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Vesna Janković-Milić
 Faculty of Economics, Niš, Serbia
 vesna.jankovic@eknfak.ni.ac.rs

Marija Radosavljević
 Faculty of Economics Niš, Serbia
 marija.radosavljevic@eknfak.ni.ac.rs

Žarko Popović
 Faculty of Economics Niš, Serbia
 zarko.popovic@eknfak.ni.ac.rs

ENTERPRISE SIZE AND INDUSTRY AS FACTORS OF ENTERPRISE VULNERABILITY IN THE TIMES OF THE CRISIS – ANALYTICAL APPROACH

Abstract: Small and medium enterprises (SMEs) are the backbone of any economy. Thanks to their characteristics, they represent important partners in the supply chain. However, on the other hand, crisis situations make them vulnerable and thus a weak link of the chain. To be resilient in times of crisis, SMEs need to think strategically and increase their success in adapting to changing circumstances. In that sense, the subject of the paper is the analysis of the impact of the latest, still on-going crisis on business performance, primarily of SMEs. The subject of the analysis are enterprises operating at the territory of the Republic of Serbia, of different sizes and industry, in order to establish potential significant differences in the manifestation of the effects of the crisis on their performance. Data analysis, as well as testing the significance of the difference in the examined values of selected indicators with regard to size and industry, will be conducted. The aim of the analysis is to identify short-term consequences of the crisis on SMEs, as well as preconditions for their easier overcoming.

Keywords: Small and medium enterprises, crisis, data analytics.

INTRODUCTION

Small- and medium-sized enterprises (SMEs) are the backbone of the European economy, since they represent 99.8% of all enterprises and two-thirds of employment, thus providing jobs and growth opportunities (Small and medium-sized enterprises: an overview, 2020, March). The SME population includes three categories of enterprises, namely micro-enterprises, small enterprises and medium-sized enterprises. The official EC definition of SMEs takes account of three different factors (i.e. level of employment, level of turnover, and size of the balance sheet), but usually classification is based only on the employment definition, since this is the definition used by the Structural Business Statistics (SBS) database (SME Annual Report - 2020/2021, p. 8). Through their activities, small and medium-sized companies influence the creation of wealth and at the same time encourage the economy to be competitive, to expand, to influence changes in strategy and sometimes to introduce or change practices. In any case, such circumstances affect the economy and encourage it to progress (Vulić, 2021).

SMEs are usually characterized by great exposure to risk. This risk is sustained by the following statistic data: in countries with developed economies, 20% of the new SMEs last no more than one year, other 20% last only two years, and 50% don't last more than five years. Therefore, only 10% of SMEs have the chance to survive more than five years on the market (Neagu, 2016).

The advantages of small businesses are expressed in areas where economies of scale are losing importance due to high transport costs due to geographical dispersion, where demand is very variable, the market is small, where individual consumer demands are expressed, where flexibility and adaptability are necessary due to constant innovation. In small enterprises, economies of scale are difficult to achieve, given that the capacities of small enterprises are significantly smaller compared to those of large enterprises. However, economies of scale in small enterprises are not of great importance, as in the case of large enterprises, because the fixed costs (capacity costs) of small enterprises are significantly lower than in large ones. Also, the economy of breadth is not expressed in small companies, since it means

that one company can produce a certain group of products cheaper than if more companies produce only one product from that group, and small companies, most often, do not have a wide range product. Precisely for these reasons, small businesses have no choice but to base their competitiveness on rapid adaptation to changes in the environment.

The need to analyze the success factors of small and medium enterprises stems from their importance, which can be expressed quantitatively. Thus, for example, small and medium enterprises make up over 99% of all enterprises, employ over two thirds of total employees, participate with about 70% in the total turnover of goods and services and with 50% in total exports. Based on the above data, it can be concluded that the attention focused on small and medium enterprises is quite justified. In addition, this group of companies is one of the pillars of the future market economy of the Republic of Serbia. However, like other economic entities, small and medium enterprises face the challenge of adapting to modern market conditions.

Many new products and technological processes have been made in small and medium-sized enterprises, as large enterprises are directing their efforts towards improving existing products, and increasing the degree of capacity utilization. Large companies do not have the same flexibility as small and medium enterprises. In order to succeed, SMEs must focus their efforts on creating new products and services, thus enabling them to adapt their production more quickly to the changing demands of the market (Neagu, 2016).

However, many SMEs fail in the short term and are characterized by great mortality rate due to problems concerning little or no investment in improvements and/or knowledge of the market, lack of formal planning and demand forecasting, lack of managerial and technical skills, and limited economical resources. These features make the SMEs more vulnerable (Caballero-Morales, 2021). Also, because of their size and ownership structure, SMEs also generally struggle with profitability and liquidity, thus becoming particularly vulnerable to external shocks and crisis times (Juergensen et al., 2020).

Some advanced economies deployed unprecedented levels of fiscal support, nearing up to 40% of their GDPs, to protect businesses and jobs (Gourinchas et al., 2021). Unfortunately, not all countries were in that position, especially not the ones that represent economies in transition.

VUNERABILITY OF SMEs AS A CONSEQUENCE OF THE CRISIS

The crisis provoked negative effects that were obvious even in the first few months. For example, the number of active business owners in the United States plummeted by 3.3 million or 22% over the crucial 2-month window from February to April 2020. This percentage was even greater for female business owners - 25% drop in business activity and for African-American businesses - 41% drop in business activity. Female business owners were also disproportionately affected (Fairlie, 2020).

SMEs are generally more vulnerable compared to the large ones, due to their main characteristics. The results of the surveys conducted in the last year confirmed this assumption. Based on the results presented in SME Annual Report, 21% of survey respondents in Europe had closed temporarily during the period January - May 2020, as a consequence of lockdown as one of pandemic measures. However, this percentage was not the same for all EU countries, for example, only 8% of German businesses reported that they had closed. Beside the ones that were closed, in the same period, 61% of survey respondents claimed that their sales declined) and 22% reported the reduction of the number of employees (SME Annual Report - 2020/2021).

According to the results of the study conducted by McKinsey consulting, the effect of the COVID-19 crisis on SME performance across the United Kingdom is immense. Of surveyed SMEs, 80 percent report stable or growing revenue for the year before the pandemic began. Today, 80 percent of SMEs say their revenues are declining (Albonico, 2020). Except declining concerning financial performances, many SMEs were faced with the need to reduce the number of employees as response to the pandemic or, at least, to decrease the staff working hours: 29% of SMEs reported decreased working hours as a result of the pandemic, compared to 5% which saw increased working hours. At the same time, the pandemic affected wages in SMEs more negatively than positively, as 9% of SMEs reported reducing wages, while 6% reported increasing wages (SME Annual Report - 2020/2021, p. 33-34).

Since the consumers are facing employment uncertainties and financial constraints, this reflects to the SMEs performance, the most obviously through a sudden decline in demand (Juergensen, 2020). The effects of the COVID-19 crisis on SME performance across the United Kingdom is immense. Precisely, 80% of SMEs reported stable or growing revenue for the year before the pandemic began, while 80% of them claim that their revenues are declining in 2020. They also report several related effects: — concern about defaulting on loans, concern about their ability to retain employees and doubt in their ability to sustain their supply chains, expectations of reducing headcount in the aftermath of the pandemic and postponing growth projects (Albonico, 2020).

At the same time, the results of McKinsey survey, conducted in August, 2020, including 2,200 SMEs in five European countries—France, Germany, Italy, Spain and the United Kingdom—indicate just how hard their prosperity has been hit by the COVID-19 crisis. Similar to the previous one, 70% of SMEs said their revenues had declined as a result of the pandemic, with severe knock-on effects. One in five was concerned they might default on loans and have to lay off employees, while 28 percent feared they would have to cancel growth projects (Dimson et al., 2020).

Greater vulnerability of SMEs compared to the large ones is confirmed by many surveys, and it can be observed in the short and long run. In the shorter run, most SMEs have faced logistical challenges in addition to demand disruptions,

although the severity has differed across firms and industries, while in the longer-term, there will be different challenges and opportunities depending on the type of SMEs. Since authors argue that policy interventions should be sensitive to the different types of SMEs, rather than adopting a one-size-fits-all approach (Juergensen et al., 2020), it is useful to analyse the vulnerability in different industries.

One of the trends of consumer consumption during the COVID-19 pandemic has been panic buying and, therefore, the intensified imbalance and disequilibrium between supply and demand, threatening the response of the food supply chain to tackle the vulnerabilities resulting from the COVID-19 pandemic. Due to the product characteristics, the food supply chain is long and to make resilience efforts a daunting task for food firms complex. One of the most popular measures for combating the COVID-19 pandemic deployed by governments to break the chain of spread has been increased hygienic practices and social distancing, which have halted public gatherings and forced the closure of factories and food premises. Such closures have subsequently impacted the food industry, especially SMEs in the food industry (Ali et al., 2021).

Beside SMEs in food industry, the most negatively affected sectors are logistics, construction, and agriculture (more than 90 percent of surveyed SMEs in these sectors report reductions in revenue), while the least affected SMEs are those in scientific, finance and insurance, and education sectors (Albonico et al., 2020).

Fernandes (2020) found that countries with a larger proportion of service industries were more severely affected by the pandemic. He emphasized that the problems are particularly bad in hospitality related sectors and that the global travel industry—from airlines to cruise companies, from casinos to hotels—is facing reductions of activity of more than 90% (Fernandes, 2020).

Negative effects of this crisis were also transmitted through supply chain networks, leading many industry sectors to shut down their operations due to a lack of parts. Beside the tertiary sector that was hit in all affected countries, the manufacturing industry was also the most severely affected. In terms of the impact of COVID-19 on individual industries, Goodell and Huynh (2020) analyzed the abnormal returns of 49 industry sectors in the United States and found that 30% had negative abnormal returns due to the crisis. Some authors compared results in different industries in order to discover whether there is the difference in their vulnerability and response to the crisis. For example, Norouzi (2021) concluded that oil industry was more vulnerable to the crisis compared to the power industry. Other authors analysed the causes of the shocks in different industries, in sense of supply and demand. One of them was del Rio-Chanona who, with the associates, found that the output of the transportation industry was affected by demand shocks, that industries related to manufacturing, extractive, and services were affected by supply shocks, and that entertainment, restaurants, and tourism were significantly affected by both supply and demand shocks (del Rio-Chanona et al., 2020).

One of the researches was conducted in Germany, from the export stand point, with the conclusion that the German economy is severely affected by the crisis, especially export companies, with the note that 97 % of these export companies are SMEs. The impact of the crisis was presented by the gross domestic product which fell by 2.2 % in the first quarter of 2020, with the accent March, when situation has changed in a great extent, since the exports fell by 11.8 % (Fischer et al., 2020). Many other authors came to the same conclusion, that the crisis has negative effect to the Gross Domestic Product (Mariolis et al., 2021) indicating different values of GDP reduction, from decreasing at an annual rate of 5% (LoGiudice et al., 2020) to even worse scenario (Korneta & Rostek, 2021). Some others analysed the consequences of the crisis on Gross Value Added and come to the similar conclusion – negative rates due to the pandemic (Estupinan et al., 2020; Kitrar, 2021; Gourinchas et al., 2021).

EVIDENCE FROM THE REPUBLIC OF SERBIA

In order to identify the most vulnerable aspects of SMEs in the Republic of Serbia, as well as the industries which are most affected by the crisis, research, based on secondary data, has been conducted. The subject of the research conducted in Serbia are all companies and entrepreneurs that operated in the period 2018-2020. Data for these business entities were obtained from administrative sources (Business Registers Agency and Tax Administration), as well as statistical sources (research results of the Statistical Office of the Republic of Serbia). The analysis includes the following macroeconomic indicators: number of business entities (enterprises, ie entrepreneurs), number of employees; turnover; Gross Value Added (GVA) and GVA per employee. Selected macroeconomic indicators at the level of the contingent of micro, small, medium and large enterprises, as well as the contingent of entrepreneurs. In addition, aggregate data for the sector of micro, small and medium enterprises and entrepreneurs (SMEs) are presented - which is in line with international standards.

In 2018, 375842 business entities from the sector of small and medium enterprises and entrepreneurs and 540 large companies were active in the Republic of Serbia, while in 2020 there were 403288 active business entities from the sector of small and medium enterprises and entrepreneurs and 588 large companies. The structure of active economic entities according to selected macroeconomic indicators in 2020 is shown in Table 1.

Table 1: Structure of companies in Serbia according to selected indicators

	Number of	Number of	Turnover	Gross value
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	business entities	employees		added
Entrepreneurs	73.96%	28.22%	18.40%	23.54%
Micro	22.34%	17.33%	19.95%	15.33%
Small	3.02%	25.57%	29.05%	26.97%
Medium	0.67%	28.88%	32.60%	34.17%
MSME	100.00%	100.00%	100.00%	100.00%
	99.86%	65.06%	66.37%	59.22%
Large	0.14%	34.94%	33.63%	40.78%

Source: Authors, calculated on the basis of <https://www.stat.gov.rs/sr-latn/oblasti/strukturne-poslovnje-statistike>

In 2020, the SMEE sector generated 65.06% of employees, 66.37% of turnover and 59.22% of total gross value added of companies in Serbia. Of the total turnover in this sector, 32.6% was realized by companies belonging to the category of medium-sized companies. Within these companies, 34.17% of gross value added was also generated. In addition to the indicators shown in the table above, the data related to gross value added per employee are also of great importance for the analysis. The value of this indicator varies significantly, if the size of the company is taken into account.

The COVID-19 pandemic has hit SMEs in Serbia hard. According to the Socio-Economic Impact Assessment of the COVID-19 pandemic (UNDP, 2021), more than two-thirds of SMEs experienced disruptions or disruptions, 20% of SMEs had to limit virtually all of their operations, and an additional 49% of these SMEs operated with significantly reduced capacities and did not have enough resources. While the pandemic has exacerbated existing challenges facing SMEs, such as access to finance and markets, it has also opened up opportunities through near shoring as a strategy for securing suppliers and doing business in nearby locations, which has become a policy priority in many European countries.

Table 2: Changes in selected indicators according to business entities category

		Entrepreneurs	Micro	Small	Medium	SMEE	Large
Number of business entities	2019/2018	5.62%	0.06%	2.83%	5.13%	4.21%	4.81%
	2020/2019	3.46%	1.03%	5.63%	2.65%	2.96%	3.18%
Number of employees	2019/2018	1.77%	1.33%	3.40%	4.77%	2.94%	3.94%
	2020/2019	-1.48%	2.41%	6.10%	2.71%	2.27%	4.21%
Turnover	2019/2018	11.50%	9.54%	7.53%	10.70%	9.66%	9.25%
	2020/2019	0.63%	-1.24%	-0.65%	1.16%	0.05%	-2.08%
Gross Value Added	2019/2018	13.84%	13.85%	13.83%	14.41%	14.03%	2.61%
	2020/2019	-0.40%	5.84%	6.28%	5.84%	4.42%	7.77%
Gross Value Added per employee	2019/2018	9.79%	12.32%	10.10%	9.19%	10.09%	-1.26%
	2020/2019	-1.35%	3.38%	0.16%	3.09%	1.82%	3.39%

Source: Authors, calculated on the basis of Burzanović, 2022.

By analyzing the changes in the selected indicators in 2019 compared to 2018 and the changes in 2020 compared to 2019, the impact of the crisis on the operations of the SME sector and entrepreneurs can be clearly seen. Unlike large companies, which in 2020 compared to 2019 increased their GVA and GVA per employee, in the sector of small and medium-sized enterprises and entrepreneurs for these two indicators is the largest disparity in change. Namely, GVA in 2019 compared to 2018 in this sector was higher for 14.03%, while 2020 compared to 2019 was higher only for 4.42%. When it comes to GVA per employee, the situation is even more obvious (10.09% increase in 2019 compared to 2018, and 1.82% in 2020 compared to 2019).

The subject of the analysis is also the industry as a factor of vulnerability to the impact of the crisis. In this regard, Tables 3 and 4 show the industries in which there was a decrease in GVA, in parallel with the share of this industry in total GVA (SMEs and entrepreneurs in Table 3 and large companies in Table 4).

Table 3: The most vulnerable industries within SMEs

Industry	Share	GVA change 2020/2019
Mining	0.14%	-39.80%
Construction	10.22%	-5.25%
Traffic and storage	7.12%	-5.10%
Accommodation and catering services	2.59%	-28.85%
Real estate business	1.79%	-4.83%
Professional, scientific, innovation and technical activities	9.74%	-6.06%
Administrative and support service activities	3.09%	-7.65%
Education	0.48%	-7.95%
Art, entertainment and education	0.29%	-47.32%

Source: Authors, calculated on the basis of Burzanović, 2022.

Construction is the industry that has the largest share in the total GVA within the most vulnerable sectors. It is followed by Professional, scientific, innovation and technical activities, then Traffic and storage. These three sectors participate with 27% in GVA created within SMEs and entrepreneurs. In all these industries there is negative GVA change for approximately 5-6%. However, there are industries with significantly worse scenario, such as Mining and Accommodation and catering services in which negative change is 30% or even more.

Table 4: The most vulnerable industries within large companies

Industry	Share	GVA change 2020/2019
Manufacturing industry	35.59%	-1.34%
Traffic and storage	5.30%	-22.30%
Accommodation and catering services	0.65%	-22.15%
Transport and storage	5.30%	-22.30%
Information and communication	12.35%	-4.16%
Real estate business	0.01%	-74.35%
Art; entertainment and recreation	1.69%	-3.61%

Source: Authors, calculated on the basis of Burzanović, 2022.

The most vulnerable industries from the category of large companies that have the largest share in GVA are Manufacturing and Information and Communications. Transport and storage is the industry most affected by the crisis (reduction of GVA in 2020 compared to 2019 by 22.30%) with the 5,30% share in total GVA of the large companies.

CONCLUSIONS AND RESEARCH DIRECTIONS

When analyzing the size of companies, the indicator that mostly indicates vulnerability of the entrepreneurs is the number of employees, while in small and medium-sized companies there is a decrease in turnover. For comparison with large companies, for the sake of comparability of data, in this analysis GVA and GVA per employee are used as indicators of the crisis effects. Both indicators for small and medium enterprises show that the crisis has led to a halt in the growth of these indicators. In contrast to them, in large companies, these indicators show the opposite, there was an increase in the observed indicators, ie there is a greater positive change compared to the pre-crisis period. The analysis of the same indicators by industry also indicates the uneven impact of the crisis on business operations, which means that the support of institutions must be in line with the negative effects of the crisis.

Legislation can help reduce vulnerabilities to some extent, with stable and unambiguous regulations. On the other hand, better access to finance can be a significant help, as well as advisory support (Neagu, 2016). In order to discover the most appropriate way of help and support for the SMEs owners, the next task for the authors will be analysis of the data gained by interviewing the SMEs' owners. In this way it will be possible to identify their perception and data evidence about the negative effects of the crisis, as well as ways for neutralising the crisis negative effects. This kind of research will represent solid basis for analysis of the difference between SMEs results in different industries, too. Finally, an interesting topic of the further research could be the difference between traditional SMEs, digitalized SMEs and startups and their response to the crisis.

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