

## THE IMPLEMENTATION OF DIGITAL CHANNELS IN BUSINESS PROCESSES AND ACCESS TO FINANCE FOR MSMES IN AZERBAIJAN

N. AKHUNDZADA, I. RZAYEVA

Nazrin Akhundzada<sup>1</sup>, Inara Rzayeva<sup>2</sup>

Azerbaijan State University of Economics (UNEC), Azerbaijan

<sup>1</sup> <http://orcid.org/0000-0001-8049-0318>, E-mail: [nazrin.akhundzada@gmail.com](mailto:nazrin.akhundzada@gmail.com)

<sup>2</sup> <http://orcid.org/0000-0003-2122-0603>, E-mail: [inara\\_rzayeva@unec.edu.az](mailto:inara_rzayeva@unec.edu.az)

***Abstract:** Digitalization is assessed as a factor contributing to the sustainable growth of business entities. Implementation of digital solutions has been recognized as a key tool stimulating expansion and development of micro, small and medium enterprises into the economy. Micro small and medium enterprises represent a vast majority of firms in Azerbaijan. Limited access to financial resources is one of the key challenges exhibited by this size of enterprises. The rate of usage of online services by firms accelerated after COVID-19 pandemic. Despite significant progress during recent years, the adoption level of digital technologies particularly for financial services among population and entrepreneurs still needs to be developed. This article applies time series regression analysis and finds the existence of positive relationship between digitalization of business activities exemplified by e-commerce and the amount of credit funds allocated micro, small and medium business entities. The authors suggest about the existence of other factors that contribute to financial inclusion of small and medium-sized enterprises.*

***Keywords:** digitalization; access to finance; entrepreneurship; e-commerce; e-banking*

### INTRODUCTION

During recent years Azerbaijan experienced remarkable reforms in the improvement of the business environment. According to OECD (2022), the expansion of e-government services by using digital technologies for completing many procedures such as company registration, business licensing, public procurement, customs and visa applications online is evidence of significant progress. The development of SMEs stands out as a crucial goal because these firms are the main contributors to job creation and sustained economic growth. They can also be interpreted as a source of prompt for diversification in the economy which eventually leads to an increase in productivity (OECD, 2019).

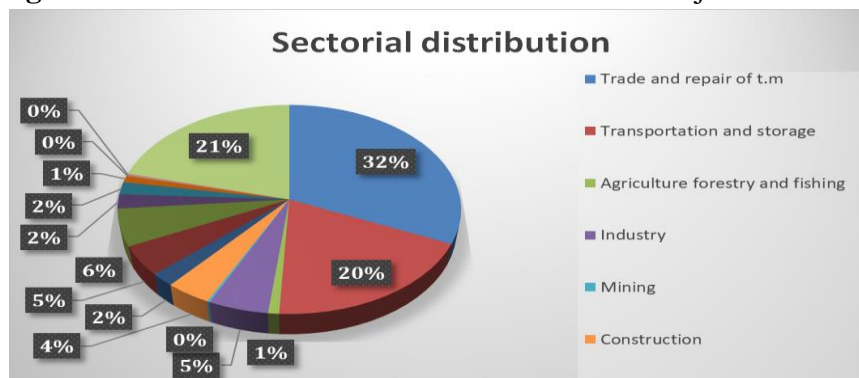
According to State Statistical Committee of The Republic of Azerbaijan (2022) in 2021, the value added generated by MSMEs was 16.4% of the total value added in the economy. This figure was by 16.7% in the previous year. When it comes to the distribution of value added across sectors, 32.7 percent of value added generated by MSMEs was recorded in trade and repair of transport means sector, 13.6 percent in industry and 12.9 percent in construction. As it was mentioned before MSMEs play an important role in job creation. While looking at employment figures of MSMEs, we can observe that there was a 41.8 percent contribution in 2021 to total employment across all firms. Other interesting results were given about investments made by MSMEs. According to published figures in Statistical Yearbook 2021, more than 74.7 percent of investments of MSMEs in fixed assets were financed through internal sources.

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In general, MSMEs represented 99.7 percent of all active enterprises in the country in 2021. Meanwhile, micro firms make up 97.3 percent of all MSMEs. In terms of distribution of MSMEs by economic activity shown in Figure 2, firms registered in trade; repair of transport means constitute 32 percent of the total number, to be precise is 119306 out of 355906 of all enterprises. The next largest share of enterprises is found in the sector with the label "other" which contributes to approximately 21 percent of the total number of firms. These two sectors compose more than half of all MSMEs in the economy. The third place is allocated to transportation and storage activity with 20 percent share.

The goal of this article is to prove empirically the existence of a link between digitalized business services and the accessibility of funding for MSMEs in Azerbaijan. MSMEs that usually suffer from lack of collateral or find it difficult to prepare relevant financial statements about their business may explore the advantages of using digital financial services for payments, savings and borrowing issues. Demand for bank digital services mainly concentrated on consumer products related to mobile banking and payments.

**Figure 1.** Sectorial Distribution of MSMEs in Azerbaijan



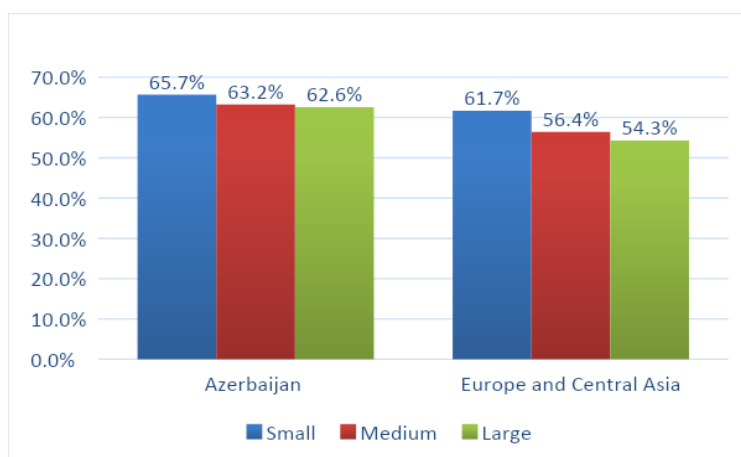
Source: The State Statistical Committee of the Republic of Azerbaijan

Azerbaijan has taken many important actions to support the development of entrepreneurship in the country. There have been implemented several state programs for the development of entrepreneurship and improvement of the business environment up to nowadays.

SWOT analysis performed for SMEs in Azerbaijan mentions strengths and weaknesses along with opportunities and threats that SMEs exhibit in the country in the Strategic Roadmap. From the strong sides, we can point to the existence of legislative framework for the entrepreneurship and constant expansion of the scope of the "electronic governance" system among many other points, whereas from the weakness part, it is worth mentioning the lack of highly qualified professionals, poor business skills, particularly at medium management level and difficulty in access to financial resources. Introduction of private credit bureaus and movable collateral registry creates an opportunity for MSMEs to get financing. Small and Medium Business (SMB) Development Agency of the Republic of Azerbaijan otherwise called "KOBIA" was established to support small and medium businesses by ensuring proper coordination and regulation. One of the steps taken towards the adoption of digital channels by SMEs is introduction of online sales platform for micro, small and medium entrepreneurs called "KobMarket". SMEs can easily register there and sell their products according to relevant guidelines.

As admitted by the State Statistical Committee of the Republic of Azerbaijan (2022), the role of banks in financing capital investments declined in 2021 compared to the importance of internal sources of funding. Meanwhile, the enterprise survey conducted by World Bank by interviewing 225 firms from July 2019 to March 2020 demonstrates in Figure 2 that the percentage of firms of different size not feeling necessary to obtain a loan is higher in Azerbaijan compared to the average of Europe and Central Asia (ECA) region (World Bank, 2020).

**Figure 2.** Percentage of firms not needing a loan



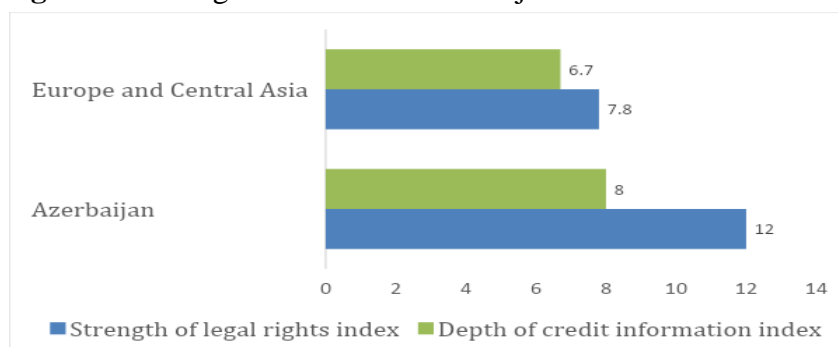
Source: World Bank Enterprise Survey

World Bank (2020) collected data to measure regulations applied to SMEs across 190 economies. One of the dimensions quantitatively measured in this report is getting credit. This indicator focuses on two sets of issues. The first one is the strength of the credit reporting system and the second one is the effectiveness of collateral and bankruptcy laws in facilitating lending. There are two main indexes captured in Figure 3 for Getting Credit Score:

- Strength of legal rights (0-12)
- Depth of credit information (0-8)

The score for strength of legal rights was at a maximum of 12, whereas depth of credit information stood at maximum of 8. These indexes reflect important issues regarding legal framework, collateral registry and distribution of credit data.

**Figure 3.** Getting Credit- 2020. Azerbaijan



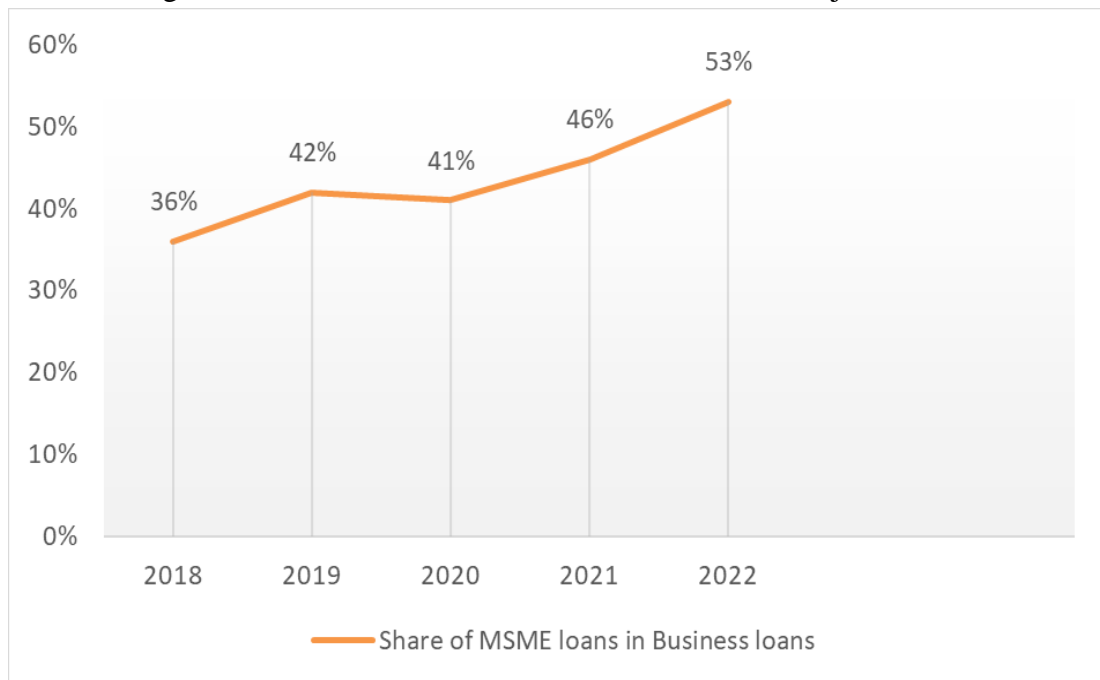
Source: World Bank Doing Business 2020

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Digital Payments Strategy of Central Bank of Azerbaijan for 2021-2023 has been developed to ensure access to affordable payment services for all groups of population and businesses (CBAR, 2021). According to statistics, the volume of e-commerce transactions in the country has increased from 2016 to 2020 by 12.1 times. An upward trend was also found in the usage of e-banking services. As a piece of evidence, 61.6 percent of customer transfers from current accounts were made through e-banking in 2020 compared to 4.5 percent in 2016. However, despite the rapid growth over the last few years, the level of adoption of cashless payments among the population still lags behind those of advanced countries.

Analysis of trends about sources of loans issued for MSME reveals that funding of credits given by banks is mainly financed through internal funds of banks. According to Financial Stability Report prepared by CBAR (2022), the percentage of funds provided by banks accounts for more than 80% of total sources from 2020 to 2022. Regarding the share of MSMEs lending in total business loans, there is a strong upward trend from 2018 until 2022. This indicator obviously states a surge in access to finance for MSMEs so that recently more than half of distributed credit has been given to these types of firms. The growth of business loans continued due to implemented anti-crisis measures to minimize the negative impact during the pandemic period as it is mentioned in Financial Stability Report of 2021(CBAR, 2021).

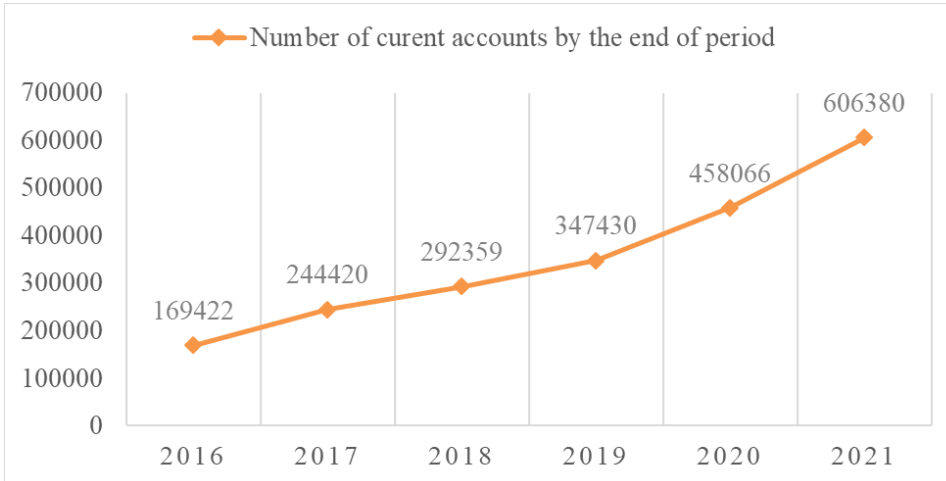
**Figure 4.** Percentage of business loans allocated to MSMEs in Azerbaijan



Source: Central Bank of Azerbaijan

On the other side, the number of opened current accounts in banks for individual entrepreneurs who comprise micro businesses increased dramatically since 2016. Basically, this fact suggests an increase in the usage of banking services by them.

**Figure 5.** Number of opened current accounts by individuals engaged in entrepreneurship



Source: Central Bank of Azerbaijan

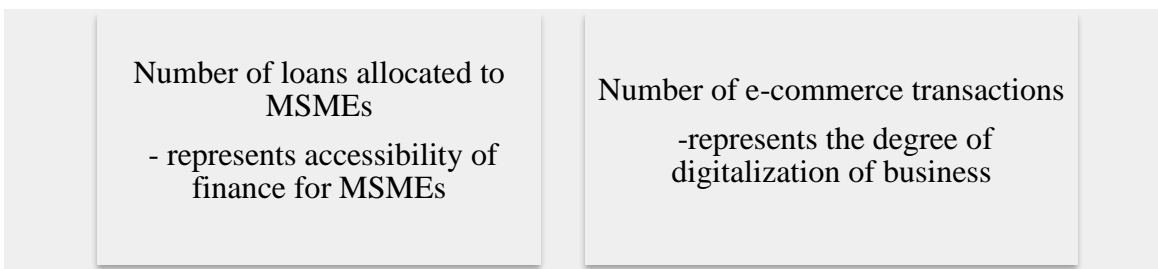
## METHODOLOGY

The absence of relevant financial statements is one of the factors preventing access to finance for MSMEs (CBAR, 2021). On the other hand, the adoption of ICT-based services facilitates access to formal financial resources for MSMEs by making available records of business transactions via digital platforms. By using these records financial institutions can assess the creditworthiness of business entities. E-commerce platforms are one of the bright examples of such experience that enables banks and other financial institutions to obtain relevant information about the business performance of MSMEs. Entrepreneurs who use e-commerce to run their businesses are more likely to achieve financial inclusion (Wirdiyanti, Rosnita, et al. 2022). Digitalization also has an impact on the profitability of banks by increasing return on equity (ROE).

This article applies time series regression analysis for Azerbaijan and investigates the following hypothesis:

- Integration of digital tools into business processes improves the financial inclusion of MSMEs.

**Figure 6.** Proxy variables for regression analysis



To start research, we need to identify relevant variables for running a quantitative analysis. Firstly, we perform correlation analysis. There are two variables in Figure 7 that are the most relevant ones, according to the existing literature, to analyse the relationship between the digitalization of business operations and getting access to financial resources for MSMEs. Another factor which plays

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an important role for MSMEs in getting access to financial resources is asset quality in the banking system, according to Armand, Ndoye and Sydorenko (2020). Asset quality can be measured by portfolio of non-performing loans (NPL) of the banking sector. The ratio of defaulting loans in Azerbaijan followed a sharp decline within consecutive years and reached 3.8 percent in 2022 (Central Bank of The Republic of Azerbaijan, 2022).

To normalize figures for the variables we use logarithmic functional forms. Two explanatory variables with intercept are included in the regression. The tendency to turn to digital channels expanded intensively after the COVID-19 pandemic when due to circumstances many operations were held online. Due to the novelty of this trend in the country and the relative scarcity of available data, the time span for analysis is short. The preliminary check of the time series indicates the existence of an upward trend from 2018 to 2022 for e-commerce transactions and loans provided to MSMEs, whereas for the portfolio of non-performing loans the opposite downward trend comes true as it is shown in Figure 7.

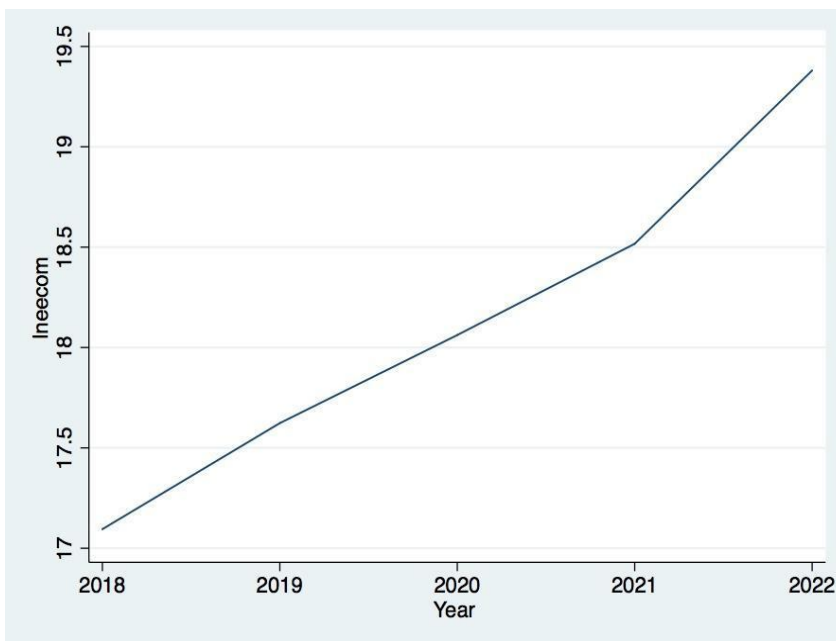
The baseline regression model 1 is the following equation:

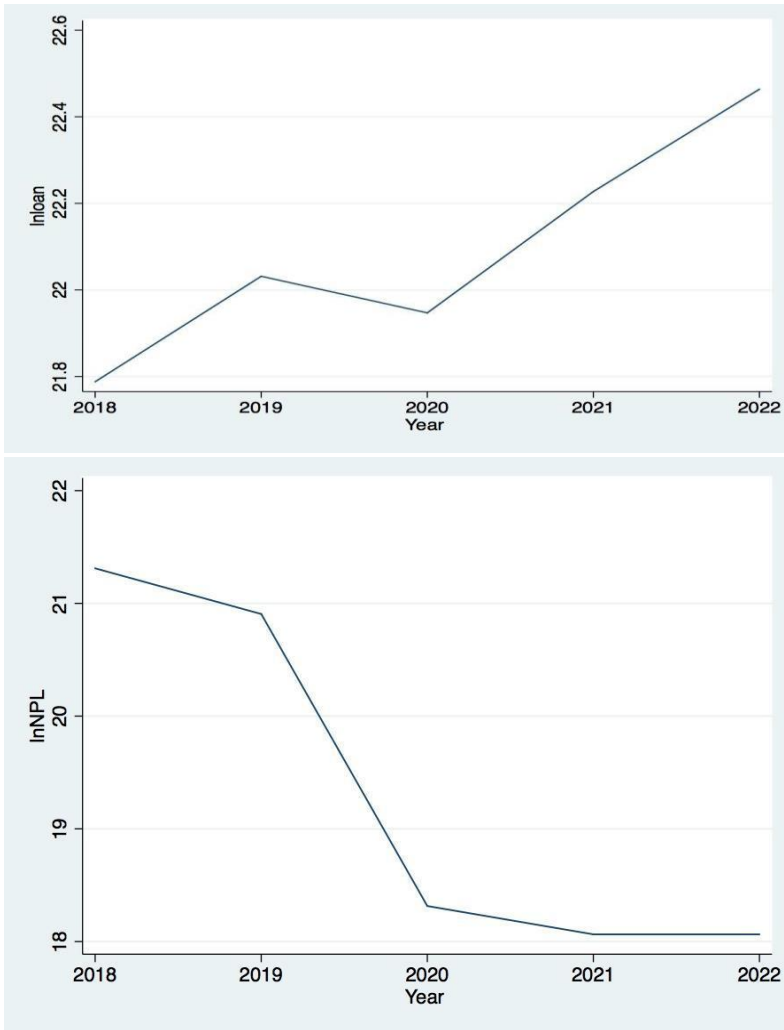
$$\bullet \quad \mathbf{LnLoan}_t = \alpha + \beta_1 \mathbf{Lnecommerce}_t + \beta_2 \mathbf{LnNPL}_t + \varepsilon_t \quad (1)$$

Notation:

- $\alpha$ - intercept
- $\beta_1$ - slope coefficient on log function of e-commerce transactions held within country
- $\beta_2$ - slope coefficient on log function of non-performing loans portfolio

**Figure 7.** Time series graphs of key variables:  $\ln$ ecommerce,  $\ln$ loan,  $\ln$ NPL respectively





(Source: Authors' calculations)

### RESULTS

The data set is obtained from Central Bank of Azerbaijan and captures years from 2018 to 2022. The correlation coefficient measures the linear association between two variables. This coefficient is computed as the square root of R-squared obtained by regressing one variable on the other. A sign of coefficient shows whether the relationship is positive or negative.

The correlation matrix in Table 1 illustrates a strong positive correlation with a correlation coefficient 0.95 between credit funds allocated to MSMEs and e-commerce transactions conducted in the country. By contrast, the number of non-performing loans demonstrates a strong negative correlation with the amount of loans given to MSMEs. Their coefficient of correlation is -0.69.

**Table 1:** Correlation Analysis (Source: Authors' calculations)

Variable	Lnloan	LnEcommerce	LnNPL
<i>Lnloan</i>	<b>1.0</b>	<b>1.0</b>	
<i>Lnecommerce</i>	<b>0.95</b>		
<i>LnNPL</i>	<b>-0.69</b>	<b>-0.85</b>	<b>1.0</b>

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Assuming that classical linear regression model assumptions hold, we regress our dependent variable log function of loans to MSMEs on two independent variables namely log function of e-commerce transactions and log function of NPL portfolio. Regression output (Table 2) demonstrates coefficients of both regressors  $\beta_1$  and  $\beta_2$ .

**Table 2:** Regression Results for model 1 (Source: Authors' calculations)

Variable	Coefficient	p-value
LnNPL	0.06	0.24
Lnecommerce	0.39	0.03
Cons.	13.6	0.02

R-squared which measures goodness of fit is around 96 percent. According to obtained estimates, the implementation of e-commerce practices within the country positively affects the accessibility of credit funds for MSMEs. However, the regression output did not illustrate a significant coefficient for asset quality. Presumably, a small sample creates bias and inconsistency. Another possible explanation could be the irrelevance of NPL portfolio as an indicator for analysis as it captures asset quality within all the types of issued loans not only business loans. The only reasonable concluding remark from this time series analysis is that there is a strong positive relationship between the financial inclusion of MSMEs and digitalization of business in Azerbaijan.

It implies that these variables move in the same direction. To eliminate the assumption of heteroskedasticity, we apply Breusch-Pagan test for heteroskedasticity in Table 3. As it is obvious from p-value, we accept the null hypothesis of homoscedasticity and there is no need to use robust standard errors.

**Table 3:** Breusch- Pagan Test for heteroskedasticity

Chi2(1)	0.02
Prob (chi2)	<b>0.87</b>

## CONCLUSIONS

This article discussed the current state of MSMEs in the framework of digitalization trends in Azerbaijan. The importance of the digital technologies is highlighted to achieve sustainable development. Access to formal financial resources has been recognized as one of the main obstacles for MSMEs. Considering that nowadays digitalization stands as a prominent factor for the development of MSMEs, the analysis includes an evaluation of the digitalization process and its implementation into business practices through conduction of e-commerce transactions. This hypothesis was tested for Azerbaijan as we have found positive dynamics in loans attributed to

MSMEs as well as in the usage of digital tools by business owners within the country during recent years. The results showed a positive correlation for both indicators and suggested a positive impact on the external financing of MSMEs generated by the appliance of digital mechanisms in business processes. However, due to the scarcity of data, we could not prove the existence of a statistically significant relationship between loans issued for MSMEs and asset quality in the banking sector as it was expected. Further investigation may involve a detailed analysis of all possible determinants of financial inclusion of small and medium-sized enterprises including firm-specific, macroeconomic and institutional factors.



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