The impact of Covid-19 pandemic on the export competitiveness of manufacturing firms in Croatia

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November 2020

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Abstract

The aim of this paper is to explore the impact of Covid-19 pandemic on changes in export competitiveness of firms from Croatian manufacturing industry. The analysis is based on the data about firm behaviour in period following first wave of Covid-19 pandemic. The data was collected by World Bank during August and September 2020 and publicly released in early October 2020. The results of investigation reveal that probability of decreasing export revenues falls among firms that solved their liquidity problems through equity financing, deferred payments to workers and suppliers and with the support of public grants. Statistically significant evidence of the tax exemptions, wage subsidies and commercial banks' loans was not found. Companies with higher level of robustness to external shocks have lower probability of decreasing export revenues. The impact of introduction or implementation of online sales on export revenues is negative. Results of investigation may serve for formulation of economic policies in similar future cases.

Keywords: Covid-19, manufacturing, Croatia, export

English version of paper published in Croatian language. Please cite as:
Stojcic, N. (2020). The impact of Covid-19 pandemic on the export competitiveness of manufacturing firms in Croatia. Ekonomska misao i praksa, 20(2), 347-365.

1. Introduction

The impact of external disturbances on business operations has attracted the interest of scientists for decades. The Covid-19 pandemic as a unique event of its kind provides a rare opportunity to gain insight into the effects that result from the cessation of almost all economic activity. Although it will be necessary to wait for the end of the pandemic and the revival of economic activity to fully understand the effects on world economies, it is already possible to analyze the initial reactions of companies and the effects of the pandemic on their behavior and business results. The existing literature states that natural disasters such as pandemics cause direct and indirect effects on businesses (Samantha, 2018). Although the behavior of companies during natural disasters such as earthquakes, floods, etc. has been the subject of previous research, such studies are not fully applicable to a situation like the Covid-19 pandemic given the scale of the disaster. Understanding the effects of large-scale disasters is of particular importance for formulating economic policy guidelines for the prevention and mitigation of risks of future disturbances of a similar kind.

External disturbances such as natural disasters are manifested in the business of the company in several ways. On the one hand, disruptions in relations with suppliers affect the ability to maintain the continuity of business activities. On the other hand, structural disturbances in the functioning of society, such as a significant restriction or complete cessation of activities, lead to changes in demand trends and affect the liquidity of business entities. Finally, restrictions on the cross-border movement of goods and people have an impact on the international competitiveness of individual businesses and can directly affect their survival. Some of these effects, such as supply chain disruptions, are short-term in nature and weaken with the normalization of the situation, while others, such as changes in demand patterns, manifest themselves after the disaster and require adjustment in the way companies operate. On the other hand, natural disasters for companies specializing in certain activities or those that pay attention to risk diversification represent an opportunity to improve their market position. This is particularly the case among companies that have been repeatedly exposed to external disturbances in their development (Noth and Rehbein, 2019).

Among the various dimensions of business operations, international competitiveness stands out in small and open economies. The ability to place products on the international market provides companies with opportunities to acquire new knowledge, improve financial sustainability and, by applying the previous one, increase market share in the domestic market. The existing literature has indicated a number of determinants of enterprise internationalization, but the issue of the impact of natural disasters in this context has largely not been explored. In the context of globalization and integration of most world economies into international value chains and global production networks, it can be expected that the suspension of economic activity due to natural disasters has a negative effect on export results and international competitiveness of enterprises.

The aim of this paper is to investigate how the Covid-19 pandemic affected the internationalization of companies in the manufacturing sector in Croatia. The Croatian manufacturing industry, as in the case of most economies in transition from medium to high income, is characterized by low value-added production activities. Such a pattern is characteristic of manufacturers integrated into global production networks at their lower levels. Disruptions in supply and distribution chains as well as the suspension of economic activity have the potential to cause difficulties in the activities of business entities, primarily in their export activities. The research also seeks to shed light on the role of public financial incentives in mitigating the effects of the pandemic on companies' export competitiveness. Although governments around the world, including Croatia, have made generous grants to keep businesses afloat in a pandemic, the effects of such measures have not yet been sufficiently explored, and in this context this study is one of the first contributions.

The analysis is based on World Bank data on the impact of the Covid-19 pandemic on business operations in a number of European countries. The survey was conducted and published in October 2020 and included 131 companies in Croatia. Using descriptive statistics and econometric analysis, the impact of certain dimensions of the pandemic on the direct and indirect export activity of companies was investigated, which is the first such attempt in Croatia and one of the first in the world. The rest of the paper is structured as follows. The second unit provides a theoretical framework for research and a review of the relevant literature. Descriptive analysis and presentation of models and methodologies are contained in the third and fourth units. The fifth unit brings the results of econometric analysis. The concluding remarks are presented in the sixth part.

2. Theoretical framework

Enterprise behavior is influenced by three groups of factors that are usually classified as the behavior, characteristics, and characteristics of the external environment. As an element of the external environment, natural disasters belong to the group of external factors that have an impact on the way of performing activities and business results of the company. Over the decades, natural disasters have been the subject of numerous studies within macroeconomics (Noth and Rehbein, 2019). Common to all studies within this area of research is the focus on the possibilities of protection against natural disasters and minimizing risks in the areas of banking, insurance or the labor market. Only in the past decade has there been a significant emergence of research that sought to shed light on the channels through which natural disasters affect processes at the microeconomic level and the behavior of businesses and households.

The prevailing starting point in the research states that natural disasters have negative effects on the company's operations. In this context, supply chain difficulties, changes in demand patterns, and difficulties in accessing finance and human capital are usually singled out as factors that negatively affect business results (Lee et al., 2020; Kraus et al., 2020). However, a number of studies also cite the positive effects of natural disasters on business behavior. For example, previous experience of external shocks allows firms to survive in similar events in the future (Noth and Rehbein, 2019). Characteristics of enterprises such as interpersonal relationships, social and emotional capital have also been associated in the literature with stronger resilience to disruption and exploitation of growth opportunities in the post-disruption period (Salvato et al., 2020).

The company’s response to external shocks is usually explained through two groups of theories. Organizational resilience implies the ability to recover from an unexpected situation by continuing normal business activities (Williams et al., 2017). An alternative view of the company's behavior in the face of external shocks is more focused on the company's ability to use the new situation to improve existing and develop new competencies and identify opportunities for profit (Salvato et al., 2020). Some research also cites the role of public financial support to affected enterprises (Noth and Rehbein, 2019). According to this view, investment continuity, job retention, opportunities to diversify supply chains and distribution channels are under the direct positive impact of public financial support to businesses (Kuckertz et al., 2020).

Although existing research provides some framework for understanding corporate responses to natural disasters, their contribution can only partially form the basis for understanding the impact of disruptions such as the cessation of global economic activity due to the global pandemic (Bernanke, 2020; Ding et al., 2020; Kuckertz et al., 2020). Existing research on the effects of the Covid-19 pandemic on enterprise behavior is rare and approaches issues from a variety of perspectives such as performance outcomes (Huayu et al., 2020; Gu et al., 2020), behavioral differences between different enterprise groups (Bartik et al. ., 2020; Kraus et al., 2020), the reaction of financial markets to companies (Ding et al., 2020), comparisons with the reactions of companies in previous pandemics (Hassan et al., 2020), the establishment of new companies during the pandemic (Kuckertz et al. dr., 2020) and the determinant of the probability of company failure (Amankwah-Amoah et al., 2020).

Huayu et al (2020) analyze the impact of Covid-19 on company performance in China. The authors state that the impact of Covid-19 manifested itself through delayed investments that resulted in missed profit opportunities, internal accumulation of financial resources in conditions of uncertainty, and changes in demand patterns. The authors find a particularly strong impact on sectors such as tourism, trade, food service delivery, the film and TV industries. Analysis by the method of change in change (DiD) suggests that Covid-19 has led to a decline in company performance with the finding being consistent across different industries and regions. The emergence of Covid-19 reduced, according to the findings of this study, the company's revenues, with the decline being milder where the company's investment activity continued at least to a certain extent.

Xin et al (2020) found in a sample of one region in China using electricity consumption data from over 30,000 companies that the sector most affected by the Covid-19 pandemic was the manufacturing industry while positive effects were recorded in the construction sector, IT industry, healthcare. The negative effects are more intense in the private than in the public sector and among small businesses. Finally, the results suggest that the pandemic had a weaker effect on companies involved in international trade than on domestic-oriented companies, which can be explained by the earlier outbreak of the pandemic in China than in the rest of the world.

Kraus et al (2020) analyze the effects of the Covid-19 pandemic on family businesses in five European economies. The analysis is based on 27 semi-structured interviews with representatives of family businesses in five European countries that are at different stages of the crisis at the time of the survey. Challenges highlighted by the companies interviewed include providing liquidity, cutting costs and limiting social contact in order to prevent the transmission of the Covid-19 virus. According to the findings of the study, responses to the Covid crisis in the area of changing business models consisted of a change in market focus, digitalization of customer relationships and within the company. In a few cases, the authors also found evidence of a pandemic being recognized by companies as an opportunity to implement structural measures in company behavior with the goal of changing the business model in the long run.

An analysis by Bartik et al (2020) addressed the impact of the Covid-19 pandemic on small and medium-sized enterprises in the United States. In a sample of over 5,800 small and medium-sized enterprises, the authors identified several key dimensions of the impact of the Covid-19 pandemic. On the one hand, the pandemic has led to a large scale of layoffs and company closures. During the pandemic, the financial sensitivity of small businesses became apparent. The analysis of company expectations indicates a high level of expectations of assistance through public incentives. However, a large number of companies also expressed reservations about the possibility of accessing public incentives due to bureaucratic obstacles.

In addition to the impact on business results, the pandemic also had an impact on the position of business entities in the financial markets. Data from more than 6,000 companies from 56 economies during the first quarter of 2020 suggest that the pandemic led to falling stock prices in almost all companies, but was milder in the case of companies that were financially more stable in the pre-pandemic period and less exposed to the pandemic through global supply and distribution channels. distribution chains (Ding et al., 2020). The stock market results of companies were also influenced by their attitude towards corporate social responsibility practices and the attitude of management towards risk.

Hassan et al (2020) analyzed the costs, benefits, and risks associated with the Covid-19 pandemic and the SARS and H1N1 pandemics in over 80 countries. The results of the research show that the priorities that companies took into account during the pandemic were primarily related to falling demand, growing uncertainty and disruptions in supply chains. In addition to the above, concerns have been identified among companies about capacity reductions, bankruptcies and employee retention. Like the previously cited studies, the authors find in a number of companies the attitude towards the emergence of a pandemic as an opportunity for business expansion. The author's findings on the role of previous experience with similar events coincide with those from other studies such as Noth and Rehbein (2019). Namely, companies that have experienced the SARS and H1N1 pandemics in their business have expressed greater optimism about the possibility of overcoming the challenges posed by the Covid-19 pandemic.

Kuckertz et al (2020) analyze the impact of Covid-19 on start-up innovative companies in Germany. Through qualitative research, the authors came to the conclusion that the response of new and small innovative companies to the pandemic was reflected in the first step in combining internal and external resources and trying to maintain social capital. Companies affected by the pandemic in their efforts to maintain financial stability relied on internal cost-cutting procedures and state aid. However, a large number of respondents pointed to a gap between the needs of the economy and the structure of state aid and bureaucratic obstacles during their allocation. In such conditions, most innovative start-ups sought their way out of the pandemic by exploring new entrepreneurial opportunities and establishing new directions for the development of their companies.

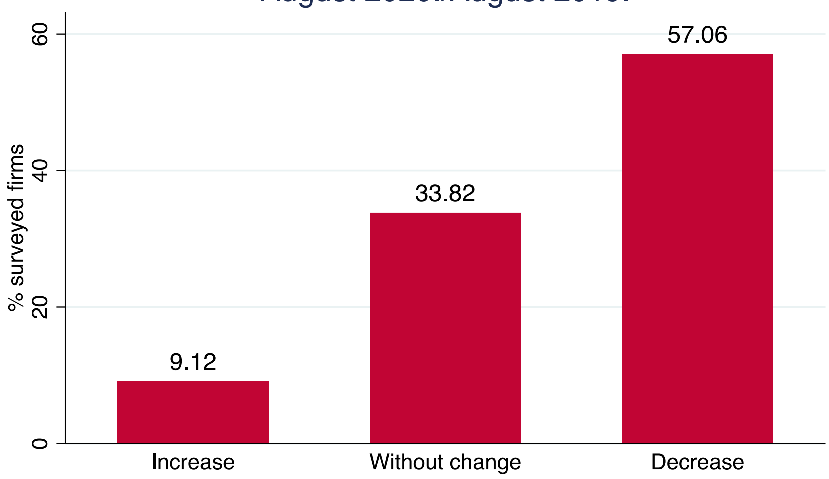
This review of the existing literature reveals several features of the current level of knowledge about the effects of the Covid-19 pandemic on the behavior and business results of enterprises. On the one hand, it is clear that research into the effects of the Covid-19 pandemic at the microeconomic level is still in its infancy and the existing findings are largely based on qualitative analyzes. On the other hand, existing research has addressed the effects of the pandemic on the revenue and expenditure side of firms, their relationships with suppliers and customers as well as their ability to exploit the newly created situation for business gain. Most of the existing research also focuses on the role of state aid in companies' efforts to overcome the pandemic. However, existing research shows a gap when it comes to the impact of Covid-19 on company internationalization. This gap is of particular importance if it is known that lockdowns of economies have created disturbances in the movement of people and goods with the potential to negatively affect the international activities of enterprises.

3. Firm responses to Covid-19 pandemics

One of the reasons for the high prevalence of qualitative research in existing micro-level effects studies of Covid-19 is the lack of databases that would allow quantitative analysis to be conducted. One exception in this regard is the base based on a survey of companies on the effects of Covid-19 on their business. The survey covered a number of countries and was published during the period from June to October 2020. The subject of this research is data on the impact of the Covid-19 pandemic on companies in the Croatian economy. Data on the impact of the pandemic in Croatia are based on a survey conducted during September 2020. Respondents' answers refer to the period from the beginning of the pandemic to the end of August 2020. The database with company responses was published in the first half of October 2020. Considering that these are data that were available for only a few days at the time of writing this study and that no similar studies have been conducted for Croatia so far, it can be concluded that this is the first study of the effects of Covid-19 on companies in Croatia.

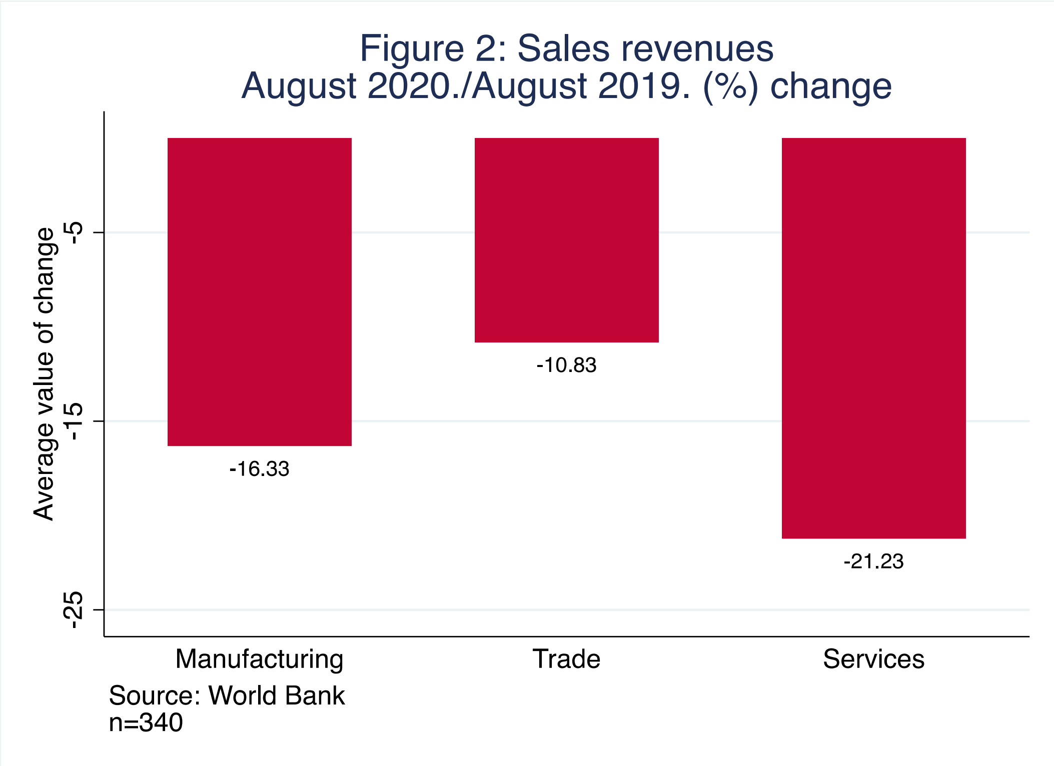
The survey included 340 active business entities, of which 131 come from the manufacturing sector, 81 from the trade sector and 138 from the other services sector. The questions are divided into several categories. The first group contains information on the work of the company during the period of closing the economy and revenues generated after the pandemic. The second group refers to issues related to the production activities of the company, while the third group of questions contains information on the attitude towards employees during the pandemic. The set of questions sought to find out from the respondents how and to what extent the pandemic affected the financial aspect of their business. Finally, in the last sixth group of questions, respondents were asked for information on state aid to their business.

Figure 1: Sales revenues
August 2020./August 2019.

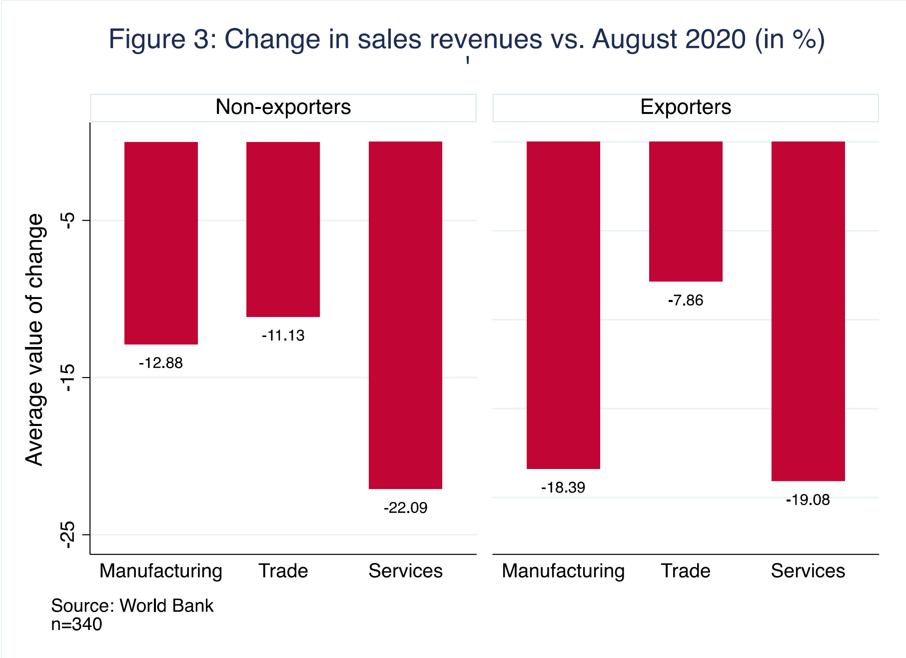


Source: World Bank
n=340

Figure 1 shows a comparison of the realized sales revenues of the surveyed companies in August 2020 compared to the realization in the same month in 2019 for all sectors. Most companies experienced a decrease in sales revenue compared to last year, followed by companies that did not report a change in business results.

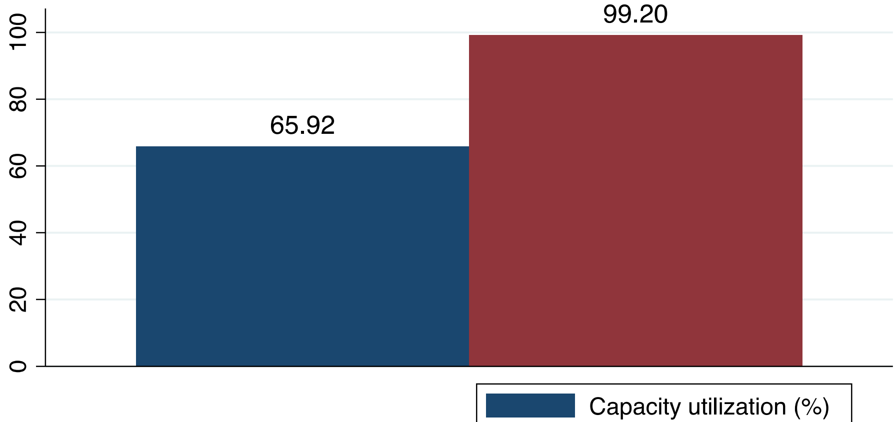


If we look at the average amount of change in revenue from sales of products and services by sector, it is clear that the largest decline was recorded in the group of industries classified as "other services" which include tourism and related services (Figure 2). The average decline in income of surveyed companies in the manufacturing industry is higher than in the trade sector. Differences are present in all sectors and with regard to the market orientation of the surveyed companies. In the trade and other services sectors, the decline was more pronounced among domestic market-oriented companies (Figure 3). However, in the manufacturing industry, the decline is significantly more pronounced among export-oriented companies, which can be attributed to the disturbances caused by the Covid-19 pandemic in regional and global production chains.



Looking at the business results of the manufacturing industry in the post-Covid period, several features can be observed. First of all, after the pandemic, companies operated with reduced production capacity. Figure 4 shows that the average utilization of production capacity among companies in the manufacturing industry was around two thirds of capacity. This did not result in an adjustment on the labor side. If we look at the number of employees in the surveyed companies in relation to the number of employees in December 2019, ie before the start of the pandemic, it is clear that most companies kept approximately the same number of employees. Moreover, over 85% of the surveyed companies from the manufacturing industry stated that they employed the same or a larger number of employees in the post-pandemic period than before the pandemic. Delaying adjustment on the labor side is a significant indicator for the reason that it suggests that companies protect their human capital and postpone possible reductions in the number of employees. Such behavior is typical in the case of the perception of the disorder as a short-term change.

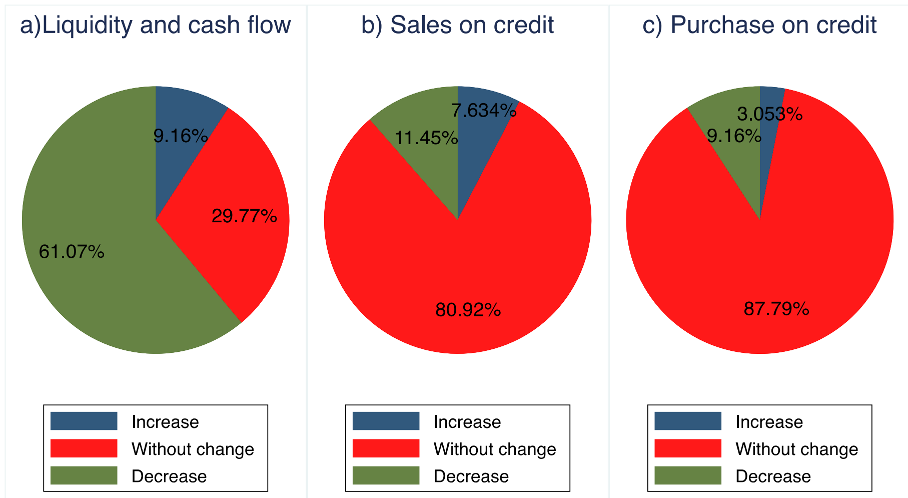
Figure 4: Capacity utilization and change in the number of employees in manufacturing



Source: World Bank
n=131

Among the analyzed companies, the effects of the pandemic on the financial stability of operations are noticeable (Figure 5). On the one hand, the vast majority of companies stated that they had experienced problems in maintaining liquidity and cash flow. These problems did not appear to have had a significant impact on changes in supplier and customer relations practices. Only a small percentage of companies state that they increased credit financing of their buying and selling activities in the period after the pandemic.

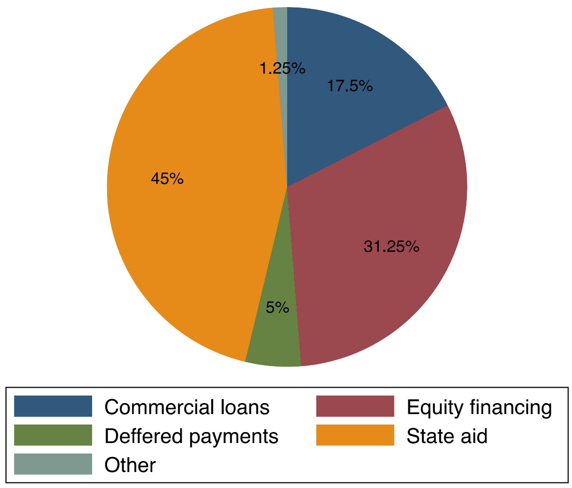
Figure 5: Financial effects of Covid-19 on business results of manufacturing firms



Source: World Bank
n=131, % of responses

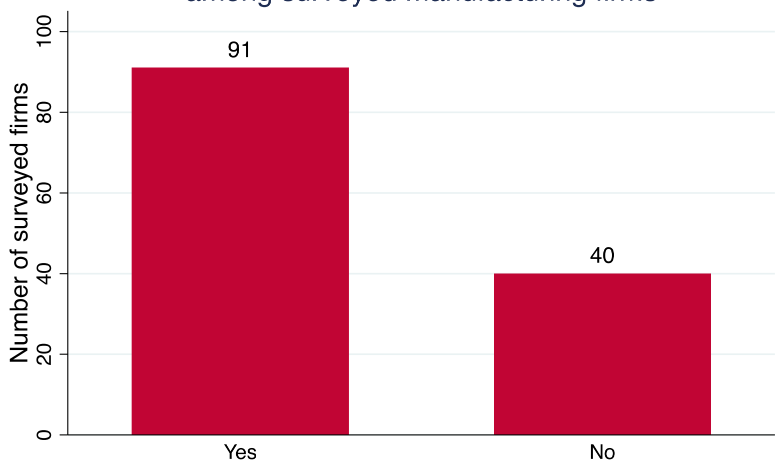
Figure 6 shows approaches to solving liquidity problems among companies that stated that they have experienced such problems in the manufacturing industry in Croatia. It is clear that slightly less than half of the companies in overcoming liquidity problems relied on state aid, followed by companies that solved their problems with the so-called equity financing. Only a small number of companies have relied on commercial bank loans and deferred payments to suppliers in resolving liquidity problems. This is understandable given that most respondents were recipients of some form of state aid during and after the Covid-19 pandemic (Figure 7).

Figure 6: Liquidity solving practices of manufacturing firms



Source: World Bank
n=131, % responses

Figure 7: Number of state aid recipients among surveyed manufacturing firms



Source: World Bank

All of the above suggests that the Covid-19 pandemic had a negative impact on the operations of companies in the manufacturing industry, and these effects were more pronounced among export-oriented companies. Nevertheless, most companies maintained pre-pandemic employment levels and continued with established practices in supplier and customer relations. State aid to the company's operations also seems to have played an important role in this. In order to determine the relationship between these and other factors on the one hand and international competitiveness on the other hand, a regression analysis of the determinants of export results of the surveyed companies in the period after the Covid-19 pandemic is performed below.

4. Model and methodology

As previously pointed out, the basic goal of the research is to determine the existence of a link between certain economic characteristics of the Covid-19 pandemic and the export competitiveness of companies in the Croatian manufacturing industry. For this purpose, an empirical model has been developed in which the dependent variable is categorical and assumes a value of 1 if the company stated in the survey that it achieved lower export revenues during August 2020 than in the same month in 2019. The variable was constructed based on respondents ’questions about the level of their export earnings in August 2020 compared to the same month in 2019 whereby respondents were able to answer whether these earnings remained at the same level (including level 0), increased or decreased. Table 1 provides a definition of individual variables.

Among the control variables, the model includes a variable that measures the percentage change in company revenue compared to the same period in 2019. By including this variable, it is possible to distinguish between those companies that experienced a decline in export and total revenues and those companies that compensated for the decline in export revenues by an increase in revenues in the domestic market. A positive sign of the variable would suggest a reorientation from the foreign to the domestic market, while a negative sign would signal that there is an overall decline in revenue. The model also includes control for company size as measured by the number of employees. Larger companies are expected to have greater opportunities to overcome the crisis.

The model includes a set of variables that control for ways to solve liquidity problems and cash flow. In particular, four categorical variables are included as controls for companies that have addressed liquidity problems with loans from commercial banks, equity financing, deferred payments to suppliers or employees, and with the help of state aid. For all four variables, the ability to address liquidity problems is expected to reduce the likelihood of a decline in export earnings.

Table 1: Variable definition

Variable	Definition
Export revenues	Categorical; 1 if firm had export revenue decline
Sales revenues	Continuous; Change in sales revenues August 2020/August 2019
Firm size	Continuous; Number of employees
Commercial loans	Categorical; 1 if firm experienced liquidity problems and attempted to solve them with commercial bank loan.
Equity financing	Categorical; 1 if firm experienced liquidity problems and attempted to solve them with equity financing.
Deffered payments	Categorical; 1 if firm experienced liquidity problems and attempted to solve them with deferred payments to suppliers and workers.
State aid - liquidity	Categorical; 1 if firm experienced liquidity problems and attempted to solve them with help of state aid
State aid – tax exemption	Categorical; 1 firm received state aid in form of tax deferment or exemption.
State aid – wage subsidies	Categorical; 1 if firm received state aid in form of wage subsidies
New business models	Categorical; 1 if firm reacted to Covid-19 related difficulties by introducing or intensifying online sales.
Customer relations barriers	Categorical; 1 if firm experienced barriers in customer relations.
Remote working	Continuous; Percentage of staff working remotely.
Lockdown length	Continuous; Number of weeks during which company activities were stopped due to lockdown.
Resilience	Continuous; Estimated number of weeks during which firm could continue its operations in case of total decline in sales revenues.

Source: Authors calculations

Two additional categories of state aid are included in the model. Categorical variables control for companies that have been subject to reductions or exemptions from fiscal benefits and for companies that have received state aid for employees. On the one hand, the exemption from fiscal benefits enables the engagement of funds in new ways of doing business, while on the other hand, state aid for employees reduces the need for dismissals and enables companies to retain human capital. A positive sign is expected for both variables.

One of the responses to the emergence of the Covid-19 pandemic was the transition to online customer service. The model includes a variable that receives a value of 1 if the company, as part of the response to business difficulties, initiated or intensified sales through electronic or online channels, and a positive sign is expected for this variable. The model also controls for the firm's resilience to external disturbances. Respondents were asked to estimate how many weeks they could survive in the event of a complete cessation of sales. Also, the model includes a variable containing the number of weeks during which a firm in the first wave of a pandemic was forced to suspend its activities altogether due to the locking of the economy and society. Finally, the model contains two categorical variables that control for firms that have experienced difficulties in accessing clients and for the proportion of employees working remotely due to a pandemic.

Since the dependent variable is in categorical form, the analysis was performed using a probit econometric technique with control for robust standard errors. An important item in the analysis of export behavior of companies is the potential problem of selectivity of export companies in relation to others. In this study, such a problem is not present given that the dependent variable is constructed from the question of change in export earnings and an answer is offered stating that this type of income has remained unchanged. Such a construction of questions allows the inclusion of all companies involved in the survey. Having all the above in mind, the analysis was performed by the probit econometric method, which is the most commonly used method in analyzes with a categorical dependent variable.

5. Discussion of findings

The starting point in the interpretation of the results of econometric analysis is the consideration of relevant diagnostics and evaluation of the validity of the model. Table 2 provides the key diagnostics of the estimated model. According to all indicators, the model shows a satisfactory value. All 4 indicators of predictive value (sensitivity, specificity, positive and negative predictive value) have values around or more than 80%, and the overall percentage of accurately predicted outcomes is 85.50%. The Pearson and Hosmer-Lemeshov tests confirm the null hypothesis about the validity of the model. Finally, about 92% of the sample is below the ROC curve suggesting a high ability of the model to distinguish individual outcomes. All of the above suggests the validity of the model and allows a transition to the interpretation of the results.

Table 2: Model diagnostics

Sensitivity	78.26%
Specificity	89.41%
Positive predictive value	80.00%
Negative predictive value	88.37%
% correctly classified	85.50%
Pearson model validity test	
Pearson chi^2 (117)	85.15
Prob>chi^2	0.99
Hosmer-Lemeshov model validity test	
Hosmer-Lemeshov chi^2 (8)	5.37
Prob>chi^2	0.72
% of outcomes under ROC curve	92

Source: Authors calculations.

The results of the regression probit analysis are shown in Table 3. Due to the simplicity of interpretation, the results are presented in the form of marginal effects. In the case of categorical variables, the marginal effects refer to the change from the value 0 to 1, while in the case of continuous variables they refer to the unit change of the value of the variable.

Table 3: Results of estimation

Variable	**Marginal effect (dy/dx)**
Sales revenues	-0.006* (0.00328)
Firm size	-0.00018 (0.00036)
Commercial loans	-0.087 (0.226)
Equity financing	-0.642***(0.189)
Deffered payments	-0.448* (0.247)
State aid - liquidity	-0.698*** (0.205)
State aid – tax exemption	0.065 (0.07686)
State aid – wage subsidies	-0.021 (0.12509)
New business models	0.419*** (0.124)
Customer relations barriers	1.023*** (0.19274)
Remote working	0.006 (0.00765)
Lockdown length	-0.013 (0.01518)
Resilience	-0.015** (0.00665)

Source: Authors calculations
Note: ***,** and * denote significance at 1%, 5% and 10%
Standard errors in brackets.

The probability of a drop in export revenues decreases by 0.006% if the sales revenues of the company increase by 1 percentage point (Table 3). The activities of companies in solving liquidity problems, with the exception of loans from commercial banks, have the same effect. The probability of a decrease in sales revenue is lower among companies that experienced a decrease in liquidity and tried to solve it through capital financing (by 0.642 percentage points), deferral of payments to suppliers and workers (by 0.448 percentage points) and among recipients of state liquidity support (by 0.698). percentage points). Other state aid channels do not have a statistically significant effect on the movement of export revenues.

Among other variables, an interesting finding is the positive coefficient on the variable that controls for new business models or the introduction or intensification of online sales. Companies that responded to the pandemic through this practice are 0.419 percentage points more likely to fall in operating revenues. If it is known that Croatian companies are at the back of the European Union according to the representation of online sales in business, this finding becomes more understandable. The probability of a drop in export revenues is also higher among companies that have experienced problems with customers. Finally, we find a lower probability of falling export revenues among companies that have enough resources to survive longer in the event of a complete cessation of sales.

6. Conclusion

The Covid-19 pandemic is a rare event in economic history that gives us insight into the effects of stopping most economic activity at the same time. Although a comprehensive review of the economic effects of a pandemic will require a time-lapse analysis since its official end, it is already possible to draw lessons from the company's initial reactions to the cessation of economic activity and formulate economic policy guidelines for similar future events. Several existing studies have addressed the impact of the Covid-19 pandemic on aspects of enterprise behavior such as profitability, changes in market access or supplier relationships, but the question of effects on the international aspect of enterprise behavior has not been empirically studied to date. Restricting the movement of people and goods has had significant effects on the export business of enterprises. In addition, existing research has mainly addressed the issue of effects in China, the United States and developed countries of the European Union. The effects on small, open economies like Croatia and the ways in which their companies are coping with the pandemic have largely been lacking.

The lack of systematic research into the effects of the Covid-19 pandemic on a number of economies, including small developing economies, needs to be seen in the context of the lack of quantitative databases to enable such research. An exception is the recently published results of a survey on the effects of Covid-19 on the company's operations conducted by the World Bank. The database collected during August and September 2020 and published in early October 2020 is one of the first sources on the basis of which it is possible to assess the impact of the Covid-19 pandemic on Croatian companies. In this context, the analysis conducted in this paper can be considered the first quantitative study of the effects of Covid-19 in Croatia conducted on the basis of data collected from a reliable source.

The results of the research indicate that the effects of the pandemic in practically all sectors have led to a decline in revenues, capacity utilization and problems of a financial nature with liquidity and relations with customers and suppliers. In solving these problems, companies mostly relied on state aid, which in Croatia was, given the fiscal capacity, among the most generous in the European Union. However, the results of the regression analysis indicate that several factors stand out from the rest according to their effect on the probability of a decline in export earnings. First of all, this refers to the company's efforts to solve liquidity problems and various channels of state aid. According to the results obtained, capital financing, deferred payments and state aid in bridging liquidity problems proved to be key in preventing the decline in export revenues. On the other hand, the results did not find a statistically significant relationship between commercial bank support and state aid measures such as exemptions from fiscal benefits and subsidies for employee wages and changes in export earnings.

It is clear from the above that the most significant challenges of the pandemic for domestic companies in the manufacturing industry were those caused by liquidity problems and that companies that managed to solve this type of problem also managed to reduce the likelihood of declining export revenues. If we take into account that companies that have higher stocks of means of survival in the event of a suspension of sales are among those less likely to decline export revenues, then it can be concluded that companies in the Croatian manufacturing industry are actually relatively exposed to external disturbances. the wave of pandemics brought to light their liquidity problems. It is also interesting how the introduction of new practices such as online sales actually increases the likelihood of declining export revenues, which suggests that this is a compensatory measure that seeks to mitigate the decline in the international market with new ways of communicating with customers in the domestic market.

From these preliminary results, it is possible to draw several guidelines for shaping future economic policies. The findings of the research suggest that companies have resorted to raising capital, state aid and deferred payments in solving liquidity problems. On the other hand, we did not find a link between employee benefits, fiscal relief, and commercial bank loans. From this it can be concluded that it is crucial to provide companies with liquidity so that they can continue to perform their activities and thus act on other goals such as job retention. Strengthening internal capacities to combat external shocks can also increase a company's chances of survival according to the results obtained in this study.

The study also has a number of limitations that can serve as guidelines for future research. The analysis was conducted on a small number of companies and the survey questionnaire does not contain information on the location of the company. Future research should look at spatial differences in the effects of the pandemic on corporate export earnings. Research should also look at differences in performance with respect to the company's major export markets which was not possible with the database used. Finally, future research should take into account the export experience, age and competitive profile of the company in addition to information on certain aspects of their response to the problems caused by the pandemic.

Literature

Bartik, A.W., Bertrand, M., Cullen, Z.B., Glaeser, E.L., Luca, M. and Stanton, C.T. (2020). How are Small Businesses Adjusting to Covid-19? Early Evidence from a Survey. NBER Working Paper no. 26989.

Bernanke, B. (2020). Ben Bernanke on Covid-19 Downturn. Marketplace. Available: https://www.marketplace.org/2020/03/23/former-fed-chair-bernanke-covid19-downturn/ (accessed 1.10.2020).

Ding, W., Levine, R., Lin, C. and Xie, W. (2020). Corporate Immunity to the Covid-19 Pandemic. NBER Working Paper 27055

Hassan, T.A., Hollander, S., Lent van, L. and Tahoun, A. (2020). Firm-Level Exposure to Epidemic Diseases: Covid-19, SARS and H1N1. NBER Working Paper 26971

Huayu, S., Mengyao, F., Hongyu, P., Zhongfu, Y. i Yongquan, C. (2020). The Impact of the Covid-19 Pandemic on Firm Performance. Emerging Markets Finance and Trade. Online First. 1-19

Kraus, S., Clauss, T., Breier, M., Gast, J., Zardini, A. and Tiberius, V. (2020). The Economics of Covid-19: Initial Empirical Evidence on how Family Firms in Five European Countries

Cope with the Corona Crisis. International Journal of Entrepreneurial Behavior & Research. Online First 1-26.

Kuckertz, A., Brandle, L., Gaudig, A., Hinderer, S., Morales Reyes, C.A., Prochotta, A., Steinbrink, K.M. and Berger, E.S.C. (2020). Startups in times of crisis – A rapid response to the Covid-19 pandemic. Journal of Business Venturing Insights. 13, pp. 1-13.

Lee, C.K., Song, H.J., Bendle, L.J., Kim, M.J. and Han, H. (2012). The Impact of Non-Pharmaceutical Interventions for 2009 H1N1 Influenza on Travel Intentions: A Model of Goal-Directed Behavior. Tourism Management, 33(1), pp. 89-99.

Noth, F. and Rehbein, O. (2019). Badly hurt? Natural disasters and direct firm effects. Finance Research Letters, 28, pp. 254-258

Salvato, C., Sargiacomo, M., Amore, M.D. and Minichilli, A. (2020). Natural disasters as a source of entrepreneurial opportunity: Family business resilience after an earthquake. Strategic Entrepreneurship Journal. Online first. 1-22.

Samantha, G. (2018). The Impact of Natural Disasters on Micro, Small and Medium Enterprises (MSMEs): A Case Study on 2016 Flood Event in Western Sri Lanka. Procedia Engineering, 212, pp. 744-751.

Williams, T.A., Gruber, D.A., Sutcliffe, K.M., Shepherd, D.A. and Zhao, E.Y. (2017). Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Streams. Academy of Management Annals, 11, 733-769.

Xin, G., Shan, Y., Weiqiang, Z. and Yewei, T. (2020). How Do Firms Respond to Covid-19?: First Evidence from Suzhou, China. Emerging Markets Finance and Trade, 56(10), 2181-2197.

The impact of Covid-19 pandemic on the export competitiveness of manufacturing firms in Croatia

Abstract

The aim of this paper is to explore the impact of Covid-19 pandemic on changes in export competitiveness of firms from Croatian manufacturing industry. The analysis is based on the data about firm behaviour in period following first wave of Covid-19 pandemic. The data was collected by World Bank during August and September 2020 and publicly released in early October 2020. The results of investigation reveal that probability of decreasing export revenues falls among firms that solved their liquidity problems through equity financing, deferred payments to workers and suppliers and with the support of public grants. Statistically significant evidence of the tax exemptions, wage subsidies and commercial banks' loans was not found. Companies with higher level of robustness to external shocks have lower probability of decreasing export revenues. The impact of introduction or implementation of online sales on export revenues is negative. Results of investigation may serve for formulation of economic policies in similar future cases.

Keywords: Covid-19, manufacturing, Croatia, export