Ermira Kalaj, Flora Merko and Ela Golemi

Reflections on the link between digitalisation and firm performance during the pandemic: the case of Albania

Abstract

This article focuses on an analysis of the digitalisation of enterprises in Albania and its impact on their performance with a view to understanding better the role of digitalisation and the experience of private sector firms in this area. The research draws on an econometric analysis of World Bank data examining firms' experiences and their perceptions of their operating environment. After setting the scene with an overview of the types and size of enterprises in Albania, the article focuses on digitalisation, the level of which is generally low, and seeks answers to a number of research questions. The authors conclude that, while the impact of digitalisation on performance is positive and statistically significant, achieved chiefly via increased business activity online, there is a need to understand better what this means in practice as well as to explore the lack of statistical significance, despite the presence of a positive relationship, of other variables examined in the course of the analysis. Further work is also needed to understand how firms will approach digitalisation in the future after the economic shocks of Covid-19.

Keywords: *firm performance, entrepreneurship, digitalisation, Covid-19,*

Introduction

Digitalisation brings with it a variety of risks and opportunities for various sectors of society (Aceto et al. 2018). The role of digitalisation has become crucial during the challenges of the Covid-19 pandemic in that the expansion of digital developments has the potential to help enterprises survive and find new and innovative ways of doing business.

Traditionally, enterprises in developing countries such as Albania have encountered higher barriers in connecting and in obtaining access to market information (Curraj 2017; Abedini and Hani 2017; Balla 2020). The use of the internet (Clarke and Wallsten 2006; Clarke 2008; Ferro 2011) plays an important role in lowering communications costs as well as the barriers to entering new markets. Empirical evidence shows that increased digitalisation contributes to total trade through websites that facilitate communication and trading relationships (Bharadwaj et al. 2013; Giones and Brem 2017; Nambisan et al. 2019). Therefore, it is important to study the microeconomic relationship between an enterprise's internet use and its economic performance.

The global Covid-19 pandemic and associated crises have acted as a catalyst for enterprises facing the pressure of the outbreak. Government measures in response to the pandemic affected enterprise activity by decreasing production capacity, disrupting the flows of exports and imports, and seriously pressuring the operation of the service sector. In this context, digitalisation may help firms overcome obstacles and find new opportunities for doing business (Papadopoulos et al. 2020; Ratten 2021).

This article is organised as follows. The first section briefly presents a literature review while the second frames the general environment in which enterprises operate in Albania. The link between digitalisation and performance is presented in the third section before conclusions and a summary discussion of the findings.

Literature review

This study contributes to the rapidly growing literature on the economic impact of Covid-19 on enterprise performance with a specific focus on the role of digitalisation. There are few studies that investigate the role of digitalisation in Albanian enterprises and its impact on economic performance; what research there is mainly focuses on the tourism sector (Noti and Tartaraj 2016; Kordha et al. 2019; Pano and Gjika 2020) and the financial services sector (Tolica et al. 2015; Balla 2020), as well as on analysing the level of digitalisation rather than its contribution to enterprises' economic performance.

Curraj (2017) shows that size, age and location affect the performance of Albanian enterprises and are related to business digitalisation more than strategy. Moreover, the level of enterprise digitalisation is determined by entrepreneurial characteristics. His research provides evidence that there is growing interest in ICT and enterprise digitalisation but that innovation is still low due to the lack of financial and human resources.

Using the World Bank's Enterprise Survey for 2019 for Albania, Kalaj and Merko (2021) show that digitalisation – measured in terms of enterprises' adoption of high-speed internet and website use – does affect enterprise labour productivity. However, this positive result does not hold when it comes to the impact of digitalisation on sales growth.

Gërguri-Rashiti et al. (2017) investigate the impact of information and communications technology (ICT) and innovation activities on firm performance, again using Enterprise Survey firm-level data from three rounds (2002, 2005 and 2008) in respect of nine central and east European countries. The Probit model results show a significant effect of some of the determinants of innovation activities, indicating that larger firms in transition economies tend to carry out more innovation activities than smaller ones.

Analysing data from 518 small and medium-sized enterprises in China, Guo et al. (2020) develop an empirical framework for the relationship between digitalisation and the response of SMEs. Their results show that digitalisation not only helped enterprises respond effectively to the Covid-19 shock, but also in terms of improving their performance. However, the study lacks in a practical description of the paths that enterprises might follow to successful digitalisation strategies.

From a macroeconomic perspective, Myovella et al. (2020) analyse the impact of digitalisation on economic growth in sub-Saharan Africa. This analysis relies on panel data from 41 sub-Saharan and 33 OECD countries. Using generalised method of moments estimators, they find positive effects in both groups of countries. Nevertheless, due to the lower level of development of the telecommunications infrastructure in sub-Saharan Africa, the impact is lower in comparison to OECD countries.

Amankwah-Amoah et al. (2021) observe digitalisation during the Covid-19 pandemic, focusing on the internal dimension and on people. They offer a conceptual model linking the different influences for and against digitalisation, bringing an insightful explanation of the so-called 'psychological dividend' or 'nostalgia' of Covid-19 as a powerful barrier to the adoption of new technologies related to the distribution of work.

Besides the recent literature on the positive effect on the economy of digitalisation, both at the micro and the macro level, the use of digital techniques from enterprises brings challenges and contradictions related to organisational strategies and the management of personal information (Papadopoulos et al. 2020). With this in mind, further investigation is needed to understand better the level of digitalisation of enterprises in Albania and how much the level of digitalisation that has been achieved affects their performance.

Background of Albanian enterprises

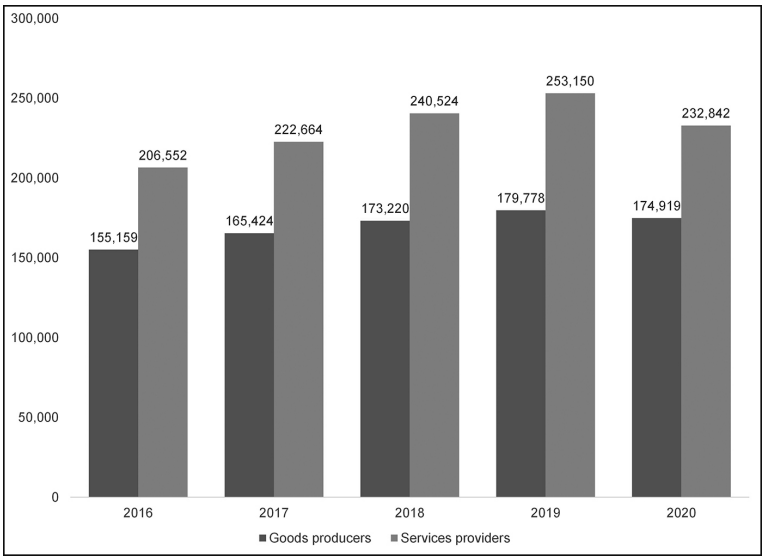
Enterprises in Albania are faced with numerous obstacles and challenges to their endeavour. According to the World Bank (2021), the rank of Albania declined from 63 in 2018 to 82 in 2019 in terms of the ease of doing business in the country. The most problematic factors affecting the business environment in Albania are corruption, fiscal policy issues, the lack of a skilled workforce, access to finance and government bureaucracy (IDRA 2017; Kalaj and Merko 2020; Valbona et al. 2021).

According to the Institute of Statistics of Albania (2022), the number of active enterprises in 2020 declined by 2.5 per cent in comparison to 2019, while the average number of employees dropped by 5.8 per cent (the trends over time are shown in Figure 1 and Figure 2, respectively). In terms of employment, the service sector accounts for 63.2 per cent of employees while those sectors engaged in the production of goods account for the remaining 36.8 per cent.

Figure 3 shows the distribution of enterprises by economic activity. The main economic activity in Albania – outside of single farmers – is trade. However, the number of registered enterprises in this sector in 2020 decreased by 1.5 per cent on the 2019 level. During the same period, there was a lower drop in the number of enterprises offering services (down by 0.9 per cent).

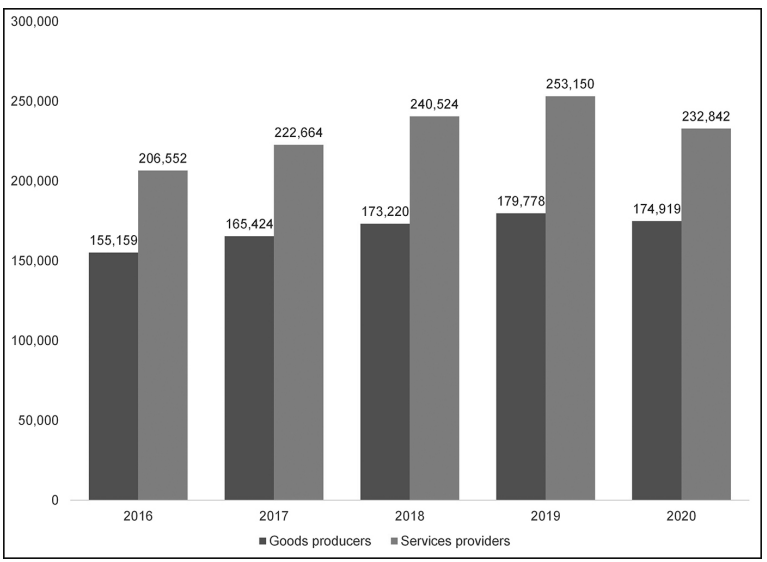
Lockdowns in Albania associated with the global Covid-19 pandemic saw a fall in the total number of firms but there was a differential impact in terms of sectors, as shown in Figure 4. There was evidently a swing to agriculture – even more so if we take into account also those engaged in single person farming – but the information and communications sector and construction also saw growth. The sector most heavily hit by the pandemic, as we might imagine, was accommodation and food services where the number of enterprises dropped by 3.9 per cent.

Figure 1 – Number of enterprises



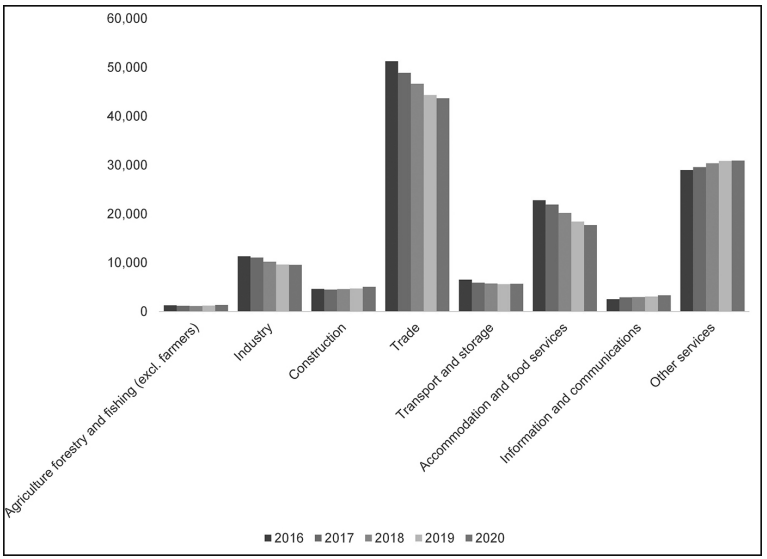
Source: INSTAT (2022)

Figure 2 – Annual average number of employees



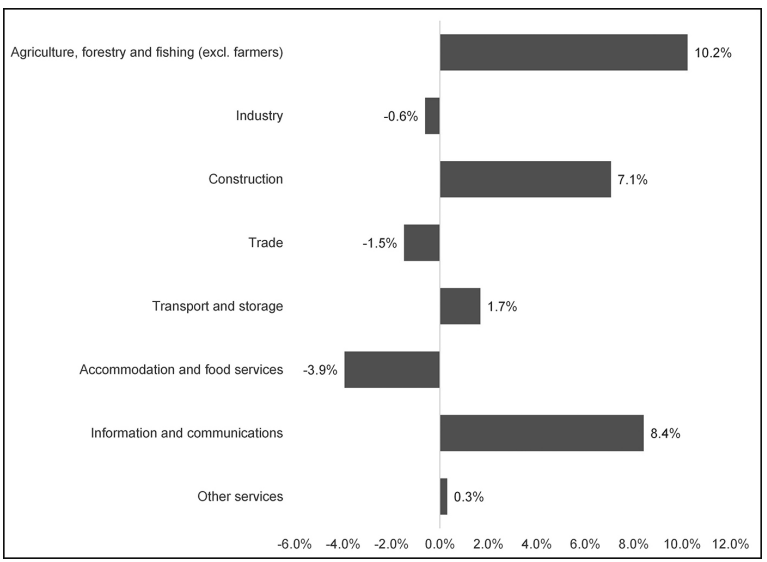
Source: INSTAT (2022)

Figure 3 – Number of enterprises by type of economic activity



Source: INSTAT (2022)

Figure 4 – Contribution to annual turnover growth, 2019-20



Source: INSTAT (2022)

The main indicators in terms of the number of enterprises, employees and investments divided by enterprise size are given in Table 1. According to INSTAT (2022), the largest number of enterprises is concentrated in the central part of the country, more precisely the municipality of Tirana, while the lowest number is registered in the municipality of Pustec, in eastern Albania. Female-owned enterprises account for 25.5 per cent of the total with women leading, in the main, micro enterprises (having 1-4 employees). In terms of foreign-owned and joint enterprises, most foreign partners come from Greece and Italy, amounting to around 77.8 per cent of the total.

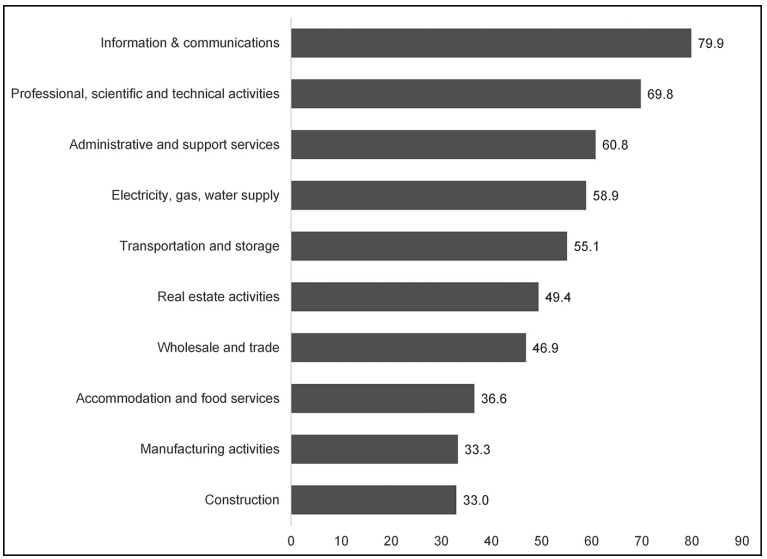
Table 1 – Selected enterprises by main indicators, 2020

Enterprise size	No. of enterprises		No. of employees		Investments (ALL, m)	
	No.	%	No.	%	No.	%
TOTAL	102 574	100	530 853	100	193 880	100
1-4 employees	88 082	85.9	139 154	27.6	12 372	6.4
5-9 employees	7476	7.3	47 245	9.4	13 443	6.9
10-49 employees	5674	5.5	111 347	22.1	62 475	32.2
50+ employees	1342	1.3	206 239	40.9	105 589	54.5

Source: INSTAT (2022). Note: ALL – Albanian Lek

Digitalisation has been increasing within Albanian enterprises. During 2021, around 45 per cent of enterprises had a website, using it generally to publish a catalogue of products and services, although only 38.3 per cent use it to receive orders and take online bookings (INSTAT 2021). Some 24.8 per cent use customer relationship management software to handle their clients.

Figure 5 – Share of enterprises having a website, by economic activity, 2021



Source: INSTAT (2021)

Data and methodology

In this article we use two different sources of data: the World Bank Enterprise Survey (ES) for 2019; and the ES follow-up on Covid-19 for Albania. The baseline ES for 2019 contained 377 interviews conducted between January and May 2019 (World Bank 2019); while the latter dataset was designed to provide information on the impact of the pandemic, and the adjustments it has brought, in respect of enterprises re-interviewed from the initial survey. Here, data was collected in the period between 5-26 June 2020. The target group was all registered establishments with five or more employees engaged in the following activities: manufacturing; construction; services; transport and storage; and information and communications technology. The response rate was 92 per cent, i.e. 344 enterprises.

Table SA1 (included in the Statistical Annex) provides a full description of the variables used as the basis for our examination of the themes which, for the purposes of this article, were condensed into three specific questions developed to allow us to study the digitalisation of enterprises:

1. Does the establishment have its own website?
2. Has it started or increased its business activity online?
3. Has it started or increased remote working arrangements for its workforce?

To investigate the impact of digitalisation and to attempt to answer our research questions, we developed the following model:

$$Y_i = \beta_0 + \beta_1 Digital_i + \beta_2 Website_i + \beta_3 Remote_i + \gamma X_i + \mu_i \quad (1)$$

where:

Yi is one of the components of performance of the firms, measured in terms of sales growth, employment growth, closure and production adjustments

Digital, *Website* and *Remote* are dummy variables to indicate the adoption of the internet or the usage of websites by enterprises

Xi is the vector of variables including: size, age, status, foreign ownership, location, exporter, female ownership, etc.

To compute the dependent variable sales growth, we follow Clarke et al. (2015) and Gosavi (2017). To have a broader picture of the response of enterprises during the public crises inherent in Covid-19, we present some summary statistics alongside figures 6-9.

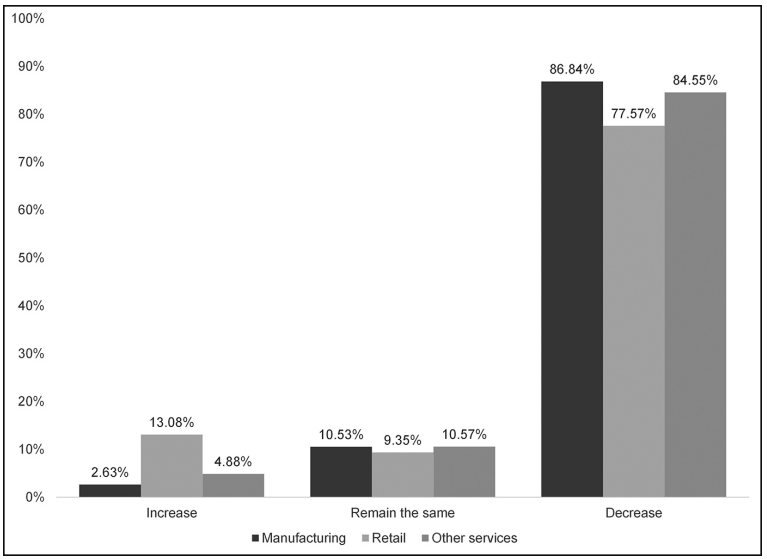
Following the responses of the 344 enterprises in the Covid-19 follow-up survey, we notice that establishments experiencing sales growth are quite low (Figure 6). The highest percentage of sales growth is a little more than 10 per cent; a result which is quite comprehensive about the impact of the pandemic.

Most enterprises did do some work to convert their production/service activities in response to the crises of the Covid-19 pandemic (Figure 7). This reflects an evident propensity toward changes and the flexibility of enterprises as a result of exogenous shocks. However, when it comes to the online working arrangements for the workforce (Figure 8) and in the amount of general business activity carried out online (Figure 9), the percentages cannot be considered high. As we can also see from Figure 9, the manufacturing sector represents the lowest percentage of business activity being carried out online.

The survey does not contain questions on the reasons related to the low level of digitalisation of enterprises, emphasising the need for further investigation to better understand enterprise responses in this area.

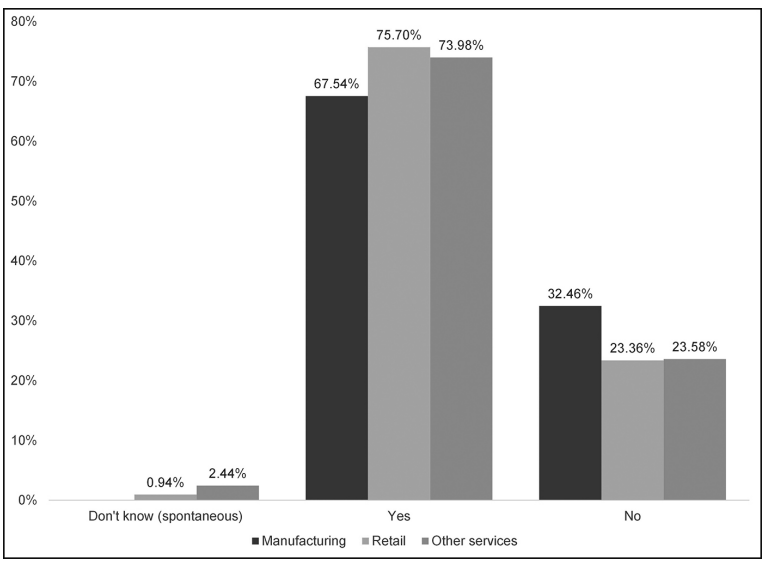
However, referring to INSTAT (2020), the share of employees using a computer for work purposes in general can be considered low, amounting to only 27.2 per cent and a figure which actually dropped compared to the previous year. The lowest share of employees using a computer during their business activity occurs in manufacturing activities, with only 8.0 per cent, and construction, with 16.2 per cent. On the other side, computers are used to a much greater level by employees of enterprises working in the information and communications sector (75.5 per cent) as well as the repair of computers and communications equipment (73.7 per cent) and in professional, scientific and technical activities (64.9 per cent).

Figure 6 – Sales changes by industry during Covid-19



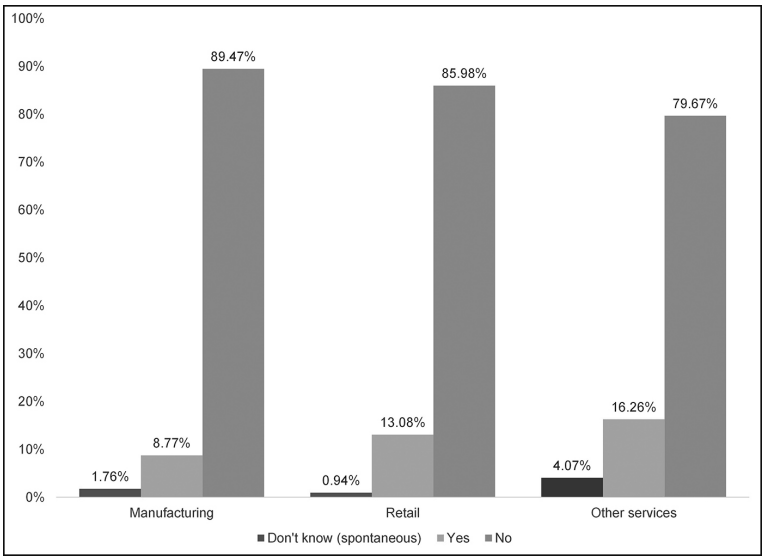
Source: authors' own calculations

Figure 7 – Converted production/service in response to Covid-19



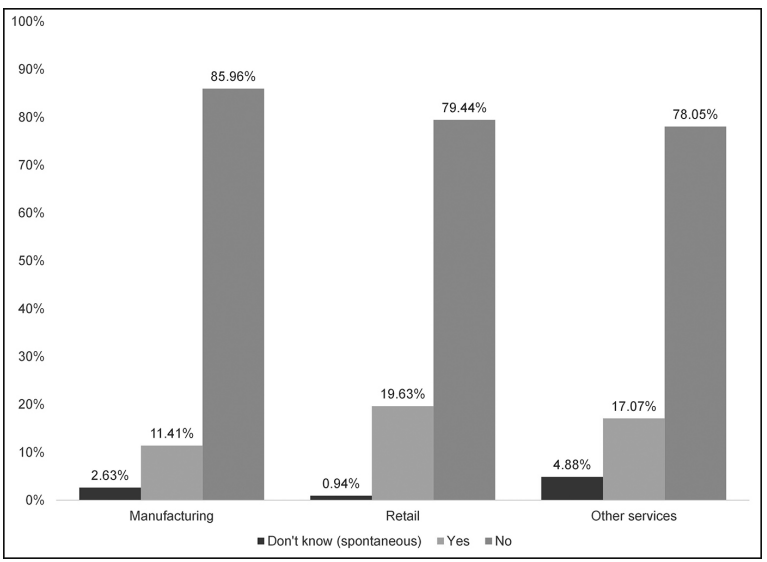
Source: authors' own calculations

Figure 8 – Remote arrangement of workforce during Covid-19



Source: authors' own calculations

Figure 9 – Started or increased business activity online



Source: authors' own calculations

Empirical results

We can easily notice, from the descriptive data on enterprise responses during the Covid-19 pandemic, the low level of digitalisation. To realise if enterprises that included digitalisation in their production/service activity obtained benefits in terms of performance, we ran OLS regressions for discrete variables and logit regressions for the dummy dependent variables.

The econometric results of the regression for employment growth are shown in Table SA2. We can see from the coefficients that the only statistically significant responses are in relation to digitalisation and remote activity. We can conclude that those enterprises that had started or increased their business activity online, increasing the delivery of goods and services, experienced employment growth. Furthermore, the use of a website has a positive, but not statistically significant, impact on employment growth. This may be related to the effectiveness of enterprise websites and the way they reflect production/service activity. There is also a positive relationship with the following variables: retail sector, exporter enterprises, female ownership, foreign ownership and access to finance.

Table SA3 presents the logit regression results on the probability of having sales growth during the Covid-19 pandemic. Digitalisation positively affects sales growth but the results do not persist when it comes to remote activity of the workforce and the existence of a website. The coefficient is nevertheless high, meaning that enterprises starting or increasing their business activity online enhance the probability of having higher sales by around 1.23 per cent. Foreign ownership is positively related with sales growth during the crises associated with the pandemic. Sales growth is, however, negatively affected by website, remote activity, age, manufacturing sector, small and medium enterprises and exporter enterprises

According to the regression results of Table SA4, we notice that digitalisation has a positive effect on production adjustments. This variable is a dummy that takes a value of 1 if the enterprise adjusted or converted production/service activity during Covid-19. In this case, having a website has a positive impact although it is not statistically significant.

According to the regression results, only a few coefficients are statistically significant and further research is therefore necessary. Enterprises having websites exhibit higher labour growth than others, and the result is statistically significant, but the magnitude is relatively low. The results are not statistically significant when it comes to sales growth and production adjustments.

Female ownership of enterprises does not statistically mean higher sales or labour growth. However, the coefficients have positive signs meaning that there is space for further analysis. These findings are in line with other gender studies in Albania (Kalaj and Merko 2020). What is interesting is that enterprises that are involved in export activities and with a degree of foreign ownership are associated with an increased propensity to higher economic performance.

Conclusions

This article focuses on an analysis of the role of the degree of digitalisation of Albanian enterprises during the Covid-19 pandemic. Digitalisation is measured as a proxy of business activity being undertaken online, or the delivery or carrying-out online of products and services. To provide an answer to our research questions, the study relies on two different sources of data – the World Bank Enterprise Survey of 2019 and the ES follow-up on Covid-19 for Albania.

In our study, enterprise performance is measured in terms of employment growth, sales growth, production adjustments and permanent closure. Since the percentage of permanently closed enterprises in our sample is very low, our empirical interpretations are concentrated on the first three variables. The empirical results show that digitalisation affects enterprise performance in a statistically significant way. The effect is positive and statistically significant when it comes to sales growth, employment growth and production adjustments being made in response to the Covid-19 pandemic.

We used three different variables as proxies for enterprise digitalisation, such as increased business activity online, the existence of a website and remote workforce activity. Our findings show that only increased business activity online, however, has a significant impact on performance improvements in Albanian enterprises. We cannot conclude on the effect of the other two variables, such as the existence of a website and remote work activity, since the coefficient results are not statistically significant. Even so, it is evident that enterprises in the manufacturing sector are less likely to be using digital technology in their business activity compared to other sectors.

This study contributes to the recently growing literature on digitalisation during the pandemic related to the impact that Covid-19 might have had on enterprise performance. It provides a useful framework for policy formulation on how to help enterprises on their digitalisation paths. Even so, additional research is needed to understand better what online business activity actually consists of and whether enterprises intend to expand their digitalisation process in the future, regardless of pandemic shocks.

References

Abedini, L. V and R. Z. Hani (2017) 'Challenges of ICT Approval in Small And Medium Enterprises in the Republic of Albania' paper presented at 2017 International Conference, University for Business and Technology in Kosovo, UBT Proceedings, 43-48.

Aceto, G, V. Persico and A. Pescapé (2018) 'The role of Information and Communication Technologies in healthcare: taxonomies, perspectives, and challenges' *Journal of Network and Computer Applications* 107: 125-154.

Amankwah-Amoah, J, Z. Khan, G. Wood and G. Knight (2021) 'COVID-19 and digitalization: The great acceleration' *Journal of Business Research* 136: 602-611.

Balla, R (2020) 'Digitalization of Financial Services in Albania Under Restricted Measures Covid-19' *European Journal of Marketing and Economics* 3(2): 17-31.

Bharadwaj, A, O. A. Sawy, P. A. Pavlou and N. Venkatraman (2013) 'Digital business strategy: Toward a next generation of insights' *MIS Quarterly* 37(2): 471-482.

Clarke, G. R (2008) 'Has the Internet Increased Exports for Firms from Low and Middle-Income Countries?' *Information Economics and Policy* 20(1): 16-37.

Clarke, G. R, C. Z. Qiang and L. C. Xu (2015) 'The Internet as a general-purpose technology: Firm-level evidence from around the world' *Economics Letters* 135: 24-27.

Clarke, G. R and S. J. Wallsten (2006) 'Has the Internet Increased Trade? Developed and Developing Country Evidence' *Economic Inquiry* 44(3): 465-484.

Curraj, E (2017) 'Business Digitalization in Albania: Where do SMEs Stand?' *European Journal of Economics and Business Studies* 3(1): 148-152.

Ferro, E (2011) 'Signaling and Technological Marketing Tools for Exporters' World Bank Policy Research Working Paper 5547, World Bank: Washington DC.

Gërguri-Rashiti, S, V. Ramadani, H. Abazi-Alili, L. P. Dana and V. Ratten (2017) 'ICT, innovation and firm performance: the transition economies context' *Thunderbird International Business Review* 59(1): 93-102.

Giones, F and A. Brem (2017) 'Digital technology entrepreneurship: A definition and research agenda' *Technology Innovation Management Review* 7(5): 44-51.

Gosavi, A (2017) 'Use of the Internet and its impact on productivity and sales growth in female-owned firms: Evidence from India' *Journal of Entrepreneurship, Management and Innovation* 13(2): 155-178.

Guo, H. Y (2020) 'The digitalization and public crisis responses of small and medium enterprises: Implications from a COVID-19 survey' *Frontiers of Business Research in China* 14(1): 1-25.

Institute for Development Research and Alternatives (2017) *An Enabling Environment for Sustainable Enterprises in Albania* IDRA: Tirana.

INSTAT (2021) *Innovation activities in enterprises, 2018-2020* Republika e Shqipërisë Instituti i Statistikave: Tirana.

INSTAT (2022) *Business Register* Republika e Shqipërisë Instituti i Statistikave: Tirana, accessed 19 July 2022 at: http://www.instat.gov.al/en/themes/industry-trade-and-services/business-register/.

Kalaj, E and F. Merko (2020) 'Analyses of Financial Obstacles Facing SMEs: Evidence from Albania' *Scientific Papers* 43(1): 117-121.

Kalaj, E and F. Merko (2021) 'How Digital Are Albanian Enterprises: A Microeconomic Analyses' RTU 62nd International Scientific Conference on Economics and Entrepreneurship SCEE 2021 Proceedings, pp. 4-11, Riga Technical University: Riga.

Kordha, E, K. Gorica and K. Sevrani (2019) 'The Importance of Digitalization for Sustainable Cultural Heritage Sites in Albania' in U. Stankov, S-N Boemi, S. Attia, S. Kostopoulou and N. Mohareb (Eds) *Cultural Sustainable Tourism* Selection of Research Papers from IEREK Conference on Cultural Sustainable Tourism, Greece 2017, Springer Nature: Heidelberg, pp. 91-97.

Myovella, G, M. Karacuka and J. Haucap (2020) 'Digitalization and economic growth: A comparative analysis of Sub-Saharan Africa and OECD economies' *Telecommunications Policy* 44(2), Article 101856.

Nambisan, S, M. Wright and M. Feldman (2019) 'The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes' *Research Policy* 48(8): 1-9.

Noti, E and A. Tartaraj (2016) 'E-commerce as an Added Value in the Tourism Services in Albania' *Academic Journal of Interdisciplinary Studies* 5(1): 324-329.

Pano, N and I. Gjika (2020) 'Our Way Towards the Integration of Digital Technology' *Journal of International Cooperation and Development* 3(1): 19-25.

Papadopoulos, T, K. N. Baltas and M. E. Balta (2020) 'The use of digital technologies by small and medium enterprises during COVID-19: Implications for theory and practice' *International Journal of Information Management* 55: Article 102192.

Ratten, V (2021) 'COVID-19 and entrepreneurship: Future research directions' *Strategic Change* 30(2): 91-98.

Shafi, M, J. Liu and W. Ren (2020) 'Impact of COVID-19 pandemic on micro, small, and medium-sized Enterprises operating in Pakistan' *Research in Globalization* 2 Article 100018.

Tolica, E. K, K. Sevrani and K. Gorica (2015) 'Albanian Situation Related to the Factors for ICT Development' in E. K. Tolica, K. Sevrani and G. Klodiana (Eds) *Information Society Development through ICT Market Strategies* Springer Nature: Heidelberg, pp. 67-83.

Valbona, D, B. M. Gabriella and D. B. Mara (2021) 'Corporate Social Responsibility in Albania' in S. O. Idowu and R. Schmidpeter (Eds) *Current Global Practices of Corporate Social Responsibility* Springer Nature: Heidelberg, pp. 3-19.

World Bank (2019) *Albania 2019 ES Implementation Report* World Bank: Washington DC.

World Bank (2021) *Doing Business 2020* World Bank: Washington DC.

Statistical Annex

Table SA1 – Description of variables

Dependent variable	**Description**
Sales growth	Change in enterprise sales for the last completed month with the same month in 2019
Employment growth	Change in enterprise employment for the last completed month with the same month in 2019
Closure	1 if a firm was confirmed permanently closed
Production adjustment	1 if enterprise adjusted or converted, partially or fully, its production or the services it offers in response to Covid-19
Digital	1 if enterprise started or increased business activity online; and started or increased delivery or the carrying-out of goods or services online
Remote activity	1 if enterprise started or increased a remote working arrangement for its workforce
Explanatory variables	**Description**
Age	Number of years that the establishment has been in operation
Size	Number of full-time employees
Manufacturing	1 if establishment is in manufacturing
Retail	1 if establishment is in retail
Services	1 if establishment is in services
Exporter	1 if establishment directly exports at least 10 per cent of annual sales
Foreign ownership	1 if establishment has at least 10 per cent of foreign ownership
Female ownership	1 if establishment's most senior manager is a woman
Website	1 if establishment uses website for business related activities
Finance	1 if establishment uses bank loans to finance working capital
Location	1 if establishment is in the capital

Note: dependent variables are drawn from the Covid-19 follow-up survey; explanatory variables from the World Bank's ES 2019.

Table SA2 – Estimation of regression results on employment growth

Employment growth	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Digital	1.037	.508	2.04	.041	.042	2.032	**
Website	.381	.39	0.98	.328	-.383	1.146	
Remote activity	1.32	.563	2.35	.019	.217	2.423	**
Age	-.007	.022	-0.32	.751	-.051	.036	
Retail	.604	.434	1.39	.164	-.247	1.456	
Manufacturing	-.245	.502	-0.49	.626	-1.23	.739	
Small	-.222	.496	-0.45	.654	-1.195	.751	
Medium	-.203	.498	-0.41	.683	-1.179	.773	
Exporter	.257	.464	0.55	.579	-.652	1.167	
Female ownership	.068	.453	0.15	.881	-.819	.955	
Foreign ownership	.812	.555	1.46	.143	-.276	1.9	
Finance access	.082	.381	0.22	.829	-.665	.83	
Constant	-2.342	.669	-3.50	0	-3.653	-1.031	***
Mean dependent var	1.035		SD dependent var		5.125		
Pseudo r-squared	0.29		Number of obs.		344		
Chi-square	14.139		Prob > chi2		0.292		
Akaike crit. (AIC)	250.932		Bayesian crit. (BIC)		300.860		

*** p<.01, ** p<.05, * p<.1

Table SA3 – Estimation of regression results on sales growth

Sales growth	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Digital	1.23	.336	3.66	0	.571	1.89	***
Website	-.051	.314	-0.16	.871	-.666	.564	
Remote activity	-.484	.472	-1.03	.305	-1.408	.441	
Age	-.002	.019	-0.08	.937	-.039	.036	
Retail	.386	.369	1.05	.296	-.338	1.109	

Sales growth	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Manufacturing	-.263	.417	-0.63	.529	-1.081	.555	
Small	-.264	.405	-0.65	.515	-1.057	.53	
Medium	-.5	.421	-1.19	.235	-1.325	.326	
Exporter	-.351	.416	-0.85	.398	-1.166	.463	
Female ownership	.053	.396	0.13	.893	-.723	.83	
Foreign ownership	.905	.499	1.81	.07	-.072	1.882	*
Finance access	.089	.324	0.27	.784	-.546	.724	
Constant	-1.901	.569	-3.34	.001	-3.017	-.785	***
Mean dependent var	0.151		SD dependent var		0.359		
Pseudo r-squared	0.27		Number of obs.		344		
Chi-square	21.402		Prob > chi2		0.045		
Akaike crit. (AIC)	324.877		Bayesian crit. (BIC)		375.996		

*** p<.01, ** p<.05, * p<.1

Table SA4 – Estimation of regression results on production adjustments

Production adjustments	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
Digital	1.354	.336	4.03	0	.695	2.013	***
Website	.167	.236	0.71	.478	-.295	.629	
Remote activity	-.462	.444	-1.04	.298	-1.331	.408	
Age	-.007	.014	-0.48	.631	-.033	.02	
Retail	-.08	.295	-0.27	.785	-.658	.497	
Manufacturing	-.268	.294	-0.91	.363	-.845	.309	
Small	.355	.314	1.13	.257	-.26	.97	
Medium	-.035	.312	-0.11	.912	-.645	.576	
Exporter	.136	.298	0.46	.648	-.448	.72	
Female ownership	.015	.299	0.05	.959	-.57	.6	

Production adjustments	**Coef.**	**St. Err.**	**t-value**	**p-value**	**[95% Conf**	**Interval]**	**Sig**
Foreign ownership	.262	.413	0.63	.526	-.548	1.072	
Finance access	.017	.244	0.07	.945	-.461	.494	
Constant	.306	.418	0.73	.464	-.512	1.125	

Mean dependent var	0.660	SD dependent var	0.474
Pseudo r-squared	0.22	Number of obs.	344
Chi-square	25.132	Prob > chi2	0.014
Akaike crit. (AIC)	483.970	Bayesian crit. (BIC)	535.089

*** p<.01, ** p<.05, * p<.1