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Firm Coping Strategies during the COVID-19 Pandemic: Evidence from Western Balkan Countries

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Abstract
In this paper we analyze pre-pandemic firm characteristics that are significantly associated with different coping strategies used by firms in order to deal with the consequences of the COVID-19 pandemic. The data we use come from the sixth round of the World Bank Business Environment Enterprise Performance Survey (BEEPS VI) for a sample of five Western Balkan countries: Albania, North Macedonia, Montenegro, Bosnia and Herzegovina and Serbia, combined with the COVID-19 Follow up Enterprise Surveys conducted by the Enterprise Analysis unit of the World Bank Group. We find that pre-pandemic firm characteristics are significantly associated with certain positive outcomes such as laying off less employees, filing less for insolvency or bankruptcy and adjusting business operations to the newly created circumstances. Furthermore, we find small firms to be particularly at a disadvantage when coping with the pandemic. The results of this paper contribute to the growing literature on the economic impact of COVID-19 and guides policy making in order to tailor government support to those segments of the firm population that stand to benefit the most from such aid.
Keywords:COVID-19 pandemic; firm performance; Western Balkans; SMEs; firm liquidity; financial constraints
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1. Introduction

The COVID-19 pandemic which started as a health crisis, triggered widespread reactions by governments around the world in an attempt to contain its spread. These containment measures have caused major disruptions to the global economy. While the pandemic impacted every country in the world, developing countries, such as the Western Balkan (WB) countries, were less able to respond to the pandemic as did their developed counterparts due to lack of organizational and financial capabilities (Stiglitz, 2020). Firms in these countries, even before the pandemic started, faced structural challenges such as inadequate labor force, lack of access to finance and a weak institutional environment. A major disruption such as the one brought by the COVID-19 outbreak made these firms even more vulnerable and forced them to find coping strategies in order to mitigate the impact of the crisis.
In this paper we analyze firms' coping strategies during the COVID-19 crisis in a nationally representative sample of five WB countries – Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia. Understanding which coping strategies firms use to deal with the pandemic-induced crisis is important for designing supportive policies to mitigate the negative impact and to facilitate the post pandemic economic recovery. As empirical evidence on firms' coping strategies under conditions of adversity is lacking we try to fill this gap, by providing to the best of our knowledge, the first empirical evidence of coping strategies used by firms in the WB transition economies.

This paper contributes to the growing literature of the economic impact of the COVID-19 pandemic. The impact of the COVID-19 outbreak has been analyzed from different perspectives. Some studies have looked at the impact on stock markets (Albuquerque, Koskinen, Yang, & Zhang, 2020; Alfaro, Chari, Greenland, & Schott, 2020; Baker et al., 2020; Fahlenbrach, Rageth, & Stulz, 2021), others have analyzed the impact on credit markets (Beck & Keil, 2022; Berger et al., 2021; Li, Strahan, & Zhang, 2020; Norden, Mesquita, & Wang, 2021), labor market (Adams-Prassl, Boneva, Golin, & Rauh, 2020; Alfaro, Becerra, & Eslava, 2020), firm performance (Bartik et al., 2020; Ding, Levine, Lin, & Xie, 2021; Fairlie & Fossen, 2021) as well as overall economic activity (Eichenbaum, Rebelo, & Trabandt, 2021; Guerrieri, Lorenzoni, Straub, & Werning, 2020; Ludvigson, Ma, & Ng, 2020). Most closely related to our paper is Aga and Maemir (2021) who analyze the impact of COVID-19 on firms' coping strategies in Sub-Saharan Africa. Using nationally representative surveys of firms they find that firms in Sub-Saharan African countries are disproportionally hit by the pandemic compared to other regions, primarily due to the lower level of economic development of these countries. However, these firms are more likely to adjust their operations to adapt to the newly created circumstances.

2. Data and Methodology

2.1 Data

We make use of a novel nationally representative survey database conducted by the Enterprise Analysis Unit of the World Bank Group – the COVID-19 Follow-up survey, combined with the sixth round of the Business

Environment Enterprise Performance Survey (BEEPS VI). The purpose of BEEPS VI is to collect information on the business environment on which firms operate, the obstacles they face in their day to day operations, their perceptions of the institutional environment, as well as their finances, degree of competition and general information about their organizational structure. The whole population, or the survey universe, are commercial, service or industrial establishments with at least five employees in the non-agricultural sector. The sample is selected using stratified random sampling with three levels of stratification: industry, establishment size and region. The advantage of this sampling method, compared to simple random sampling is that it makes sure that the final sample is not concentrated in one industry, region or size group, rather it is representative of all the sectors in the economy. Furthermore, it provides the benefit of unbiased and more precise population estimates compared to using a simple random sampling method. The COVID-19 Follow-up surveys is a data collection effort with the aim to understand the impact of the pandemic on the private sector in several countries around the world. All establishments from the last completed BEEPS survey, i.e. the baseline survey were recontacted and asked questions about their current operating status, their finances, labor force as well as about their expectations about the future. Table 1 shows the dates of completion of the baseline (BEEPS VI) survey as well as the Follow-up survey for the five countries in our sample, along with the number of participating firms in both surveys.

2.2 Variables and summary statistics

As we wish to determine which firm characteristics are associated with different coping strategies, we start by constructing variables indicating different coping strategies used by firms in response to the pandemic outbreak. Laid off and Furloughed are variables indicating the number (as a percentage of the total full-time employees of the firm) of workers laid off and furloughed due to the COVID-19 outbreak. As can be seen from Table 2, on average across the firms in our sample about 4% of employees have been laid off and 8% furloughed due to the pandemic crisis. Converted is a dummy variable indicating firms that adjusted or converted partially or fully, their production or the services they offer, whereas Technology is a dummy variable indicating the use of the internet technology by firms to conduct their business activities in response to the COVID-19 outbreak. About 52% of firms in our sample have converted or adjusted their operations, and about 38% have made use of the internet technology. Bank loan represents firms that rely mainly on loans from commercial banks to deal with cash flow shortages, while Government support indicates firms that have received national or local government support in response to the crisis. About 22 % of firms in our sample report loans from commercial banks as the main source used to deal with cash flow shortages, whereas about 54% have received government assistance in response to the COVID-19 outbreak. Finally, Filed is a dummy variable that takes the value of 1 for firms that have filed for insolvency or bankruptcy since the outbreak of COVID-19. On average, about 3% of firms in our sample have done so in response to the crisis.

There are also variations between countries with regards to the extent to which different coping strategies are used by firms in different countries. For instance, as shown in Table 3, firms in Serbia are more likely to use internet technology and receive government support in response to the crisis compared to firms in other WB countries. On the other hand, firms in North Macedonia and Albania are more likely to adjust or convert the way they operate in response to the COVID-19 outbreak.

In addition to the variables described above, we construct several variables regarding different characteristics of firms which we use as independent variables. Table 2 shows the summary statistics of these variables while Table A1 in the Appendix provides a detailed definition of all the variables used in the analysis.

2.3 Methodology

We use multiple regression analysis to estimate the relation between pre-pandemic firm characteristics and different coping strategies used by firms. The specification we estimate takes the following form:

$$Outcome_{ijc} = \beta_0 + \beta_1 Firm\ characteristics_{ijc} + \gamma_j + \delta_c + \varepsilon_{ijc}$$

where, *Outcome* is one of the coping strategies used by firms, described in the previous section. The subscripts, *i, j, c*, indicate firm, industry and country, respectively. Firm characteristics is a vector of independent variables indicating different characteristics of firms described in Table A1 in the Appendix. β_0 is the equation intercept, γ_j and δ_c are industry and country fixed effects, whereas ε_ijc is the error term. The equation is estimated using OLS with standard errors clustered by industry.

3. Results

In Table 4 we present results from estimating equation (1) with coping strategies as dependent variables. In columns 1 and 2 where the dependent variables are Laid off and Furloughed, respectively, we find innovative firms, foreign and certified firms to be less likely to use the strategy of laying off or putting on furlough

employees as a way to cope with the pandemic-induced crisis. In particular, innovative and certified firms furlough 3.4 % and 4.5% less of their full-time employees compared to their non-innovative and non-certified counterparts. Similarly, foreign firms lay off 2.8% less of their full-time employees compared to domestic firms. In column 3, where the dependent variable is Bank loan, we find small firms to be 9.4 p.p less likely to report bank loans as the main source to deal with cash flow shortages, whereas certified firms are 8.6 p.p. more likely to use loans from commercial banks as their main funding source. While innovative firms were less likely to furlough employees they are 7.1 p.p. and 10.2 p.p. more likely to adjust or convert their operations in response to the COVID-19 outbreak and to use internet technology, respectively (columns 4 and 5). As further shown in column 5, other firm characteristics positively associated with the probability of using the internet technology as a new way of doing business due to the COVID-19 outbreak are firms with a higher number of their permanent full-time employees with a university degree (University degree), firms that offer formal training programs for their employees (Training), those having an online presence i.e. having its own website before the pandemic (Website). Being a member of a business support group (Membership), incorporating environmental and climate change issues into their strategic objectives (Green) and being a foreign firm (Foreign firm) are also positively associated with online business activities. On the contrary, being a small firm reduces the odds of starting or increasing online business activities by 6.6 p.p. In column 6 we find firms which perceive finance to be an obstacle for their operations and those with more educated labor force are less likely to rely on government assistance as a way to deal with the crisis, while in column 7 we find older and exporting firms to be less likely to file for insolvency or bankruptcy since the outbreak of COVID-19.

Overall, results in this section point to the important role pre-pandemic firm characteristics have in determining the type of coping strategy adopted by firms. Several firm characteristics are associated with positive outcomes such as laying off less employees, filing less for insolvency or bankruptcy and adjusting business operations to the newly created circumstances. What is important to note from the regression results is that small firms are particularly at a disadvantage when coping with the pandemic, as it has been found that they are less likely both to make use of the internet technology and rely on bank loans to deal with cash flow shortages. They are not significantly more likely to use government assistance either, leaving them more vulnerable against uncertainties brought about by the COVID-19 outbreak.

4. Conclusion

The aim of this paper is to investigate which pre-pandemic firm characteristics are significantly associated with certain coping strategies used by firms due to the COVID-19 outbreak. To this end we combine the World Bank Business Environment Enterprise Performance Survey with the COVID-19 Follow-up Surveys for a nationally representative sample of firms from Western Balkan countries. We find that firm characteristics before the start of the pandemic are an important determinant of coping strategies used by firms and that small firms are particularly disadvantaged at dealing with the negative effects of the pandemic. These results can serve as a guide for policymakers seeking to mitigate the negative effects of the pandemic by providing government assistance to the type of firms most vulnerable to the pandemic-induced crisis.

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Table 1. Survey information

	Date of completion		Number of firms	
Countries	Baseline BEEPS VI	COVID-19 Follow-up	Baseline BEEPS VI	COVID-19 Follow-up
Albania	2018-2019	June 2020	377	344
Bosnia and Herzegovina	2019	February-March 2021	362	290
Montenegro	2018-2019	February 2021	150	136
North Macedonia	2018-2019	October-November 2020	360	292
Serbia	2018-2019	February 2021	361	345

This table reports dates of completion for the baseline survey and the COVID-19 Follow-up survey, along with the number of interviewed firms in both surveys. BEEPS VI stands for the sixth round of the Business Environment Enterprise Performance Survey.

Table 2. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Laid off	1,077	4.007	13.918	0	100
Furloughed	847	8.209	23.309	0	100
Bank loan	770	0.225	0.418	0	1
Converted	1,306	0.520	0.500	0	1
Technology	1,310	0.382	0.486	0	1
Government support	1,309	0.538	0.499	0	1
Filed	1,311	0.031	0.172	0	1
University degree	1,610	23.329	26.601	0	100
Training	1,606	0.443	0.497	0	1
Website	1,608	0.693	0.461	0	1
Obstacle finance	1,583	0.977	1.156	0	4
Innovative	1,604	0.444	0.497	0	1
Green	1,581	0.211	0.408	0	1
Small	1,603	0.406	0.491	0	1
Firm age	1,604	2.785	0.701	0	5.323
Exporter	1,596	0.291	0.454	0	1
Foreign	1,602	0.097	0.297	0	1
Membership	1,588	0.448	0.497	0	1
Certified	1,564	0.318	0.466	0	1

This table shows descriptive statistics for the variables used in the analysis. Obs. denotes the number of observations, Std. Dev. The standard deviation whereas Min and Max the minimum and maximum values of the variables, respectively. The detailed definition of all the variables is given in the Appendix.

Table 3. Summary statistics by countries

Country	Laid off	Furloughed	Bank loan	Converted	Technology	Government support	Filed
Albania	6.574	7.484	0.102	0.732	0.339	0.391	0.101
Bosnia and Herz.	4.865	1.724	0.202	0.303	0.389	0.517	0.000
Montenegro	6.122	17.284	0.245	0.211	0.338	0.526	0.015
North Macedonia	3.666	.	0.395	0.797	0.388	0.401	0.010
Serbia	1.205	9.264	0.214	0.321	0.438	0.843	0.003
Total	4.007	8.209	0.225	0.520	0.382	0.538	0.031

This table reports mean values for the dependent variables (indicating different coping strategies) by countries. The detailed definition of all the variables is given in the Appendix.

Table 4. Regression analysis

Dependent variables:	(1) Laidoff	(2) Furloughed	(3) Bank loan	(4) Converted	(5) Technology	(6) Government	(7) Filed
University degree	0.006	-0.034	-0.001	0.000	0.001**	-0.001*	-0.000
	(0.023)	(0.034)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Training	-1.268	0.260	0.026	0.030	0.076***	-0.024	-0.015
	(0.941)	(1.720)	(0.038)	(0.041)	(0.025)	(0.035)	(0.010)
Website	-0.956	-1.470	0.026	0.003	0.083***	0.013	0.006
	(1.336)	(1.643)	(0.026)	(0.030)	(0.022)	(0.032)	(0.011)
Obstacle finance	-0.039	-0.787	0.018	0.017	-0.008	-0.018**	0.001
	(0.647)	(0.883)	(0.015)	(0.013)	(0.010)	(0.008)	(0.004)
Innovative	-0.373	-3.444*	0.041	0.071***	0.102***	0.023	0.001
	(0.905)	(1.698)	(0.029)	(0.019)	(0.029)	(0.025)	(0.014)
Green	1.219	-1.827	-0.015	0.010	0.135***	-0.031	0.001
	(0.923)	(2.140)	(0.032)	(0.025)	(0.039)	(0.034)	(0.010)
Small	0.046	0.120	-0.094**	0.010	-0.066**	-0.017	-0.006
	(0.810)	(1.811)	(0.040)	(0.025)	(0.026)	(0.025)	(0.008)
Firm age	-0.810	-0.243	0.012	-0.028	-0.009	0.015	-0.024***
	(0.814)	(1.246)	(0.021)	(0.026)	(0.021)	(0.018)	(0.007)
Exporter	-1.051	2.266	-0.051	-0.016	0.025	-0.009	-0.017**
	(1.712)	(2.818)	(0.046)	(0.043)	(0.030)	(0.042)	(0.007)
Foreign firm	-2.879**	-3.062	-0.059	-0.089*	0.122**	-0.072	-0.017
	(1.320)	(1.864)	(0.045)	(0.047)	(0.057)	(0.049)	(0.018)
Membership	-1.311	3.339	0.009	0.004	0.084**	0.036	0.000
	(0.803)	(2.597)	(0.032)	(0.032)	(0.038)	(0.023)	(0.008)
Certified	-0.603	-4.554**	0.086*	-0.011	-0.024	-0.048	0.005
	(1.201)	(1.937)	(0.049)	(0.035)	(0.031)	(0.047)	(0.008)
Constant	7.902**	13.361***	0.008	0.775***	0.206***	0.288***	0.180***
	(3.666)	(4.299)	(0.081)	(0.082)	(0.063)	(0.078)	(0.030)
Industry FE	yes	yes	yes	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes	yes
N	994	776	706	1201	1204	1204	1206
R-sq	0.139	0.118	0.132	0.263	0.159	0.199	0.092

This table presents regression results from estimating specification 1. The dependent variables are shown in the first row (columns 1-7).

APPENDIX

Table A1. Variable Definitions

Variable name	Definition	Source
Dependent variables		
Laid off	The number of workers being laid off due to the COVID-19 outbreak as a percentage of the total number of permanent, full-time employees that the establishment employed at the end of December 2019.	COVID-19 Follow-up Surveys
Furloughed	The number of workers put on furlough due to the COVID-19 outbreak as a percentage of the total number of permanent, full-time employees that the establishment employed at the end of December 2019.	COVID-19 Follow-up Surveys
Filed	= 1 if the establishment answered Yes to the question *'Since the outbreak of COVID-19, has this establishment filed for insolvency or bankruptcy?'*	COVID-19 Follow-up Surveys
Bank loan	= 1 if since the outbreak of COVID-19, the main source this establishment has used to deal with cash flow shortages are loans from commercial banks.	COVID-19 Follow-up Surveys
Government support	= 1 if the establishment answered Yes to the question "*Since the outbreak of COVID-19, has this establishment received any national or local government support in response to the crisis?*"	COVID-19 Follow-up Surveys
Converted	= 1 if the establishment has adjusted or converted, partially or fully, its production or the services it offers in response to the COVID-19 outbreak.	COVID-19 Follow-up Surveys
Technology	= 1 if the establishment started or increased business activity online, delivery or carry-out of goods or services, or remote work arrangements for its workforce in response to the COVID-19 outbreak.	COVID-19 Follow-up Surveys
Independent variables		
Small firm	= 1 if the nr. of permanent, full-time workers at the end of last fiscal year is less than 20	BEEPS VI
Exporter	= 1 if more than 10% of establishment's sales are direct exports	BEEPS VI
Membership	= 1 if the answer to the question "*Is this firm part of a business membership organization, trade association, guild, chamber of commerce, or other business support group?*" is Yes.	BEEPS VI
Firm age	The number of years the firm has been operating in the market.	BEEPS VI
Certified	=1 if establishment has an internationally-recognized quality certification	BEEPS VI
Innovative products	= 1 if the answer to the question "*During the last three years, has this establishment introduced new or improved products or services?*" is Yes.	BEEPS VI
University degree	Percentage of establishment's permanent full time employees with a university degree.	BEEPS VI
Training	= 1 if establishment has formal training programs for its permanent, full-time employees.	BEEPS VI
Foreign firm	= 1 if the percentage of the firm owned by private foreign individuals, companies or organizations is more than 50%.	BEEPS VI
Green	= 1 if the answer to the question "*In last FY, did this firm have strategic objectives that mention environmental or climate change issues?*" is Yes.	BEEPS VI
Website	= 1 if establishment has its own website.	BEEPS VI
Obstacle finance	The extent to which access to finance is an obstacle to the current operations of the establishment, on a scale of 0 (no obstacle) to 4 (very severe obstacle).	BEEPS VI