SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2025
ORGANIZATION AND MANAGEMENT SERIES NO. 226

THE VULNERABILITY OF THE SME SECTOR TO BUSINESS CYCLES

Aleksandra BIELAWSKA

University of Gdansk; aleksandra.bielawska@ug.edu.pl, ORCID: 0009-0005-2652-5360

Purpose: The significance of small and medium-sized enterprises (SMEs) for economic development is recognized in Poland and globally. The cornerstone of this article's discussions is the idea that the SME sector embodies the strength of each economy and its ability to withstand external challenges. This paper seeks to advance the existing state of the art by providing a literature review on the diverse perspectives concerning the influence of a company's size on its vulnerability to business cycles.
Design/methodology/approach: The article provides a literature review regarding the two hypotheses: 1. SMEs are more vulnerable to economic fluctuations than large enterprises. 2. SMEs are more resilient to economic fluctuations than large enterprises.
Findings: The literature studies conducted do not provide a specific and convincing answer to whether the SME sector is less vulnerable to and, as a result, more resilient to business cycle fluctuations than the large enterprises sector. In other words, the literature review results do not confirm that the SME sector is less vulnerable to recession than the large enterprise sector. At the same time, the above conclusions do not support the statement that the small and medium-sized enterprise sector has proven to be more vulnerable to the recession than the large enterprise sector. The relationship between a firm's size and its vulnerability to economic fluctuations is complex and often ambiguous.
Practical implications: Insights may be crucial for shaping policies that support businesses and foster entrepreneurship.
Originality/value: This paper is directed towards policymakers and seeks to impart knowledge regarding the support of entrepreneurship, particularly in relation to the business cycle.
Keywords: SME sector, vulnerability, business cycle, economic growth.
Category of the paper: Literature review.

1. Introduction

The small and medium-sized enterprises (SMEs) sector is an extremely important part of modern market economies, given its share of the total number of businesses, contribution to employment, and gross value added. The belief that the SME sector reflects the strength of individual economies and that its resilience to external shocks is essential for their development

serves as the foundation and starting point for the considerations presented in this article. Analyzing the relationship between company size and economic fluctuations, the literature presents arguments supporting both hypotheses: 1. SMEs are more vulnerable to economic fluctuations than large enterprises. 2. SMEs are more resilient to economic fluctuations than large enterprises. The conclusion largely depends on the indicators used in the analysis - specifically, the measures of economic conditions and the indicators of vulnerability (Lechman, Dominiak, 2016).

The article provides a literature review regarding the two previously mentioned hypotheses. The first part of the study highlights the role of the SME sector in the growth and economic development of highly developed countries. Analyzing demographic changes underscores the concept of creative destruction (Schumpeter, 1934) and business survival rates. The analysis also examines changes in employment and the contribution of the SME sector to gross value added. The study focuses on the non-financial sector of the EU-27 countries, with particular emphasis on Poland. The second part of the article assesses the vulnerability of the SME sector to economic fluctuations. It provides a brief overview of vulnerability as an economic concept, which has gained increasing importance, especially in light of the economic crisis that began in 2008. The article further examines the factors that affect the vulnerability of small and medium-sized enterprises to economic fluctuations. The third part of the article presents an overview of the latest global reports regarding the relationship between firm size and changing economic conditions. It emphasizes that a business's age has a more significant impact on stability during economic fluctuations than its size. The final section concludes the paper.

2. Discussion

2.1. The importance and economic effects of the SME sector

The relationship between the state of the SME sector and economic growth and development is crucial. SMEs constitute a significant portion of the overall business population, create jobs, and generate gross value added. In 2023, the SME sector accounted for 99.8% of all active businesses in the EU-27 countries. Small and medium-sized enterprises comprised 65.2% of employment and 53.1% of gross value added (Figure 1).

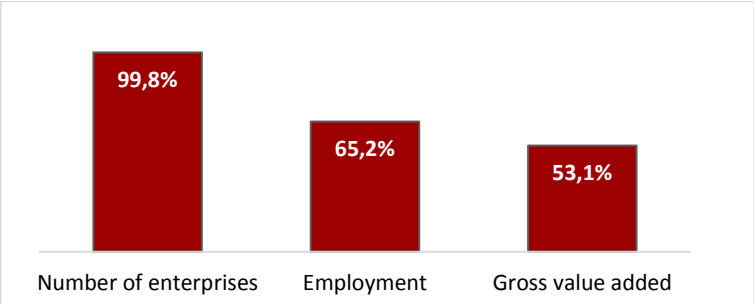

Figure 1. The share of the SME sector in terms of the number of enterprises, employment, and gross value added within the non-financial business sector across the EU-27 countries in 2023.

Source: European Commission, 2024, SME Performance Review, Annual Report on European SMEs 2023/2024, Luxembourg.

The observation of changes in the number of businesses in Poland, based on data from the Central Statistical Office, over recent years indicates a 32.6% increase in the number of firms between 2013 and 2022 (Figure 2).

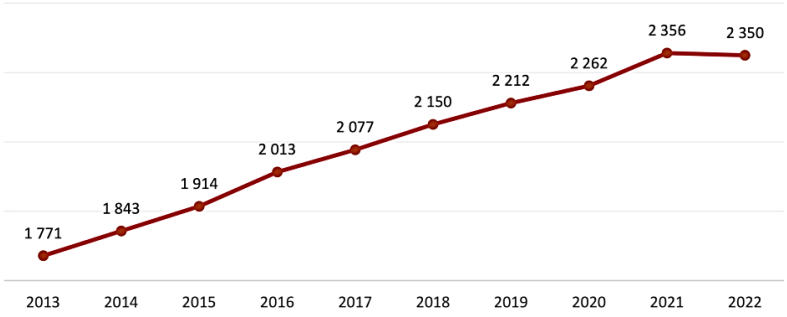

Figure 2. Number of active enterprises in Poland from 2013 to 2022 (in thousands).

Source: Polish Agency for Enterprise Development, 2024, Small and medium-sized enterprises in Poland, Warsaw.

The number of large and medium-sized enterprises remained relatively stable from 2014 to 2023. Micro-enterprises experienced the most notable growth, whereas small enterprises experienced a decline (Figure 3).

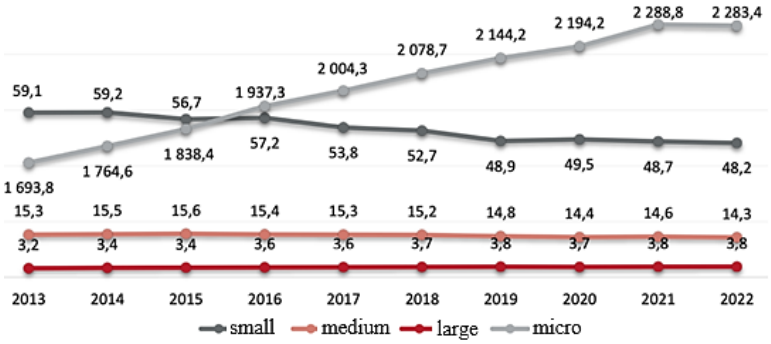

Figure 3. Number of active businesses in Poland categorized by size from 2013 to 2022 (in thousands).

Source: Polish Agency for Enterprise Development, 2024, Small and medium-sized enterprises in Poland, Warsaw.

The influence of small and medium-sized enterprises (SMEs) on macroeconomic outcomes arises not only from their significant share of the overall business population but also from their economic contribution through creative destruction, which is characterized by a continuous process of entry and exit (Schumpeter, 1934). Demographic changes foster competition and underscore the potential role of new businesses in driving economic growth, employment, and productivity (Decker et al., 2014; Garcia-Macia et al., 2019).

The number of new businesses in Poland has remained relatively stable from 2014 to 2023, with a minor drop in 2019-2020. In contrast, business closures experienced more significant fluctuations, especially from 2018 to 2023 (Figure 4).

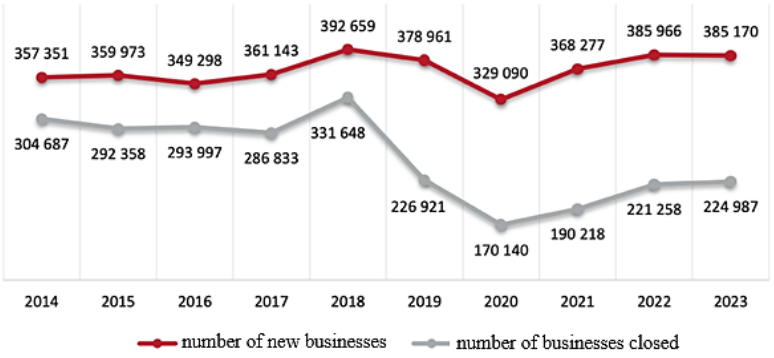

Figure 4. The number of new and closed businesses in Poland from 2014 to 2023 (in thousands).

Source: Polish Agency for Enterprise Development, 2024, Small and medium-sized enterprises in Poland, Warsaw.

The analysis of business dynamics also highlights the importance of start-ups and young firms in creating jobs, despite the higher failure rate among new businesses, particularly in their first year. In Poland, the highest percentage of businesses fail within their first year of operation - the survival rate for 2022/2023 was 67.0%, indicating that nearly one in three businesses closed. In the following years, the survival rate improves. The survival rate for businesses founded in 2018 by their fifth year (2023/2018) was 92.4% (Figure 5), emphasizing the long-term viability of older SMEs.

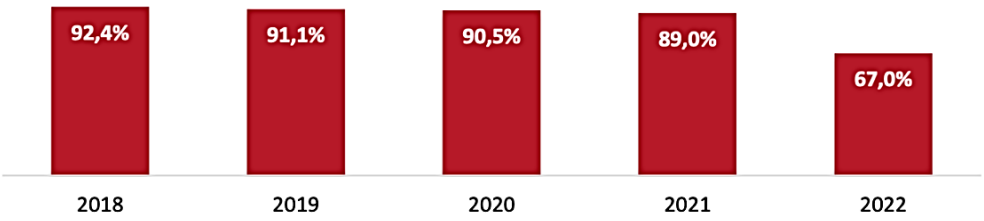

Figure 5. Businesses established from 2018 to 2022 that remain active in 2023 – survival rate for 2023 compared to 2022 (in %).

Source: Polish Agency for Enterprise Development, 2024, Small and medium-sized enterprises in Poland, Warsaw.

Since the 1990s, employment has significantly stabilized in all size classes of enterprises in European economies (Daszkiewicz, Wach, 2013). In the EU-27 countries, the employment dynamics rate is higher in the entire SME sector than in the large enterprise sector. Moreover, the pace of employment changes decreases as the size of the company increases (Table 1).

Table 1.
Average annual employment growth rate in the non-financial sectors of the EU-27 for 2023 (in %)

Economy	Large enterprises	SME sector	SME in details		
			micro	small	medium
EU-27	1,2	1,8	2,3	1,6	1,1

Source: Own study based on European Commission, 2024, SME Performance Review, Annual Report on European SMEs 2023/2024 Luxembourg.

According to data from the Central Statistical Office, businesses generate nearly two-thirds of Poland's GDP (PARP, 2024). SMEs contribute over 50% to the gross value added generated by all Polish businesses. The table below shows the differences in gross value added produced by different size classes of businesses in Poland and the EU-27 countries (Table 2).

Table 2.
Contribution of the SME sector to the gross value added in the non-financial business sector of Poland and the EU-27 countries 2023

Economy	Large enterprises	SME sector	SME in details		
			micro	small	medium
Poland	49,7	50,3	19,3	15,1	16,0
EU-27	46,9	53,1	19,8	16,8	16,6

Source: Own study based on European Commission, 2024, 2024 SME Country Fact Sheet Poland and 2024 SME Fact Sheet European Union, Luxembourg.

Poland has one of the lowest shares of the SME sector in generating value-added compared to other EU countries (Table 2). This can be seen as a legacy of the centrally planned economy, where the previous dominance of large-scale production continues to influence the structure of value-added creation throughout the economy (Kokocińska, 2012).

2.2. Vulnerability as an economic concept

The rising importance of vulnerability to global economic fluctuations is associated with growing globalization, technological progress, and increasing negative economic shocks. In a macroeconomic dimension, vulnerability can be understood as susceptibility to external influences that disrupt a given economy's expected development path. In a narrower sense, vulnerability refers to economic structures and their ways of mitigating adverse shocks and threats and taking advantage of emerging opportunities without structural changes (Gawlikowska-Hueckel, Szlachta, 2014). The terms resilience and adaptive capacity are often used interchangeably in the literature. These concepts are described as the system's flexibility, stability, extensive tolerance range, and coping ability (Eklund et al., 2023). There remain many

ambiguities surrounding vulnerability and its measurement, both in terms of terminology and research methodology (Palosaari et al., 2024). Vulnerability is a multidimensional concept, and its definition varies based on the research objective and the methodology adopted (Deppisch, 2017). Tasanuva et al. (2022) propose various types of analyses to assess vulnerability, including comparative analysis, indicator-based methods, and statistical analysis. Key factors affecting SME sector vulnerability to economic fluctuations include the following:

1. The structure of the SME population. Micro-enterprises are the most vulnerable to economic fluctuations. Therefore, the larger the share of micro-enterprises within the SME population, the more vulnerable the entire sector becomes to changes in the business cycle.
2. The share of SMEs in the creation of gross value added.
3. SMEs' structure and diversification (Pedauga et al., 2022). Construction, the automotive industry, transportation, tourism and recreation, and luxury goods are among the sectors most vulnerable to economic fluctuations. In contrast, the services sector exhibits high resilience to economic changes (Gupta et al., 2023). Additionally, the medical industry (Beller et al., 2023) and the public utilities sector (Gajdosikova, Vojtekova, 2024) are less vulnerable to economic downturns.
4. The maturity of the SME sector. Small and medium-sized enterprises' vulnerability to economic fluctuations depends on the sector's age (Seimer, 2019). Young firms (those no more than 5 years old or employing fewer than 20 employees) are more vulnerable to these fluctuations than older, established firms (Haltiwanger et al., 2013; Kim et al., 2024).
5. The level of internationalization. SMEs engaged internationally tend to be more innovative and achieve greater employment growth (Jabar et al., 2016; Daszkiewicz, 2019).
6. The degree of innovation. Innovative companies frequently experience employment growth, which tends to be greater than that of non-innovative firms (Santoreli, 2020). Additionally, unlike their non-innovative counterparts, innovative companies can maintain a high growth rate over the long term. Among declining firms, non-innovative companies often experience a more rapid deterioration in economic performance compared to innovative ones (Ciriaci et al., 2016). Furthermore, during the economic crisis of 2009 - 2010, innovative economies felt the effects of the recession much more mildly than less innovative economies (De Kok, De Witt, 2014).

2.3. Company size and economic fluctuations

Analyzing the relationship between company size and economic fluctuations, the literature presents arguments supporting both hypotheses: 1. SMEs are more vulnerable to economic fluctuations than large enterprises. 2. SMEs are more resilient to economic fluctuations than large enterprises (Chari et al., 2007; Crouzet, Mehrotra, 2020).

Gertler and Gilchrest (1994), Cravo (2011), Lai et al. (2016), and Seimer (2019) support the hypothesis that SMEs are significantly more vulnerable to external shocks. However, research by Moscarini and Postel-Vinay (2012) shows that large enterprises respond more sharply to changes in economic conditions than smaller firms. Kudlyak and Sanchez (2016) indicate that the sales of large firms declined relatively more than those of small firms during the 2008 financial crisis and in most recessions since 1969.

At the same time, Fort et al. (2013) and Mehrotra and Sergeyev (2016) highlight a missing element in the above analyses, specifically the need to differentiate between a firm's size and age. The findings from Fort et al.'s (2013) research on the U.S. economy indicate that small, young firms are more vulnerable than both their small, older counterparts and large, older firms (it was assumed that young firms are no older than 5 years, and small firms employ fewer than 20 people). However, comparing vulnerability between small and large, older firms yielded few definitive conclusions.

The debate surrounding the connection between firm size, employment growth, and resilience to external shocks also engaged Haltiwanger et al. (2013). Their research indicates that a firm's age is a more crucial factor than its size in explaining variations in responses to external shocks. Challenging the belief that the SME sector generates most jobs, they examined data from the U.S. economy from 1976 to 2005. Nonetheless, they found no statistically significant correlation between firm size and employment growth. However, they observed that a firm's age significantly impacts job creation. Highlighting the importance of start-ups and young firms, the authors emphasize that these businesses typically either expand or exit the market, demonstrating an "up or out dynamic". When a young firm manages to survive, it typically grows faster and more aggressively than its older counterparts. These innovative, fast-growing firms, comprising a small percentage of SMEs, are responsible for creating the majority of jobs in this sector (Dachs, Peters, 2014; Haltiwanger, 2016).

Innovative companies are more likely to experience employment growth, which is usually greater than non-innovative firms (De Kok et al., 2011). Moreover, Dachs and Peters (2016) research shows that internationalized SMEs are more innovative and experience higher employment growth. In addition, innovative economies during 2009–2010 were significantly less affected by the crisis than their less innovative counterparts (De Kok et al., 2011). This supports the positive relationship between innovation and employment (Ciriaci, 2016).

3. Summary

The literature studies conducted do not provide a specific and convincing answer to whether the SME sector is less vulnerable to and, as a result, more resilient to business cycle fluctuations than the large enterprises sector. In other words, the literature review results do not confirm that

the SME sector is less vulnerable to recession than the large enterprise sector. At the same time, the above conclusions do not support the statement that the small and medium-sized enterprise sector has proven to be more vulnerable to the recession than the large enterprise sector. The relationship between a firm's size and its vulnerability to economic fluctuations is complex and often ambiguous. Current literature reveals contradictory results, predominantly influenced by variables such as the age of the enterprises, their ability to innovate, and their exposure to the international market. Future research should examine these factors to understand better how companies navigate economic challenges. These findings can be vital for policymakers, particularly in light of economic uncertainties. Policies that promote innovation and internationalization could strengthen the resilience of small and medium-sized enterprises.

References

1. Beller, J., Schäfers, J., Haier, J., Geyer, S., Epping, J. (2023). Trust in Healthcare during COVID-19 in Europe: vulnerable groups trust the least. *Journal of Public Health*, *Vol. 31*, pp. 1495-1504, doi: 10.1007/s10389-022-01705-3
2. Chari, V. V., Christiano, L., Kehoe, P. (2007). *The Gertler – Gilchrist Evidence on Small and Large Firm Sales.* mimeo, Northwestern University.
3. Ciriaci, D., Moncada-Paternò-Castello, P., Voigt, P. (2016). Innovation and job creation: a sustainable relation? *Eurasian Economic Review, Vol. 6, Iss. 2,* pp. 189-213, doi: 10.1007/s40821-015-0031-3
4. Cravo, T.A. (2011). Are small employers more cyclically sensitive? Evidence from Brazil. *Journal of Macroeconomics, Vol. 33, Iss. 4,* pp. 754-769, doi: 10.1016/j.jmacro. 2011.06.003
5. Crouzet, N., Mehrotra, N.R. (2020). Small and Large Firms over Business Cycle. *American Economic Review, Vol. 110, Iss. 11*, pp. 3549-3601, DOI:10.21034/wp.741
6. Dachs, B., Peters., B. (2014). Innovation, employment growth, and foreign ownership of firms: A European perspective. *Research Policy, Vol. 43, Iss. 1*, pp. 214-232, doi: 10.1016/j.respol.2013.08.001
7. Daszkiewicz, N. (ed.) (2019). *The Internationalization of High-Tech Firms: Patterns, Innovation, and Research and Development.* Newcastle upon Tyne: Cambridge Scholars Publishing.
8. Daszkiewicz, N., Wach, K. (2013). *Małe i średnie przedsiębiorstwa na rynkach międzynarodowych.* Kraków: Wydawnictwo Uniwersytetu Ekonomicznego.
9. De Kok, J., de Witt, G. (2014). Do small businesses create more jobs? New evidence for Europe. *Small Business Economics, Vol. 42, Iss. 2,* pp. 283-295, doi:10.1007/s11187-013-9480-1

10. De Kok, J., Vroonhof, P., Verhoeven, W., Timmermans, N., Kwaak, T., Snijders, J., Westhof, N. (2011). *Do SMEs create more and better jobs?* EIM Business & Policy Research, Zoetermeer. doi:10.13140/2.1.3308.1282
11. Decker, R., Haltiwanger, J., Jarmin, R., Miranda, J. (2014). The Role of Entrepreneurship in US Job Creation and Economic Dynamism. *Journal of Economic Perspectives, Vol. 28, Iss. 3,* pp. 3-24, doi: 10.1257/jep.28.3.3
12. Deppisch, S. (ed.) (2017). *Urban regions now & tomorrow, Between vulnerability, resilience and transformation.* Springer.
13. Eklund, G., Sibilia, A., Salvi, A., Antofie, T.E., Poljansek, K., Marzi. S., Gyenes, Z., Corbane, C. (2023). *Towards a European wide vulnerability framework A flexible approach for vulnerability assessment using composite indicators, Report number: JRC118850, Affiliation: European Commission,* doi: 10.2760/353889
14. European Commission (2024). *2024 SME Country Fact Sheet Poland.* Luxembourg.
15. European Commission (2024). *2024 SME Fact Sheet European Union.* Luxembourg.
16. European Commission (2024). *SME Performance Review, Annual Report on European SMEs 2023/2024.* Luxembourg.
17. Fort, T.C., Haltiwanger, J., Jarmin, R.S., Miranda, J. (2013). How firms respond to business cycles: The role of firm age and firm size. *IMF Economic Review, Vol. 61, Iss. 3*, doi: 10.1057/imfer.2013.15
18. Gajdosikova, D., Vojtekova, S. (2024). Comparative Analysis of Business Environment Dynamics in Central and Eastern Europe: A multi-criteria approach. *Economies, Vol. 12, Iss. 12,* p. 320, doi: 10.3390/economies12120320
19. Garcia-Macia, D., Hsieh, Ch.-T., Klenow, P.J. (2019). How destructive is innovation? *Econometrica, Vol. 87, Iss. 5,* pp. 1507-1541, doi: 10.3982/ECTA14930
20. Gawlikowska-Hueckel, K., Szlachta, J. (eds.) (2014). *Wrażliwość polskich regionów na wyzwania współczesnej gospodarki, Implikacje dla polityki rozwoju regionalnego.* Warszawa: Wolters Kluwer.
21. Gertler, M., Gilchrist, S. (1994). Monetary Policy, Business Cycles, and the Behavior of Small Manufacturing Firms. *The Quarterly Journal of Economics, Vol. 109, Iss. 2,* pp. 309-340, doi: 10.2307/2118465
22. Gupta, R., Mahadi, H., Islam, S., Yasmin, T., Uddin, J. (2023). Evaluating the Brexit and COVID-19's influence on the UK economy: A data analysis. *PLOS ONE, Vol. 18, Iss. 6,* doi: 10.1371/journal.pone.0287342
23. Haltiwanger, J., Jarmin, R.S., Kulick, R., Miranda, J. (2016). High growth young firms: Contribution to job, output, and productivity growth. In: J. Haltiwanger, E. Hurst, J. Miranda, A. Schoar, A. (eds.), *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges* (pp. 11-62). Chicago, USA: University of Chicago Press.

24. Haltiwanger, J., Jarmin, R.S., Miranda, J. (2013). Who Creates Jobs? Small versus Large versus Young. *The Review of Economics and Statistics, Vol. 95, Iss. 2,* 347-361, doi:10.1162/REST_a_00288
25. Jabar, F.H.A., Tajuddin, N., Paino, H. (2016). Internationalization of Small and Medium Enterprises. In: N. Mohd Sidek, S. Ali, M. Ismail (eds.), *Proceedings of the ASEAN Entrepreneurship Conference 2014*. Singapore: Springer. doi: 10.1007/978-981-10-0036-2_14
26. Kim, J., Choi, J., Goldschlag, N., Haltiwanger, J. (2024). *High-growth firms in the United States: Key trends and new data opportunities*. Finance and Economic Discussion Series, DOI: doi: 10.17016/FEDS.2024.074
27. Kokocińska, M. (2012). *Małe i średnie przedsiębiorstwa w gospodarkach europejskich*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.
28. Kudlyak, M., Sánchez, J.M. (2016). *Revisiting the Behavior of Small and Large Firms during the 2008 Financial Crisis*. Working Paper Series. Federal Reserve Bank of San Francisco. doi: 10.24148/wp2016-22
29. Lai, Y., Saridakis, G., Blackburn, R., Johnstone, S. (2016). Are the HR responses of small firms different from those of large firms in times of recession? *Journal of Business Venturing, Vol. 31, Iss. 1*, pp. 113-131. doi: 10.1016/j.jbusvent.2015.04.005
30. Lechman, E., Dominiak, P. (2016). Entrepreneurship vulnerability to business cycle. A new methodology for identification pro-cyclical and counter-cyclical patterns of entrepreneurial activity. *MPRA Paper, 68793*. Germany: University Library of Munich.
31. Moscarini, G., Postel-Vinay, F. (2012). The Contribution of Large and Small Employers to Job Creation in Times of High and Low Unemployment. *American Economic Review, Vol. 102, Iss. 6*, pp. 2509-2539, doi: 10.1257/aer.102.6.2509
32. Palosaari, M., Autio, A., Mbinga, E., Pelikka, P., Johansson, T. (2024). The biased narrative of vulnerable women: gender analysis of smallholder farmers' contextual vulnerability to climate change in the Taita Hills, Kenya. *Mitigation and Adaptation Strategies for Global Change, Vol. 29, Iss. 6,* doi: 10.1007/s11027-024-10147-z
33. Pedauga, L., Sáez, F., Delgado-Márquez, B.L. (2022). Macroeconomic lockdown and SMEs: the impact of the COVID-19 pandemic in Spain. *Small Business Economics, Vol. 58, Iss. 2*, pp. 665-688. doi: 10.1007/ s11187-021-00476-7
34. Polish Agency for Enterprise Development (2024). *Small and medium-sized enterprises in Poland.* Warsaw.
35. Santoleri, P. (2020). Innovation and job creation in (high growth) new firms. *Industrial and Corporate Change, Vol. 29, Iss. 3*, pp. 731-756. doi: 10.1093/icc/dtz059
36. Schumpeter, J.A. (1934). *The theory of economic development.* Oxford, UK: Oxford University Press.
37. Sergeyev, D., Mehrotra, N. (2016). Financial Shocks and Job Flows. *CEPR Discussion Papers, 11677*. C.E.P.R. Discussion Papers.

38. Siemer, M. (2019). Employment Effects of Financial Constraints during the Great Recession. *Review of Economics and Statistics, Vol. 101, Iss. 1*, pp. 16-29 doi: 10.1162/rest_a_00733
39. Tasanuva, A., Bari, Q.H., Reza, A., Islam, T., Alam, M. (2022). Livelihood and Climate Vulnerability of Coastal Communities to Natural Disaster in South-Western Bangladesh. *International Journal of Sustainable Development & World Ecology, Vol. 30, Iss. 3,* pp. 295-318, doi: 10.1080/13504509.2022.2142691