability of the sector. Croatia’s entrance in the EU will result in the liberalization of the market, especially in the part that deals with the supply of electricity and gas, which will cause major changes in the market

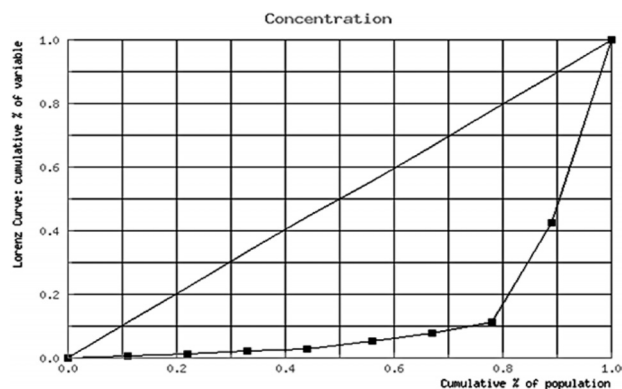


Fig. 1. Lorenz curve of concentration of total revenues telecommunications activities in Croatia for the year 2007¹⁴.

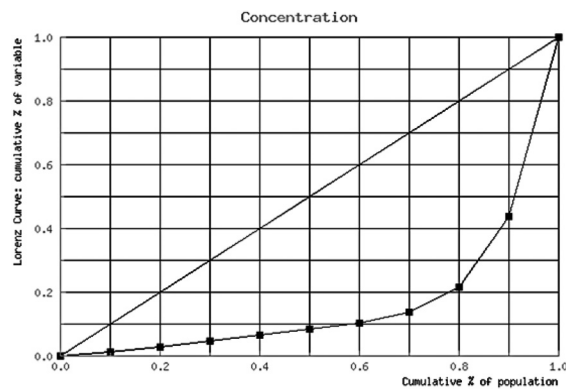


Fig. 2. Lorenz curve of concentration of total revenues telecommunications activities in Croatia for the year 2011¹⁴.

TABLE 2
COMPARATIVE ANALYSIS AND ENTROPY MEASURES THE CONCENTRATIONS OF TOTAL REVENUES FROM ENERGY ACTIVITIES
IN CROATIA FOR PERIOD OF 2007–2011¹⁴

Index name	Designation	Year 2007	Year 2011	Feature of the index
Concentration ratios	C ₂	65.2387	57.5000	Decrease in index of concentration C ₂ – decrease in concentration
	C ₃	66.1600	86.4400	Decrease in index of concentration C ₃ – decrease in concentration
Entropy, H		1.3727	1.6485	Increase of entropy – decrease in concentration
H _{max} , Maximal entropy		2.0794	2.3026	Due to the change of participants there is a rise of entropy
H ₀ , Normal entropy		0.6601	0.7159	The increase of H ₀ – decrease in concentration
e ^{-H} , Exponential index		0.2534	0.1923	Decrease in index e ^{-H} – decrease in concentration
H ₂ , Herfindahl-Hirshman		0.3472	0.2881	Decrease in H ₂ – decrease in concentration
H* ₂ , Standardized Herfindahl-Hirshman		0.2540	0.2090	Decrease in H* ₂ – index decrease in concentration
Gini concentration coefficient G		0.6194	0.5889	Decrease in G – decrease in concentration
G*, Standardized Gini concentration coefficient		0.7079	0.6544	Decrease in G* – decrease in concentration
F _i , Lorenz curve		–	–	Lorenz curve has a shift towards the uniform distribution course – decrease in concentration

and reduce the concentration of businesses in this sector. In the end, there should be further development of infrastructure, better coverage of supply networks and the long term decline in the prices of services for end users, but not significant a drop in prices due to the limited raw materials available on world markets.

The data show the relationships concentration index measured by the Herfindahl-Hirshman Index, the Gini coefficient and the concentration ratio which takes into consideration the impact of recession in the reporting period for the energy activities in Croatia. The data (Table 2) show the state of concentration in the energy business.

Concentration indexes show a decline in market share for the first two participants, as well as the top five in 2011, compared to 2007. Concentration of participants at all levels of activity dropping. Other indexes of concentration tend to decrease in the 2011, compared to the levels in 2007. Entropy indexes are growing as evidenced by declining concentrations tested for activity in question.

Analysing the impact of the recession on the change in total revenues of energy industry we observed a strong correlation with the positive direction. The linear correlation coefficient, which shows the correlation between variables, was examined and it amounted to 0.872 whilst the changes in income are explained by recession with 76.1%, which confirms the high dependence of these variables. According to the regression equation, positive impact of the recession on total revenue growth in the industry has been established. In the period between 2007 and 2011 in the field of energy we saw a rise in total revenues, expressed in values at constant prices in 2007, the annual average of 4.81%, which resulted in an increase of 20.69% during the entire observed period.

Activity – private colleges and universities

An analysis of private colleges and universities was conducted, solely due to the fact that these institutions operate according to market principles, and are not dependent on the subsidies issued by the central government. This activity is, if viewed according to the number of students, on a constant rise in the last 10 years, and the confirmation which signifies the growth of this industry can be found in the fact that during the academic year 2010/2011, compared to the academic year 2009/2010, private high schools, colleges and universities enrolled 22.86% more students. Income generated by this activity we view in the context of the number of institutions that constitute the said market. In accordance with the records and accreditations granted by the Agency for Higher Education and Science, currently a total of 32 private higher education institutions are operating in Croatia. Revenue growth of this industry in a time of recession is proof that investing in education is accepted and recognized as a good investment, even in the times of crisis. Using the services of private educational institutions is not only related with young people, but it has been embraced within the range stretching from 19 to 55 years of age, with the students having very different educational, business and life experiences. The aforementioned facts lend a certain resistance to this activity because it is not focused, and thus it does not depend solely on only one category of people and markets. By joining the EU and connecting with other international universities, is certainly the direction that will be followed by the majority of domestic private higher education institutions. Collaboration between the private higher education institutions present even today and is reflected in mutual assessment and recognition of various study programs as

TABLE 3
THE SELECTED CONCENTRATION INDEXES OF TOTAL REVENUE PERTAINING TO THE PRIVATE COLLEGES AND UNIVERSITIES IN CROATIA AND THEIR CONNECTION WITH THE IMPACT OF THE RECESSION IN THE PERIOD OF 2007–2011¹⁴

Private colleges and universities				
Year	Concentration index			Recession impact
	Herfindahl-Hirshman	Gini coefficient	Standardized Gini coefficient	
2007	0.1647	0.5263	0.5741	0
2008	0.1336	0.5622	0.5997	0
2009	0.1865	0.6476	0.6938	1
2010	0.1650	0.6191	0.6603	1
2011	0.1765	0.6462	0.6462	1
r	0.7408	0.9488	0.9132	
R ²	0.5474	0.9002	0.8340	
t-test	1.9051	5.2009	3.2688	
p	0.1529	0.0138	0.0330	

TABLE 4
COMPARATIVE ANALYSIS AND ENTROPY MEASURES THE CONCENTRATIONS OF TOTAL REVENUES FROM THE ACTIVITIES OF PRIVATE COLLEGES AND UNIVERSITIES IN CROATIA FOR PERIOD OF 2007–2011¹⁴

Index name	Designation	Year 2007	Year 2011	Feature of the index
Concentration ratios	C ₂	47.0800	36.3269	Decrease in concentration index C ₂ – decrease of concentration for the first two schools
	C ₃	83.9900	86.9664	Growth index of concentration C ₃ – increase in concentration
Entropy, H		2.0078	1.9905	Negligible decrease of entropy
H _{max} , Maximal entropy		2.4849	2.6391	Due to change of participants on the market, increase of entropy
H ₀ , Normal entropy		0.8800	0.7543	The decrease of H ₀ – increase on concentration
e ^{-H} , Exponential index		0.1343	0.1366	Minimal index increase e ^{-H} – slight concentration increase
H _e , Herfindahl-Hirshman		0.1647	0.1765	Increase in H _e – increase in concentration
H [*] , Standardized Herfindahl-Hirshman		0.0887	0.1131	Increase in index H [*] , – increase in concentration
Gini concentration coefficient, G		0.5263	0.6001	Increase in G – increase in concentration
G [*] , Standardized Gini concentration coefficient		0.5741	0.6462	Increase in G [*] – increase in concentration
F, Lorenz curve		–	–	Lorenz curve has a shift towards the uniform distribution course

well as in the exchange of knowledge, experiences and lecturers between institutions.

We analysed the impact of the recession on the selected concentration indexes measured via linear correlation coefficient (r) and the coefficient of determination (Table 3).

Correlation between HHI and the impact of the recession is strong but not statistically significant, according to the results of t-test (p-value is greater than the marginal 0.05). The recession's impact is even greater on the Gini coefficient and the positive direction as well as for standard Gini coefficient. We describe the dependence as very strong and positive in direction. We can conclude that these two links, as measured by linear correlation

coefficient, are statistically significant because the p-value is less than 0.05 (0.0138 and 0.0303), which means that the above applies within the 5% significance level of the test.

According to the results (Table 4) the level of concentrations of total revenue in the private colleges and universities in Croatia was defined as moderately concentrated.

During the period of from 2007 to 2011 the observed trend growth level of concentration, which is still within the permissible levels. During the observed period, the average annual total income from private business colleges and universities grew by 6.02%. In total, between 2007 and 2011, the total revenue activity, expressed in

the prices constant in 2007, represented an increase of 26.33%.

The concentration level, for the examined activity of private colleges and universities for the period between 2007 and 2011 growing as demonstrated by the growth expressed through the following coefficients Hirschman Herfindahl-index, the standardized Herfindahl-Hirschman index, Gini index and the standardized Gini concentration coefficient. Entropy measures are in decline which indicates the growth of concentration. Looking at the changes at the top of activity, a decreased concentration, of the first two participants in the activity, was observed.

Their relative share accounted for 47.080% in 2007 which by 2011 amounted to 36.33%. Top five private universities have increased their stakes to 86.96% of the entire industry. This data should be viewed with a note that data from three major institutions is not accessible to the public, which must be viewed as one of the limitations of the study.

Figures 3 and 4 show the state of concentration of all the participants within the activity of the private colleges and universities (with provision that the information regarding the income for the period between 2007 and

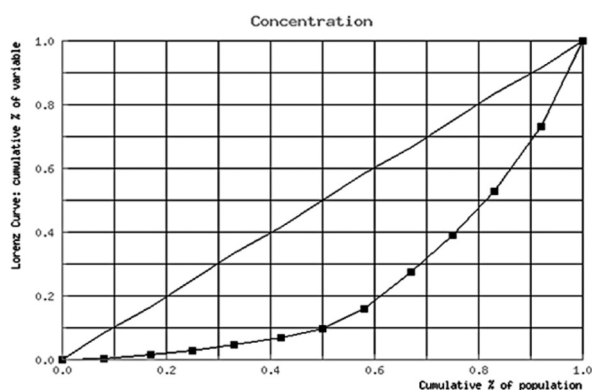


Fig. 3. Lorenz curve of concentration of total revenues from the activities of private colleges and universities in Croatia for the year 2007¹⁴.

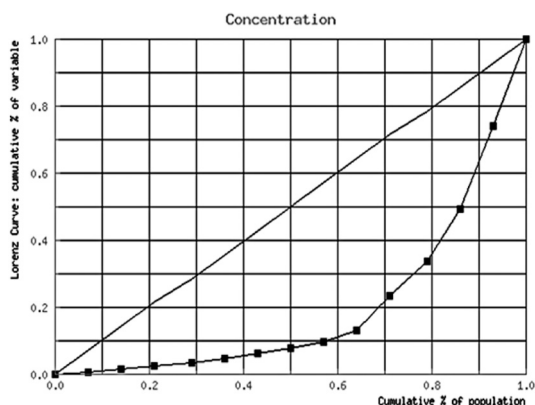


Fig. 4. Lorenz curve of concentration of total revenues from the activities of private colleges and universities in Croatia for the year 2011¹⁴.

2011, is available to the public). This activity is moderately concentrated, thus the shift towards higher concentrations in 2011 and the expected further tendency of concentration does not lead to levels which are not sanctioned by law.

Activity – employment agencies

The paper analyses the activity of employment agencies. The analysis does not include temporary employment agencies, because those agencies target several types of ancillary activities which regularly chartered workers, and because they are limited to only a few types of candidates that they have in their databases. The employment agencies, through an intermediary and partnership relationship, are meant to provide a solution to connect employers and employees in accordance with the required criteria for the job and also the wishes and capabilities of potential employees.

Domestic market on which, in part, employment agencies should be able to work, is best viewed by observing the data of the Croatian Employment Bureau. Registered unemployment amounted to 264,446 persons in 2007, with an increase of 15.46% in the 2011 (compared to 2007) which means that 40,887 new persons were registered as unemployed¹¹. In 2007 there were a total of 206,460 entries in the unemployment records and in 2011 there were 52.08% more entries in the records with a total of 313,988 people. In 2007, more people left the unemployment registry, 245,129 of them, and the same was observed also in 2011 when a total of 318,395 persons left the unemployment registry during that year¹². Given that the permanent unemployment is on the rise, the increased striking from the unemployment register as opposed to registration, points to the frequent changes of the workplace which, in turn, results in a greater uncertainty on the labour market. On the other hand, various employment agencies should have contributed to the striking of names from the unemployment register by conducting their activities. Number of vacancies in 2007 amounted to 141,487, while in the year 2011, that figure stood at 125,578 which is a decrease of 11.24%¹³, but also a huge potential for the employment agencies to offer on the market the services they provide.

Most employment agencies use custom software solutions for archiving, monitoring and coordination of personal data of interested candidates, thus trying to find a job for them in accordance with their customers' orders. For most it is a well-established and multi-channel recruitment and job-finding process, where finding work in foreign maritime companies and on international oil rigs / platforms is the usual result. On the domestic market, employment agencies are engaged in employment, as requested by the client, but in a way that they are engaged in the so called »head hunting« of medium and high managers for competing companies. A comprehensive approach to solving the problem of unemployment of individuals of different qualifications, expertise and business experience on the market today is non-existent in Croatia. The future of this industry largely lies in the ability

TABLE 5
THE SELECTED CONCENTRATION INDEXES OF TOTAL REVENUE PERTAINING TO THE EMPLOYMENT AGENCIES IN CROATIA AND THEIR CONNECTION WITH THE IMPACT OF THE RECESSION IN THE PERIOD OF 2007–2011¹⁴

Year	Employment agencies			Recession impact
	Concentration index			
	Herfindahl – Hirshman	Gini coefficient	Standardized Gini coefficient	
2007	0.0914	0.3426	0.3671	0
2008	0.1226	0.4861	0.5147	0
2009	0.1056	0.5138	0.5408	1
2010	0.1167	0.6153	0.6433	1
2011	0.1282	0.6153	0.4681	1
r	0.3678	0.8132	0.5952	
R ²	0.1352	0.6613	0.3542	
t-test	0.6849	2.4202	0.1283	
p	0.5426	0.0941	0.2897	

to recognize and adapt to new business conditions that will occur in Croatia after joining the EU on 01.07.2013. Being on this side of »the fence« and being a member of the European family, could spell an end for some agencies, particularly those that have, so far, been focused solely on the export of labour to the EU, which will now, perhaps, decide to directly employ workers and sign contract since they will be full citizens of the European Union. Employment agencies that devote the time and effort to the study of individual labour laws of member states, and that will decide to concentrate on labour markets of the non-member countries of the EU are certainly more likely to survive, and perhaps have a significant success.

Employment agencies are a part of the fragmented activities, prior to the recession which hit in 2009, and the explored connections reviews the impact the recession has on individual concentration indices in the period from 2007 to 2011. The linear correlation coefficient was 0.3678 and shows a weak link between Hirshmanov Herfindahl index and the impact of the recession. The

next variable, the Gini coefficient, shows a very strong relationship with the positive direction of the impact of recession, which was tested for activity in the reporting period. The coefficient of determination is 0.6613 and confirms that 66.13% of one variable is explained by the influence of other tested variables which refers to the Gini coefficient and the impact of the recession (Table 5).

According to all of the above, in times of recession it was observed that the employment agencies are increasingly concentrated within the activity.

A heightened level of concentration was visible during 2011 in business recruitment agencies in all the segments in which the measurements were carried out. The two largest agencies by revenue accounted for 26.25% of total income activities in 2007, while in 2011 that rose to 38.80%. The top five agencies by revenue in achieved a growth, but not to the extent the first two agencies had. In 2007 their share amounted to 55.50% of the market, which, by 2011, increased to 63.31%. The level of Herfindahl-Hirschman index in 2007 suggested that a high level of competitiveness in the activity was present, and

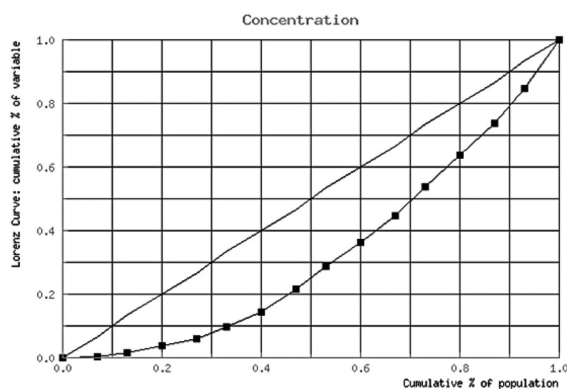


Fig. 5. Lorenz curve of concentration of total revenues from the activities of employment agencies in Croatia for the year 2007¹⁴.

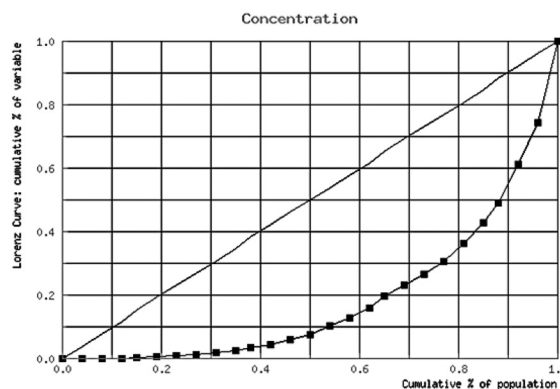


Fig. 6. Lorenz curve of concentration of total revenues from the activities of employment agencies in Croatia for the year 2011¹⁴.

that a shift in 2011 lead to moderate levels of concentrated activity. Large positive steps towards greater concentration did not lead to levels which are not sanctioned by law.

In the area of business recruitment agencies as seen in the Lorenz curve of Figures 5 and 6, the most noticeable shift in the concentration of participants activities in 2011 as compared to 2007. The arch of the curve in 2007 was close to the line of equality which indicates a low concentration and a high level of competitiveness in the industry. As the curve moves further away from the line of equality the concentration is higher, as is evident in Figure 6.

Conclusion

The level of concentration of total revenue in the energy, telecommunications, private colleges and universities and employment agencies, was examined in the period from 2007 until 2011. The selected activities differ with respect to the level of concentration of the participants in the activity at the beginning of the observed period. Energy and telecommunications are defined as highly consolidated activities with known major market participants. In the observed period, the concentration of the participants in these sectors was, expectedly, falling because it was at the border level of the allowable concentration. In the telecommunications area the concentration level decreased if we take into account all the participants, while the concentration levels increased for the first two participants, as well as the income in activity for the first five participants. The connection between the total revenue in the energy sector and the impact of the recession has a strong and positive direction, which would suggest that the recession has a positive effect on the overall growth of total revenues in the energy sector. 76.11% is the percentage of explanation between the two variables tested, that of total revenues generated in the energy sector and the emergence of the recession. The decrease in telecommunications has been explained 70.70% by the emergence of the recession. Connection of these variables is strong and has a negative direction. The total revenue for employment agencies and the impact of recession is correlated via a

moderate connection. The coefficient of determination explains the connection 33.15%, which is considerably less than the correlation between revenues and the recession in the energy sector. Total income of colleges and universities is very low i.e. minimally correlated in a positive direction, only 2.26%, so that connection can be ignored.

The assumed hypothesis H1 that states that the recession is positively correlated with the change in the level of concentration of the fragmented activities, as such was the case with regards to private colleges and universities and employment agencies, in 2007, is accepted. The linear correlation coefficient between the Gini coefficient and the recession is 0.9488 for the activities of private colleges and universities, which testifies to the high level of concentration of income tested activity during the recession. The Gini coefficient for income recruitment agency is a bit less connected to the impact of the recession, the linear correlation coefficient being 0.8132, but the connection is still strong. We conclude that the emergence of the recession affects the concentration in the observed sample of fragmented activities.

Hypothesis H2 assumes that the consolidated activities retained their level of concentration during a recession. We cannot accept that assumption because the highly consolidated activities showed a strong link with the negative direction of the recession. That indicates that the recession resulted in a reduced level of concentration in the telecommunications and energy sectors. The linear correlation coefficient was -0.855 which means that the concentration, measured by the Herfindahl-Hirschman index for total revenues in the energy sector, is in a strong and negative connection with regards to the impact of the recession, i.e. recession tends to decrease the level of concentration in the observed sample of consolidated activities.

The results and analysis made in this study encourage further study of the correlation effects of recession in comparison to the fragmented and consolidated operations. To confirm the aforementioned it is necessary to analyse the increasing number of activities during a longer period of time in order to prove or disprove assumptions with higher degree of confidence.

REFERENCES

1. TIPURIĆ D, Poslovna analiza i upravljanje, (1996) 3. — 2. PARKIN M. Economics, 7th Edt. (Pearson Addison-Wesley, Boston, 2005). — 3. PORTER ME, Harvard Business Review (2008) 79. — 4. GOGALA Z, Osnove statistike (Sinergija, Zagreb, 2001). — 5. BIKKER JA, Competition and efficiency in a Unified European Banking Market (Edward Elgar, Northampton, 2004). — 6. MARTIĆ LJ, (1986) Mjere nejednakosti i siromaštva (Birotehnika, Zagreb 1986). — 7. Business.hr, accessed 17.03.2013. Available from: URL: www.business.hr/hr/Kompanije/Vijesti. — 8. Hakom, pregled tržišta, accessed 17.03.2013. Available from: URL: www.hakom.hr/UserDocsImages/2012/e_trziste/GOD-Broj%20korisnika%20u%20nepokretnoj%20mrezi,2011.hrv.pdf. — 9. Hakom, pregled tržišta, accessed 15.03.2013. Available from: URL: www.hakom.hr/UserDocsImages/2012/e_trziste/GOD-Broj%20prikluca%20širokopojasnog%20pristupa,%202011.hrv.pdf. — 10. Zakon o zaštiti tržišnog natjecanja, NN 79/09. — 11. Croatian Employment Bureau, accessed 17.03.2013. Available from: URL: www.statistika.hzz.hr/Statistika.aspx?tipIzvjestaja=1 03/17/2013. — 12. Croatian Employment Bureau, accessed 17.03.2013. Available from: URL: www.statistika.hzz.hr/Statistika.aspx?tipIzvjestaja=3 17/03/2013. — 13. Croatian Employment Bureau, accessed 17.03.2013. Available from: URL: statistika.hzz.hr/Statistika.aspx?tipIzvjestaja=4 03/17/2013. — 14. Free statistics and forecasting software WESSA, accessed 1.03.2013. Available from: URL: www.wessa.net/co.wasp.

M. Karabatić

*University of Applied Sciences Velika Gorica, Zagrebačka cesta 5, 10410 Velika Gorica, Croatia
e-mail: mirela.karabatic@vvg.hr*

KONCENTRACIJA PODUZETNIKA KAO ODGOVOR NA IZAZOVE I RIZIKE POSLOVANJA

SAŽETAK

Rizik pri donošenju poslovnih odluka svakodnevno je prisutan zbog kompleksnosti suvremenih tržišta u kojem se odvija poslovna aktivnost. Najveći izazov i istovremeno rizik pred kojim se nalaze poduzetnici na području Hrvatske je očekivani ulazak zemlje u Europsku uniju. Upitna razina konkurentnosti poslovnih subjekata donosi neizvjesnost opstanka malih i srednjih poduzetnika. Jedna od mogućnosti jačanja ekonomske snage domaćih poduzetnika je u udruživanju i koncentraciji. Udruživanje poduzetnika u fragmentiranim djelatnostima trebalo bi doprinijeti jačanju tržišnog položaja sudionika kao i održavanju konkurentne prednosti te bi na kraju pogodnosti trebali osjetiti i potrošači. Koncentracija poduzetnika ne smije prelaziti zakonom zabranjenu razinu te ne bi smjela ugroziti tržišno natjecanje u promatranj djelatnosti. Cilj rada je ispitati razinu koncentracije sudionika u izabranim djelatnostima na području Hrvatske u periodu od 2007. do 2011. godine, mjerenu većim brojem indeksa koncentracije, ustanoviti intenzitet i smjer korelacije između stupnja koncentracije, dinamike ukupnih prihoda i pojave recesije te uočiti sličnosti i razlike u strukturi ispitanih djelatnosti.