

Resilience measures to dealing with the COVID-19 pandemic. Evidence from Romanian micro and small enterprises

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Abstract. *COVID-19 has created an un-precedent crisis for SMEs and challenged each single enterprise to reconsider its business operations and to adapt to the new unexpected circumstances. The present paper aims to explore the resilience measures that the micro and small enterprises in Romania can consider to dealing with the disruptions caused by the pandemic. A questionnaire-based survey was used to collect data from a sample of micro and small enterprises operating in the central part of the country. An exploratory factor analysis was employed to identify underlying variables that explain the pattern of correlations between the resilience measures for enterprises, which help them cope with the pandemic effects. There are seventeen resilience measures to the pandemic included in the analysis and further tested in the paper. In addition, a multiple linear regression was conducted to determine which of the resilience measures has the most impact on the enterprises' overcoming illness. The results show that in order for the micro and small enterprises to better cope with the disruption caused by the COVID-19 pandemic they should demonstrate, on the first place, openness to production innovation and adaptation and ensure a strong support for customers and communities. On the second place, efforts should be directed toward ensuring efficiency of their internal operational management and worker protection. While there exist external circumstances that lead enterprises to adopt several resilience measures to better respond to the pandemic, the motivations that are most relevant in this decision are generally internal in nature.*

Keywords: business resilience, resilience measures, COVID-19 pandemic, micro and small enterprises, Romania.

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Introduction

At more than six months after the COVID-19 pandemic hit the world many businesses across the globe are being forced to close their operations, while others are struggling to

continue doing business due to limitations in markets and supply chains (Eurostat, 2020; ILO, 2020; OECD, 2020). As the dynamics of the pandemic continue and the current crisis is prolonged more than expected, physical distancing measures remain necessary. Other measures are to be reinforced to help enterprises cope better and in a sustainable manner with the disruption generated by the pandemic.

Romania too is going through, maybe, one of the strongest challenges of the country's recent times. Enterprises all over the nation are experiencing workforce and operations disruption at an unprecedented scale and speed. Since the beginning of the pandemic, they were taking measures to protect their employees and operations against COVID-19 and future disasters, for example, from suspending business travels to implementing telework and remote work (Eurofound, 2020). Still, companies, particularly micro-enterprises and SMEs, need continuous support for establishing prevention strategies to better deal with the effects of the pandemic (Butucaru and Nistor, 2020).

The current paper aims to explore the resilience measures that the micro and small enterprises in Romania can consider to successfully dealing with the disruptions caused by the COVID-19 pandemic. Also, the paper investigates which of the resilience measures has the most impact on the enterprises' overcoming illness. The next sections of the paper further introduce the theoretical background, methodology of research and analyse the results. A section of conclusions and implications of the research follows.

Literature review

Organizational resilience through the pandemic

Nowadays, the dynamic changes in the external environment require the enterprises to find rapid and effective responses to dealing with various issues of security, natural disasters, incidents, illness, and survivability (Păunescu et al., 2018; Păunescu and Argatu, 2020). Also, the development of digital technologies challenge enterprises to rethink their existing business models and the way they operate the business, by replacing them with flexible and cost-effective systems that enhance operational efficiency (Balocco et al., 2019). The changes required to business models raise additional constraints to enterprises that create the need for an ongoing resource use optimization and waste minimization, to obtain an equilibrium point between organizational efficiency and resilience (Gorzeń-Mitka, 2016). These developments are further reflected in the improvement of local and national economies, which relies mainly on small and medium enterprises to achieve meaningful growth.

Building organizational resilience, which involves coping with risks and threats to protect critical assets of the business, either they are physical, intangible, environmental or human, becomes an issue of major importance for enterprises, who have shown increased interest in a more secure environment and in an enhanced capacity of handling disruptions (Hollnagel et al., 2006). Organizational resilience refers to an organization's aptitude and proficiency in keeping its resources and capabilities at a stable level, getting reorganized and being self-supported if a disruption occurs, despite the challenging business environment in which it operates (Păunescu and Argatu, 2020). According to Quendler (2017), organizational resilience is measured through its ability of identifying, communicating, responding and recuperating itself from a disruption, and enterprise's ability to adapt to shifting business circumstances. Other scholars (e.g., Ruiz-Martin et al.,

2018) claimed that an enterprise is resilient if it manages to render positive conversion in conditions of risk in order to escape from the threat while becoming more diligent and cleverer. Likewise, Burnard et al. (2018) highlighted the fact that building resilience supports the enterprise to better calibrate its performance during the occurrence of unexpected events, and thus it enhances its ability of adapting itself to the shifting external setting. Enterprises that fail to adapt to these changes risk being driven out of the highly competitive market, very unstable and unpredictable at the same time.

Research conducted by Sahebjamnia et al. (2018) argued that an enterprise that proves resilience is capable to undertake its vital operations and to comply with the maximum endurable period of disruption. Organizational resilience also helps to distinguish the enterprise's key strong and weak aspects and then to establish essential matters with respect to business continuity planning (Quendler, 2017). The ability of leveraging technology and information, as well as supplies network represent strong positive predictors for resilience management in case of natural disasters or any other disruption (Tibay et al., 2017).

The global pandemic lead to an unprecedented crisis with considerable losses in terms of health, production, financial services, and transportation systems, with high social costs (OECD, 2020). National governments are struggling to absorb the shock generated by the pandemic and to help the enterprises with building organizational resilience. OECD support for countries in this process has been two folded: "In the short term, that means identifying the people and activities most affected, assessing how measures to help them will impact others, and underlining that difficult trade-offs between health, economic, social, and other goals are inevitable. In the longer term, an approach that reacts to the systemic origins and impacts of major shocks is needed if policies are to be effective" (OECD, 2020, p. 2). Hence, the current COVID-19 crisis shows how important is for different organizational structures to have a systematic approach based on resilience to better deal with future disruptions.

The pandemic has established a need for enterprises to adapt their operations and systems to ensure workers' safety through the implementation of social distancing rules and other resilience measures (Deloitte, 2020). In case of SMEs that mainly rely on labor-intensive means of production, application of such regulations profoundly affects their operations. The two most common responses of SMEs to survive during the emergency situation are shifting daily basis production to ensure demand goods and moving the business online (Eurofound, 2020b). The emergence of the COVID-19 pandemic has also necessitated the integration of digital technologies to tackle the emerging effects of the pandemic (Eurofound, 2020a). Digital technologies have been successfully applied in remote areas to implement contact tracing and ensure continued learning systems that have been highly affected by the pandemic. Moreover, the pandemic effects have led countries in the EU to propose ways of improving output by setting higher production targets. Such targets play a crucial role in encouraging enterprises to delve into more efficient production technology that will enable them to improve operational efficiency (Eurofound, 2020a). Hence, the current changes in the marketplace brought by the pandemic calls for SMEs to implement digital technology in their production systems to minimize losses attributed to social distancing rules and lockdowns that reduced the number of workers in their premises and diminished their operations.

The European Commission enabled several instruments on EU level and also fragmented instruments for the most affected countries, however, each member state has the responsibility to develop adapted measures in order to reduce the destructive impact of the pandemic (EC, 2020). According to Eurofound (2020b), the most common response being reported by countries is the cease of jobs (28%), beside of reduced working hours. COVID-19 stimulated the biggest social experiment of teleworking across the countries, forcing governments to approach flexible working as a required solution not as an option. This “experiment” increased the EU statistics from 5% to 37% as population working digitally from home, however most of the countries has no specific regulation for this type of work (Eurofound, 2020a). On the front of the list is Finland and the country with the smallest number of employees working online is Romania. SMEs and workers are in the spotlight of the policy regulations through relaxation measures to stabilize liquidity and to protect business and to safeguard jobs in form of grants, rescue packages and special funding instruments (Eurofound, 2020a). However, the regulations and privately implemented rules by SMEs are poorly treating the mental well-being of workers due to lockdown (WHO, 2020). It is also a common phenomenon the increase of work intensity and the barrier between private and work life have been faded in many cases.

On terms of national policies, we assist to a comprehensive mitigation measure landscape including categories as supporting businesses to stay afloat, income protection beyond short-time work, employment protection and retention – these three measures have the highest distribution on EU level – also, ensuring business continuity and support for essential services, reorientation of business activities, supporting businesses to get back to normal and protection of workers at the workplace (EC, 2020; Eurofound, 2020b). It is also important to reflect these initiatives and policies to the local realities and to the adaptability of the beneficiaries – in this case to micro and small enterprises. There can be a discrepancy between the priorities identified by policy makers, employers and employees. This creates the need for the current research on how micro and small enterprises can embrace these changes and cope with these new challenges raised in places like Romania.

Methodology

Research objectives

The paper goal is to explore the resilience measures that the Romanian enterprises can consider to effectively dealing with the disruption caused by the pandemic. The objectives of the paper are two folded: (1) to investigate the resilience measures for micro and small enterprises to cope with the disruption caused by the COVID-19 pandemic; (2) to identify the most effective business resilience measures that the micro and small enterprises in Romania can consider to overcome the COVID-19 illness.

Research tool and data

A questionnaire-based survey, hosted by Google Docs, was used to collect data from a sample of micro and small enterprises operating in the central part of Romania. The questionnaire has four sections. The first part of the questionnaire contains demographic information such as: company location, sector of activity, economic field, level of digitalization within the company, years on the market, target group/ beneficiaries, number of employees, position in the company and gender of the respondent. The second part of the

questionnaire comprises information regarding the purpose/mission of the enterprise and the socio-economic problem(s) they address, while the third and fourth parts of the questionnaire contain information regarding the biggest fears and sources of stress that the enterprises have experienced during the pandemic and the resilience measures that the enterprises believe would be the most effective to deal with the disruption caused by the pandemic (Table 1). While the questions from the first two parts of the research tool are asking the respondents to pick-up their response from a given list, the last two parts of the questionnaire include seven-point Likert scale questions, respondents being asked to report their agreement with the statements made on a scale which extends from „1 – Totally disagree” to „7 – Totally agree”.

Table 1. Research tool

Question	Alternative responses	Source
What is the purpose/mission of your business? What socio-economic problem(s) does it address?	Improvement of the quality of life; local community development; rural development; labour market integration of socially disadvantaged people; tackling environmental challenges; ensuring access to education; ensuring access to ICT/ IT support; improving the situation of disadvantaged groups; other.	Williams, 2018; UN, 2020
What were/are your biggest fears and sources of stress on your business during the pandemic? How would you rate them?	Uncertainty about risk and exposure; maintaining business financial sustainability; limited access to testing and treatment; overcoming illness; concerns around misinformation; economic insecurity and job loss; other.	ILO, 2020; UNTFSSSE, 2020; EC, 2020; Eurofound, 2020b
What would be the most effective resilience measures for your business to deal with the disruption caused by the pandemic?	Taking hygiene measures; Expanding telework arrangements; Increasing pay for those working through the lockdown; Modifying paid time-off policies; Higher-paid workers deciding to take a pay-cut; Creating new jobs; Ensuring access to childcare services; Protecting smallholder farmers' food production; Shortening supply chains; Shifting production; Surveying employees on the impact of the pandemic; establishing online resource platforms; monitoring government relief measures, providing links to the latest guidance for businesses; Helping vulnerable people; Producing service vouchers for disadvantaged populations; Supporting community members to grow food at home	ILO, 2020; UNTFSSSE, 2020; Sahebjamnia et al., 2018; EC, 2020; Eurofound, 2020b

The method of sampling applied was purposive sampling, a non-probability technique, the respondent enterprises being selected based on certain criteria to fulfill the requirements of the research. These selection criteria included: location, enterprise size, number of years on the market, sector of activity, level of digitalization and purpose of the enterprise, in order to ensure they cover a broad area of socio-economic challenges. The questionnaire (hosted by Google Docs) was distributed via the internet to all micro and small enterprises incubated locally in three counties in the central part of Romania (about 100), and the responses received were successfully confirmed through random phone call interviews. The period of data collection lasted for two weeks in middle May 2020. 56 valid responses from the same number of enterprises have been collected and further analyzed in the paper.

Research method, variable measures and hypotheses

An exploratory factor analysis was employed to identify underlying variables that explain the pattern of correlations between the resilience measures for enterprises, which help them cope with the pandemic effects. There are seventeen variables included in the analysis, which are measured on a seven-point Likert scale. The corresponding resilience measures that the enterprises can consider to effectively cope with the disruptions caused by the COVID-19 pandemic include (ILO, 2020; UNTFSSSE, 2020; EC, 2020; Eurofound, 2020b): (a) *Hygiene measures* – measured by the extent to which enterprises take hygiene measures at workplaces and front store, for their employees, visitors and customers; (b) *Telework* – measured by the extent to which enterprises consider expanding telework arrangements and cancelling or postponing events that require face to face exchanges; (c) *Pay increase vs. paid leave* – measured by the extent to which enterprises consider increasing pay for those working through the lockdown, while asking vulnerable workers to stay home on paid special leave; (d) *Paid time-off policies* – measured by the extent to which enterprises consider modifying paid time-off policies to ensure that workers who are absent due to illness or to care for sick family members do not suffer loss of income or other benefits; (e) *Pay-cut* – measured by the extent to which enterprises decide for their higher-paid workers to take a pay-cut in order to ensure that the lower-paid workers could get full pay and are protected; (f) *New jobs* – measured by the extent to which enterprises create new jobs to address the increase in demand in the retail sector; (g) *Childcare services* – measured by the extent to which enterprises ensure that their front-line workers have uninterrupted access to childcare services throughout the COVID-19 crisis; (h) *Farmers' food production* – measured by the extent to which enterprises contribute to protection of the smallholder farmers' food production and to keeping the food value chain alive with the increasing demands from consumers spending more time at home; (i) *Supply chains shortening* – measured by the extent to which enterprises change their business model to shorten their supply chains by establishing direct purchasing lines between producer and consumer; (j) *Production shift* – measured by the extent to which enterprises take into consideration shifting production toward much needed supplies and distributing them for high risk populations; (k) *Impact survey* – measured by the extent to which enterprises consider surveying their organization members on the impact of the pandemic; (l) *Online resource platforms* – measured by the extent to which enterprises establish online resource platforms and organize webinars to inform on the pandemic and possible mitigation measures; (m) *Government relief measures* – measured by the extent to which enterprises monitor government relief measures for workers and businesses to provide advice; (n) *Links to the latest guidance* – measured by the extent to which enterprises track latest responses and initiatives at global level and provide links to the latest guidance for their business operations; (o) *Helping vulnerable people* – measured by the extent to which enterprises help vulnerable people through partnering with municipalities, local civil society organizations and volunteers; (p) *Service vouchers* – measured by the extent to which enterprises produce service vouchers for disadvantaged populations, for use in affiliated establishment offering hygiene and food services; (r) *Grow food at home* – measured by the extent to which enterprises support community members to grow food at home by providing seeds, starter kits and knowledge resources. These variables are analyzed using an exploratory factor analysis. In addition, a multiple linear regression was

conducted to determine which of the resilience measures has the most impact on the enterprises' overcoming illness. *Overcoming illness* is measured by the extent to which the enterprises believe that the illness during the pandemic can be overcome if it occurs, being assessed on a seven-point Likert scale.

Starting from the existing specialty literature reviewed and based on the European reports analyzed, we hypothesize the following:

H1: There are specific underlying components or factors that can produce correlation amongst the resilience measures to the pandemic and thus that can determine a higher resilience for the enterprise.

H2: Workers' safety, moving the business online and shifting production to ensure demand goods are the most prevalent factors for building resilience to the pandemic in micro and small enterprises.

H3: There is a significant positive correlation between the resilience measures to the pandemic and the enterprise's overcoming illness.

H4: The more prevalent are the resilience measures to the pandemic, the stronger is the enterprise's overcoming illness. These hypotheses are further tested in the paper.

Results and Discussion

Respondent enterprises' profile

The demographics of the population of respondent enterprises are presented further in the paper. 98% (n=55) of the respondent companies are micro and small-sized enterprises (Fig. 1), which operate mainly in services (n=28), but also production (n=16) and commerce (n=12) (Fig. 2). 60.72% (n=34) of the respondent enterprises exist for more than 6 years on the market, while 28.57% have between 2 and 5 years of existence (n=16) (Fig. 3).

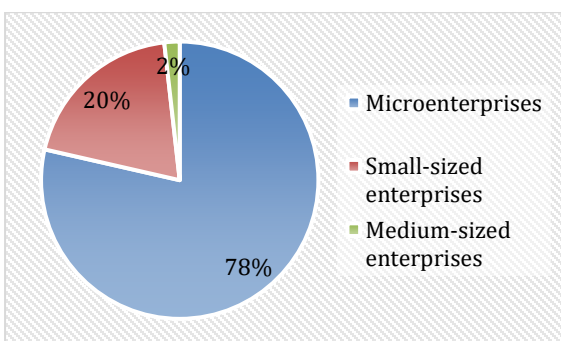


Figure 1. Size of the enterprise

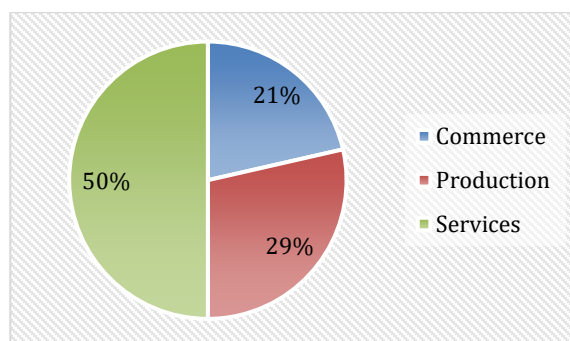


Figure 2. Sector of activity

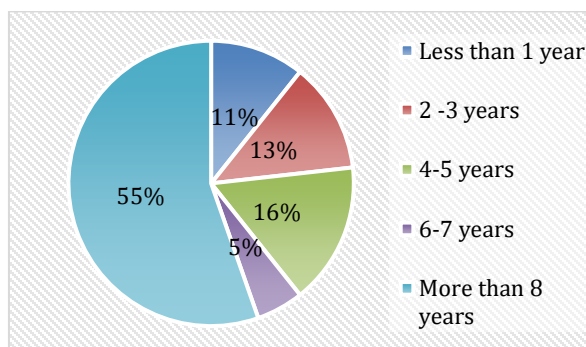


Figure 3. Years on the market

Source: Authors' own research

87.5% of the responses to the questionnaire are provided by the business founder, owner or administrator of the company, while 12.5% of the responses come from people holding other positions in the company (e.g., financial manager, marketing officer, operations responsible). Also, 34% of the respondents are females and 66% males and all of them have been working with the company since its establishment. The two prevalent business purposes of the respondent enterprises are improvement of the quality of life ($n=39$) and local community development ($n=20$) (Fig. 4). In what concerns the level of digitization of business operations, only three respondent enterprises reported a low level of digitization in their internal processes, while 23 of them are highly digitalized and 18 enterprises achieved a medium level of digitalization (Fig. 5).

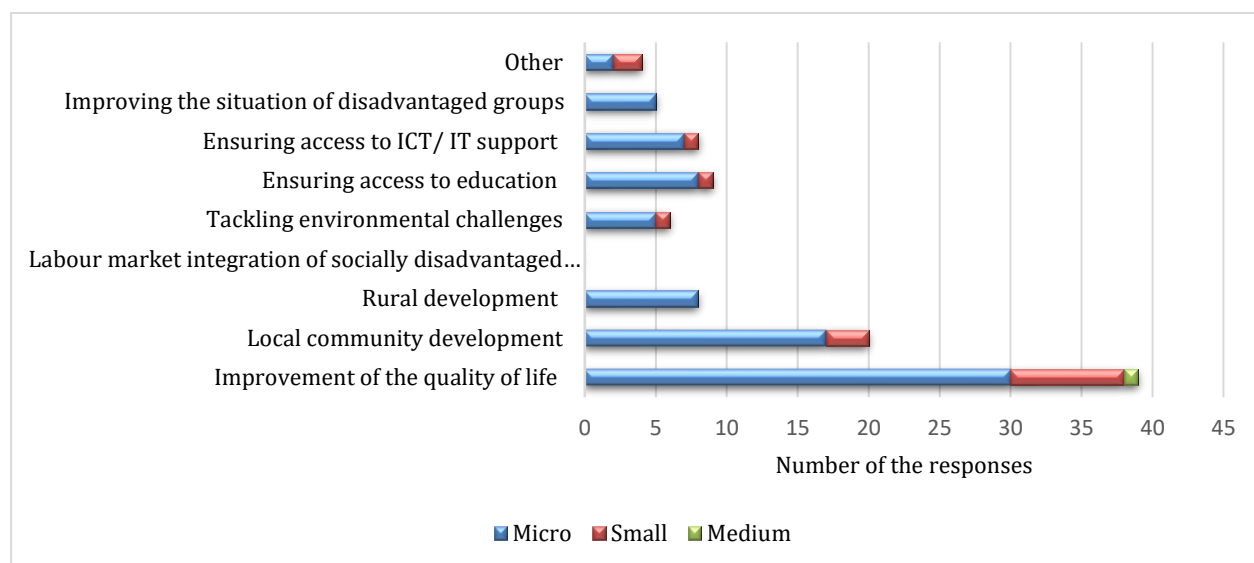


Figure 4. Purpose of the enterprise categorized by the size of it

Source: Authors' own research

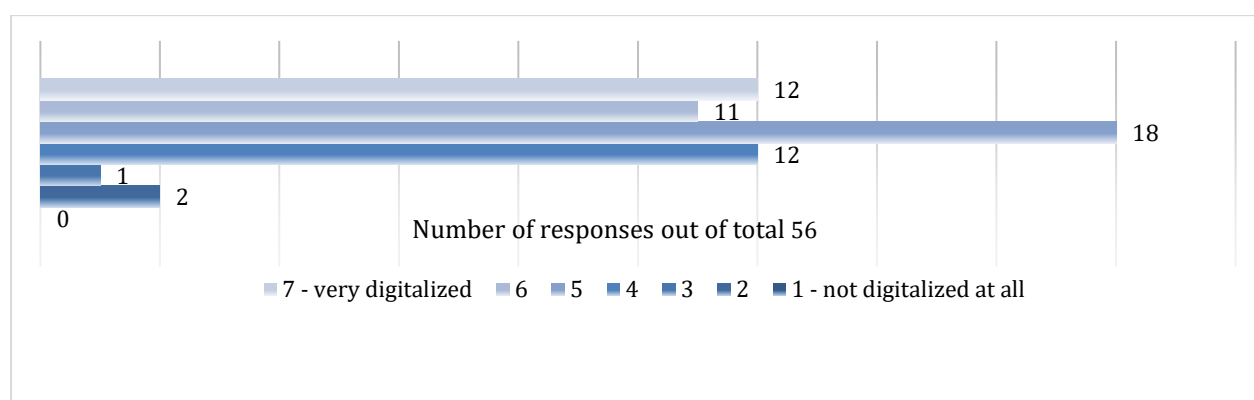


Figure 5. Level of digitization

Source: Authors' own research

Factor analysis findings

Factor analysis was used to identify underlying variables, or factors, that explain the patterns of correlations within a set of observed variables (Yong and Pearce, 2013), in our

case resilience measures for enterprises to deal with the COVID-19 crisis. The method of factor extraction employed in the paper is PCA. We took into consideration seventeen variables. The descriptive statistics for the group of variables is shown in Table 1. The Cronbach's Alpha score for these variables is 0.919, meaning that the analysis is highly reliable.

Table 1. Descriptive statistics

Resilience measures (RM)	Mean	Std. Deviation
Hygiene Measures (RM1)	5.50	1.595
Telework (RM2)	4.88	1.779
Increase Pay vs. Paid Leave (RM3)	4.00	1.829
Paid Time-Off Policies (RM4)	4.02	1.711
Pay-Cut (RM5)	3.55	1.747
New Jobs (RM6)	4.13	2.115
Childcare Services (RM7)	4.68	2.028
Farmers' Food Production (RM8)	5.34	1.881
Supply Chains Shortening (RM9)	5.13	1.888
Production Shift (RM10)	4.30	2.035
Impact Survey (RM11)	3.55	1.838
Online Resource Platform (RM12)	3.86	1.700
Government Relief Measures (RM13)	4.88	1.936
Links Latest Guidance (RM14)	4.61	1.826
Help Vulnerable People (RM15)	5.09	1.900
Service Vouchers (RM16)	4.14	1.986
Grow Food Home (RM17)	4.34	2.083

Source: Authors' own research

Table 1 shows that all the variables included in the study have a mean score ≥ 3.5 , above the middle point, which means that they highly account for an effective business resilience from the pandemic (Tabachnick and Fidell, 2007). Also, the standard deviation for all the variables is lower than the middle point, meaning that the values in the statistical data set are close to the mean of the data set, on average and, therefore, these variables are highly reliable. The resilience measures that might be more effective in dealing with the disruption caused by the pandemic include: hygiene measures, protecting farmers' food production, shortening supply chains and helping vulnerable people. An exploratory factor analysis was employed for the group of variables which describe different resilience measures during and after COVID-19. The main outputs of a factor analysis were correlation matrix and communalities (Marsh et al., 2019). The correlation matrix for the group of business resilience measures is presented in Table 2. This output helps us determine if our dataset is suitable for exploratory factor analysis by checking if there is a patterned relationship amongst our variables. The Pearson correlation analysis revealed that there are medium to strong correlations ($r > 0.3$) amongst the variables analyzed, which indicates strong patterned relationships between them. The scale was tested for normality and reliability using the Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin (KMO). The Bartlett test was 586.644 with a significant level of $p < 0.0001$. The KMO measure of sampling adequacy was 0.806 (> 0.750), these values suggesting that the data can be reliably tested using factor analysis and we do have patterned relationships amongst the variables. Another way to check if our data is suitable for exploratory factor analysis is by looking at the diagonal element of the Anti-Image Correlation matrix that has the 'a'

superscript, as measure of sampling adequacy, above 0.50 (Table 3). The values obtained in our case suggest that the data can be reliably tested using factor analysis.

Table 2. Inter-item correlation matrix for business resilience measures to the pandemic
Correlation matrix and Sig. (1-tailed)

	RM1	RM2	RM3	RM4	RM5	RM6	RM7	RM8	RM9	RM10	RM11	RM12	RM13	RM14	RM15	RM16	RM17
RM1	1																
RM2	0.400	1															
RM3	0.143	0.330	1														
RM4	0.403	0.329	0.668	1													
RM5	0.316	0.222	0.444	0.660	1												
RM6	0.240	0.246	0.512	0.567	0.488	1											
RM7	0.472	0.306	0.353	0.688	0.580	0.582	1										
RM8	0.548	0.301	0.227	0.574	0.484	0.446	0.730	1									
RM9	0.498	0.448	0.232	0.517	0.464	0.488	0.747	0.797	1								
RM10	0.232	0.201	0.176	0.333	0.366	0.561	0.425	0.481	0.539	1							
RM11	0.139	0.138	0.373	0.506	0.424	0.487	0.380	0.276	0.378	0.392	1						
RM12	0.134	0.421	0.322	0.382	0.260	0.288	0.366	0.328	0.329	0.076	0.311	1					
RM13	0.344	0.275	0.087	0.352	0.300	0.350	0.522	0.606	0.641	0.255	0.481	0.481	1				
RM14	0.325	0.248	0.033	0.148	0.337	0.234	0.481	0.495	0.529	0.238	0.484	0.288	0.298	1			
RM15	0.423	0.272	0.230	0.447	0.401	0.490	0.550	0.658	0.590	0.282	0.443	0.443	0.656	0.351	1		
RM16	0.316	0.221	0.265	0.476	0.496	0.398	0.648	0.552	0.461	0.302	0.394	0.394	0.440	0.322	0.705	1	
RM17	0.238	0.169	0.172	0.304	0.512	0.481	0.487	0.522	0.461	0.302	0.394	0.394	0.440	0.322	0.705	0.630	1
RM1		0.001															
RM2	0.146	0.007															
RM3	0.007	0.007	0.000														
RM4				0.000													
RM5					0.000												
RM6						0.000											
RM7							0.000										
RM8								0.000									
RM9									0.000								
RM10										0.000							
RM11											0.001						
RM12												0.010					
RM13													0.000				
RM14														0.000			
RM15															0.004		
RM16																0.000	
RM17																	0.000

Source: Authors' own research

Table 3. Anti-image correlation for the business resilience measures to the pandemic

	RM1	RM2	RM3	RM4	RM5	RM6	RM7	RM8	RM9	RM10	RM11	RM12	RM13	RM14	RM15	RM16	RM17
RM1	0.854 ^a	-0.311	0.125	-0.140	-0.029	0.020	-0.055	-0.154	-0.032	0.106	0.033	0.249	0.093	-0.125	-0.241	0.051	0.087
RM2	-0.311	0.714 ^a	-0.174	-0.103	0.085	0.019	0.165	0.229	-0.359	-0.054	0.196	-0.361	0.126	-0.125	0.016	-0.011	-0.046
RM3	0.125	-0.174	0.780 ^a	-0.488	-0.021	-0.316	0.162	0.089	-0.023	0.074	0.046	-0.065	0.184	-0.102	-0.045	-0.047	0.035
RM4	-0.140	-0.103	-0.488	0.775 ^a	-0.381	0.049	-0.431	-0.324	0.235	-0.016	-0.317	-0.043	-0.170	0.418	0.053	0.073	0.079
RM5	-0.029	0.085	-0.021	-0.381	0.901 ^a	-0.015	0.052	0.120	-0.161	0.111	-0.076	0.044	0.060	-0.129	0.035	-0.063	-0.304
RM6	0.020	0.019	-0.316	0.049	-0.015	0.883 ^a	-0.308	0.081	-0.018	-0.146	-0.229	-0.018	-0.063	0.152	-0.117	0.239	-0.207
RM7	-0.055	0.165	0.162	-0.431	0.052	-0.308	0.850 ^a	0.005	-0.385	0.070	0.205	-0.031	0.111	-0.318	0.094	-0.396	0.026
RM8	0.125	-0.174	0.780 ^a	-0.488	-0.021	-0.316	0.089	0.856 ^a	-0.557	0.135	0.158	-0.009	0.087	-0.166	-0.288	0.078	-0.231
RM9	-0.140	-0.103	-0.488	0.775 ^a	-0.381	0.049	-0.431	-0.324	0.235	-0.385	-0.116	0.042	-0.352	0.056	0.248	-0.025	0.292
RM10	-0.029	0.085	-0.021	-0.381	0.901 ^a	-0.015	0.052	0.120	-0.161	0.111	-0.320	0.283	-0.352	0.202	-0.367	0.215	-0.521
RM11	0.125	-0.174	0.780 ^a	-0.488	-0.021	-0.316	0.089	0.856 ^a	-0.557	-0.385	0.746 ^a	0.283	0.069	0.202	-0.367	0.215	-0.521
RM12	-0.140	-0.103	-0.488	0.775 ^a	-0.381	0.049	-0.431	-0.324	0.235	-0.385	-0.320	0.283	0.133	-0.393	0.062	-0.198	0.306
RM13	-0.029	0.085	-0.021	-0.381	0.901 ^a	-0.015	0.052	0.120	-0.161	0.111	-0.320	0.283	-0.215	-0.032	-0.218	-0.055	-0.013
RM14	0.125	-0.174	0.780 ^a	-0.488	-0.021	-0.316	0.089	0.856 ^a	-0.557	-0.385	0.746 ^a	0.283	0.069	0.202	-0.367	0.215	-0.521
RM15	-0.140	-0.103	-0.488	0.775 ^a	-0.381	0.049	-0.431	-0.324	0.235	-0.385	-0.320	0.283	-0.215	-0.032	-0.218	-0.055	-0.013
RM16	-0.029	0.085	-0.021	-0.381	0.901 ^a	-0.015	0.052	0.120	-0.161	0.111	-0.320	0.283	0.825 ^a	-0.358	-0.436	0.049	0.115
RM17	0.087	-0.046	0.035	0.079	-0.304	-0.207	0.026	-0.231	0.292	-0.521	0.306	-0.013	0.115	-0.374	-0.007	-0.388	0.752 ^a

a. Measures of Sampling Adequacy (MSA)

Source: Authors' own research

We further looked at the Communalities and Total Variance Explained data (see Tables 4 and 5) to determine the number of significant factors. All the communalities indicate that more than 50% of the variance in each variable/item is explained by the combined four components; with one exception (RM11) which is lower than what we would prefer.

Table 4. Communalities for resilience measures to the pandemic

	Initial	Extraction
Hygiene Measures (RM1)	1.000	0.735
Telework (RM2)	1.000	0.526
Increase Pay vs. Paid Leave (RM3)	1.000	0.759
Paid Time-Off Policies (RM4)	1.000	0.828
Pay-Cut (RM5)	1.000	0.596
New Jobs (RM6)	1.000	0.658
Childcare Services (RM7)	1.000	0.741
Farmers' Food Production (RM8)	1.000	0.789
Supply Chains Shortening (RM9)	1.000	0.760
Production Shift (RM10)	1.000	0.675
Impact Survey (RM11)	1.000	0.478
Online Resource Platform (RM12)	1.000	0.860
Government Relief Measures (RM13)	1.000	0.723
Links Latest Guidance (RM14)	1.000	0.511
Help Vulnerable People (RM15)	1.000	0.726
Service Vouchers (RM16)	1.000	0.614
Grow Food Home (RM17)	1.000	0.742

Extraction Method: Principal Component Analysis

Source: Authors' own research

Table 5. Factor analysis of the resilience measures to the pandemic^a

	Component			
	1	2	3	4
Hygiene Measures (RM1)			0.842	
Telework (RM2)			0.530	
Increase Pay vs. Paid Leave (RM3)		0.862		
Paid Time-Off Policies (RM4)		0.792		
Pay-Cut (RM5)		0.586		
New Jobs (RM6)		0.630		
Childcare Services (RM7)			0.541	
Farmers' Food Production (RM8)			0.647	
Supply Chains Shortening (RM9)			0.678	
Production Shift (RM10)	0.771			
Impact Survey (RM11)		0.603		
Online Resource Platform (RM12)				0.866
Government Relief Measures (RM13)				0.622
Links Latest Guidance (RM14)				0.437
Help Vulnerable People (RM15)	0.682			
Service Vouchers (RM16)	0.636			
Grow Food Home (RM17)	0.841			
Eigenvalue	7.604	1.702	1.381	1.034
Proportion of the variance explained	44.728	10.010	8.123	6.081
Cumulative proportion of the variance explained	44.728	54.738	62.861	68.942

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 7 iterations

Source: Authors' own research

The Varimax with Kaiser Normalization rotation method, using eigenvalue greater than one, revealed four significant factors that accounted for 68.94% of the variance of the original variables. The rotated factor loadings are shown in the Rotated Factor Matrix (Table 5). As illustrated in the table, using rotation and suppressing small coefficients help with the interpretation. The factor loadings show that our factors are fairly desirable with at least three variables per factors that are above 0.50.

Factor 1 (Cronbach's Alpha=0.855) includes four components, which are variables suggesting openness to production innovation and adaptation and a strong support for customers and communities: shifting production toward much needed supplies, helping vulnerable people who cannot go shopping by themselves, producing service vouchers for disadvantaged populations and supporting community members to grow food at home.

Factor 2 (Cronbach's Alpha=0.837) includes five components, which are variables directly linked to efficiency of the internal operational management of the enterprise and worker protection: increasing pay for those working through the lockdown, modifying paid time-off policies to ensure that vulnerable workers do not suffer loss of income or other benefits, deciding to take a pay-cut for higher-paid workers in order to ensure that the lower-paid workers could get full pay and are protected, creating new jobs to address the upsurge in demand in the retail sector and surveying members on the impact of the pandemic.

Factor 3 (Cronbach's Alpha=0.849) includes five components, which are variables suggesting the workplace safety and working conditions as well as supply chain stabilization: taking hygiene measures at workplaces and front stores, expanding telework arrangements and cancelling or postponing events that require face to face exchanges, ensuring front-line workers have uninterrupted access to childcare services throughout the crisis, protecting smallholder farmers' food production and keeping the food value chain alive and shortening supply chains by establishing direct purchasing lines between producer and consumer.

Factor 4 (Cronbach's Alpha=0.702) includes three components, which are variables linked to the broadening access to relevant information: preparing video messages, WhatsApp groups, Q&As, guidance notes, establishing online resource platforms and organizing webinars to inform on the pandemic and possible mitigation measures, monitoring government relief measures for workers and businesses to provide advice and tracking latest responses and initiatives at global level, providing links to the latest guidance for businesses.

The results of the factor analysis confirmed entirely first hypothesis (H1) and partially the second hypothesis (H2). Thus, there are four 'meaningful' factors that can produce correlation amongst the different resilience measures taken by an enterprise and that influence to a broad extent the effectiveness of organizational resilience to the COVID-19 pandemic. Also, openness to production innovation to ensure demand goods and workers' protection are some of the most prevalent factors which enhance resilience to the pandemic.

Regression analysis findings

In order to determine which of the economic relief measures had most impact on the companies' overcoming illness, data were subjected to a multiple linear regression, taking

the overcoming illness as the dependent variable, and the resilience measures established to deal with the disruption caused by the pandemic to enterprises as the independent (or explanatory) variables. The linear regression model assumes that there is a linear relationship between the dependent variable and each predictor. The model summary is presented in Table 6. Checking the R^2 value in the third column, it may be observed that the model explains 59.8.0% of the variance in the enterprises' overcoming illness. This is a statistically significant contribution, as indicated by the Sig. F Change value for this line (0.001). The Durbin-Watson $d = 1.912$ indicates that there is no first-order linear autocorrelation in the multiple linear regression data and the model has a good fit. The ANOVA results show that all the variables are significant predictors of the enterprises' overcoming illness ($F = 3.329$, $p < 0.001$), and that the model has a good fit.

Table 6. Regression model summary^a

Model	R	R ²	Adjusted R ²	SE	Change Statistics					Durbin-Watson
					ΔR^2	ΔF	df1	df2	Sig. F Change	
1	0.774 ^a	0.598	0.419	1.537	0.598	3.329	17	38	0.001	1.912

a. Predictors: (Constant), Grow Food Home, Telework, Impact Survey, Government Relief Measures, Hygiene Measures, Increase Pay vs. Paid Leave, Online Resource Platform, Links Latest Guidance, Pay-Cut, New Jobs, Service Vouchers, Keep Food Production, Production Shift, Childcare Services, Help Vulnerable People, Paid Time-Off Policies, Supply Chains Shortening

b. Dependent Variable: Illness

To find how well each of the variables predicts the dependent variable, the coefficients are studied (Table 7).

Table 7. Regression analysis between the resilience measures to pandemic and the overcoming illness^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	SE	Beta		
1	(Constant)	-0.239	0.959		-0.249	0.804
	Hygiene Measures (RM1)	0.140	0.176	0.111	0.797	0.430
	Telework (RM2)	-0.212	0.158	-0.187	-1.342	0.188
	Increase Pay vs. Paid Leave (RM3)	-0.196	0.176	-0.178	-1.112	0.273
	Paid Time-Off Policies (RM4)	0.980	0.279	0.832	3.506	0.001
	Pay-Cut (RM5)	-0.367	0.184	-0.318	-1.991	0.054
	New Jobs (RM6)	0.167	0.157	0.176	1.062	0.295
	Childcare Services (RM7)	-0.066	0.231	-0.067	-0.286	0.776
	Farmers' Food Production (RM8)	0.050	0.246	0.046	0.202	0.841
	Supply Chains Shortening (RM9)	-0.263	0.269	-0.246	-0.977	0.335
	Production Shift (RM10)	0.226	0.191	0.228	1.182	0.244
	Impact Survey (RM11)	-0.173	0.164	-0.158	-1.057	0.297
	Online Resource Platform (RM12)	0.453	0.173	0.382	2.614	0.013
	Government Relief Measures (RM13)	0.009	0.188	0.009	0.050	0.960
	Links Latest Guidance (RM14)	0.418	0.183	0.379	2.291	0.028
	Help Vulnerable People (RM15)	-0.171	0.234	-0.161	-0.729	0.470
	Service Vouchers (RM16)	0.135	0.191	0.133	0.705	0.485
	Grow Food Home (RM17)	-0.145	0.199	-0.150	-0.728	0.471
	F	3.329				
	R Square	0.598				
	Adjusted R Square	0.419				

The coefficients show that ensuring appropriate paid time-off policies for workers affected by the pandemic ($B = 0.980$, $p < 0.001$), establishing online resource platforms to inform on the pandemic and possible mitigation measures ($B = 0.453$, $p < 0.05$) and providing links to the latest guidance for the businesses, by tracking latest responses and initiatives at global level ($B = 0.418$, $p < 0.05$) are significant positive predictors of the companies' overcoming illness. Thus, for example, 1-unit increase in RM4 – Paid time-off policies will result in 0.980 unit increase in overcoming illness. As such, any effort made by the enterprise to modify their paid time-off policies, to ensure that their workers who are absent due to illness or to care for sick family members do not suffer loss of income or other benefits, will improve its capacity to overcome illness among its workers.

The standardized coefficients (Beta) determine the relative importance of the significant predictors. Thus, following a t distribution, results indicate that the linear correlation between the enterprise's overcoming illness and the resilience measures was statistically significant in the following cases: paid time-off policies, online resource platforms and links to latest guidance (see Table 7). Thus, the results of regression analysis confirmed entirely hypothesis H3. However, hypothesis H4 was only partially confirmed as the research results proved that only three resilience measures predict significantly the micro and small enterprises' overcoming illness.

Conclusion

The present paper contributes to the study of business resilience in time of crisis by awaking academic and practice curiosity for the resilience measures perceived by micro and small Romanian enterprises as being the most effective to dealing with the crisis generated by the COVID-19 pandemic. The results of the research show that in order for the micro and small enterprises in Romania to better cope with the disruption caused by the COVID-19 pandemic they should demonstrate, on the first place, openness to production innovation and adaptation to the new demand and ensure a strong support for customers and communities. On the second place, efforts should be directed toward ensuring efficiency of their internal operational management and workers' protection. On the third place, priority should be given to ensuring workplace safety and working conditions as well as supply chain stabilization, and finally to broadening access to relevant information. Out of the four research hypotheses, two have been completely confirmed, while the other two were only partially validated. Likewise, there are three resilience measures, namely paid time-off policies, online resource platforms and links to latest guidance, which significantly predict the micro and small enterprises' overcoming COVID-19 illness.

The survey answers reflect that different economic fields are affected differently, digitally active companies allocating importance to social aspects of the emergency situation within their operations. As main fears there is highlighted the maintenance of the business from the point of view of financial sustainability and the possibility of economic insecurity and job loss. These aspects are two pillars of the Next Generation EU budgeted proposal of the European Commission (European Commission, 2020). However, the concerns regarding economic instability can also be linked to the entrepreneurs' trust in the national political environment.

Many of the proposed resilience measures within the research have been marked as important aspects by the majority of the respondent enterprises, but their capacity to adapt the measures remains a question. COVID-19 changed the way they interact and the way they do business, but along with the relaxations the enterprises assist in many cases to the resume of old ways.

The research shows the complexity of needs of the micro and small enterprises in Romania. The limitations of the research are related to the nature and amount of data analyzed in this paper, which are restricted to a certain geographic area in Romania and to micro and small enterprises. Also, the current research findings rely upon the accuracy of the responses offered by the respondents, which are self-reported and reflect their own perception and understanding of the situation in their company. For example, in our belief, those who marked 7 (“Totally agree”) as most effective measure --e.g., taking hygiene procedures within the company--, have the expectation from policy makers to organize this activity and to provide guidance, transparent rules and recommendations in this sense. Another example, more than half of the questioned respondents thinks that postponing face-to-face meeting or organizing them online can have a positive impact on the emerged situation. This manifestation can be also linked with the fact that 50% of the participants are activating in the field of services. This means that some observations made in the paper may not reflect entirely the reality of situation exposed and cannot be generalized. Further research should extend the area of investigation to other regions in the country or similar regions in other emerging countries like Romania for a more comprehensive understanding of the needs and challenges of micro, small and medium enterprises in time of crisis. A comprehensive research effort is essential in order to stimulate self-reinvention, reorientation and reconstitution of a healthy and stable socio-economic ecosystem for SMEs.

While the view of resilience measures to dealing with the COVID-19 crisis put forward in this article is far from complete, we see it as a very important step to enhance our theoretical understanding of the phenomenon and facilitate future research. Although there is some broad, empirical research on resilience measures in time of crisis, the lack of empirical studies has placed limits on our understanding of the important antecedents and outcomes of natural or caused-by-humans disruptions. The present research brings empirical evidence on the resilience measures perceived by Romanian micro and small enterprises as being more effective to dealing with the crisis generated by the COVID-19 pandemic. While there exist external circumstances that lead enterprises everywhere to adopt several resilience measures to better respond to the pandemic, the motivations that are most relevant in this decision are country context-driven. Moving toward more rigorous empirical studies, for individual or group of countries, and establishing major theoretical perspectives by which researchers may explore this phenomenon, should benefit both practitioners and researchers.

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