

The relationship between countries' innovation, technological activities and local competitiveness in the internationalization of businesses

Vajihe Baghersad^{1*}, Elham Garmroud Esfandiari², Morteza Akbari³


1. Department of Management, National University of Skills (NUS), Tehran, Iran.
2. Department of Corporate Entrepreneurship, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran.
3. Department of Technological Entrepreneurship, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran.

Article Info	Abstract
<p>Applied Article</p> <p>Main Object: Multidisciplinary Scope: World Studies</p> <p>Received: 19 November 2024 Revised: 13 December 2024 Accepted: 22 December 2024 Published online: 30 December 2024</p> <p>Keywords: fsQCA, innovation, international entrepreneurship, local competition, structural modeling, technological activities.</p>	<p>Competition in international markets is increasingly complicated; Innovation and technological activities are considered key factors in the success of the internationalization of businesses. This research is designed to investigate the impact of national innovation, technological activities, and local competition on the process of internationalization of businesses. For this purpose, international data have been collected from 2015 to 2019, and the required analyses have been performed using quantitative and fuzzy methods, including structural equation modeling (SEM) and qualitative comparative analysis of fuzzy sets (fsQCA). The findings of this research show that innovation and technological activities have a positive and significant effect on the internationalization of businesses. On the contrary, local competitions significantly negatively affect this process. In addition, innovation as a moderating factor can reduce the negative effects of local competition and turn them into an opportunity to strengthen competitive advantage. These results emphasize the importance of investing in innovation and technology as effective factors in strengthening the ability to compete in global markets. The current research also provides solutions for managers and policymakers to improve the international performance of businesses and contribute to the economic development of the country by effectively managing local competition and exploiting innovative opportunities.</p>

Cite this article: Baghersad V, Garmroud Esfandiari E, Akbari M. (2025). "The relationship between countries' innovation, technological activities and local competitiveness in the internationalization of businesses". *Countries Studies*. 3(2): 83-91. doi: <https://doi.org/10.22059/jcountst.2024.385553.1191>.



Creative Commons Attribution-NonCommercial 4.0 International License
 Website: <https://jcountst.ut.ac.ir/> | Email: jcountst@ut.ac.ir |
 EISSN: 2980-9193
 Publisher: University of Tehran

* Corresponding author: vbaghersad@nus.ac.ir,  <https://orcid.org/0000-0002-8134-8855>

Extended Abstract**Introduction**

In a world where competitiveness in international markets is becoming increasingly complex, organizations face numerous challenges in maintaining and enhancing their competitive capabilities. Innovation and the utilization of new technologies are among the factors that can help companies succeed in these markets.

Aims

This study aims to examine the impact of national innovation, technological business activities, and local competition on the internationalization of businesses. Analyzing the moderating and mediating roles of these factors in the process of internationalization is another key objective of this research. Therefore, the present study seeks to provide a more comprehensive understanding of these complex relationships, addressing gaps in the literature that have not fully analyzed the interactions between innovation, technology, and local competition, and offering effective strategies for managers and policymakers to strengthen these factors.

Methods

This study employs both quantitative and fuzzy approaches to examine the impact of national innovation, technological business activities, and local competition on the internationalization of businesses. Data for this research were collected from reputable international sources covering the years 2015 to 2019. Information on the variables of business internationalization (percentage of companies' income from exports to total entrepreneurial activities) and technological business activities (percentage of companies active in high or medium technology sectors to total entrepreneurial activities) was gathered from the Global Entrepreneurship Monitor (GEM). Data on national innovation levels (overall innovation performance of a country based on factors such as human capital, infrastructure, business sophistication, and market sophistication) and local competition (level of competition in the local market) were extracted from the Global Innovation Index (GII).

The data analysis was conducted using SPSS, fsQCA, and smartPLS software. Statistical analyses in this study utilized the fuzzy-set qualitative comparative analysis (fsQCA) method to analyze complex effects and interactions between variables, as well as the structural equation modeling (SEM) method to examine relationships between variables and the moderating and mediating effects. To ensure the reliability and validity of the measurement instruments, Cronbach's alpha, composite reliability (CR), and convergent validity indices were employed. Additionally, the Fornell and Larcker (1981) criterion and the HTMT ratio were used to assess discriminant validity among constructs.

Results

The analysis results indicated that innovation and technological activities have a significant positive impact on the internationalization of businesses. In SEM analysis, it was found that national innovation and technological activities positively influence business internationalization with path coefficients of 0.820 and 0.481, respectively. Additionally, local competition showed a significant negative impact on internationalization with a path coefficient of -0.915. These findings suggest that companies emphasizing innovation and technological development have greater capabilities to enter international markets and perform better in these markets.

The R^2 coefficient for the structural model showed that 57.7% of the variance in technological activities and 65.9% of the variance in business internationalization are explained by the variables in the model. These figures indicate a high explanatory power of the proposed model. Furthermore, the moderating role of innovation was confirmed, demonstrating that innovation can enhance the positive effects of technological activities and mitigate the negative effects of local competition.

In fsQCA, innovation was identified as a primary factor positively influencing the level of internationalization with a coverage of 0.713 and a consistency of 0.763. The combination of technological activities and local competition also showed notable scores, with raw coverage for technological activities at 0.829 and consistency at 0.694, and raw coverage for local competition at 0.716 and consistency at 0.685. These results indicate that the presence of innovation and technological activities significantly increases the level of business internationalization.

Conversely, in the absence of these key factors, the results showed that local competition primarily exerts a negative effect. In this scenario, raw coverage was 0.392 and consistency was 0.808, indicating the negative impact of local competition on internationalization. In other words, intense local competition can act as a barrier to international business development and reduce competitive ability.

Conclusion

This study demonstrates that innovation and technological activities are key factors in the internationalization of businesses. Innovative companies with greater utilization of technology have higher capabilities to enter and compete in international markets. These companies, by leveraging innovation and technology, are able to offer new and tailored products and services that meet the needs of international markets, which helps strengthen their competitive position. While local competition typically has a negative impact on internationalization, innovation can moderate these negative effects and even turn them into a competitive advantage. The analysis results

showed that the interaction between innovation, technological activities, and local competition directly affects the success of business internationalization. Innovation and technological activities can help reduce costs and exploit new opportunities, whereas local competition generally has a negative impact on internationalization. These findings underscore the critical importance of innovation and technological activities in the success of business internationalization.

This research contributes to the existing literature in several ways. By analyzing the impact of innovation on business internationalization, it shows that innovation can directly and indirectly (as a moderating factor) positively influence companies' abilities to enter and succeed in international markets. This study employs SEM and fsQCA to analyze these effects, providing new evidence in this field. Additionally, by emphasizing the importance of technological activities, it reveals that these activities significantly impact business internationalization. The findings help managers understand the importance of investing in technology and innovation and plan to strengthen these activities. Furthermore, local competition can act as a barrier to internationalization. However, innovation can mitigate these negative impacts and turn them into a competitive advantage. These findings assist managers in developing effective strategies to manage local competition and capitalize on innovative opportunities. The use of SEM and fsQCA in this study provides researchers with new methods to analyze complex relationships between variables. These methods aid in better and more precise explanations of the effects of innovation, technological activities, and local competition on internationalization.

These results have important implications for managers and policymakers. Managers can enhance their ability to compete in international markets and experience better performance by strengthening innovation and investing in technological activities. This includes creating a culture of innovation within the organization, providing necessary resources for technological development, and encouraging creativity and innovation among employees. Additionally, identifying and capitalizing on innovative opportunities can help businesses strengthen their position in facing local and international competition. Policymakers can also improve the international performance of businesses by creating the necessary infrastructure and support for the development of innovation and technology. Establishing support programs for small and medium-sized enterprises to increase their innovation capacity and facilitate the internationalization process can contribute to the country's economic development. Financial and legal support, creating cooperative networks, and providing access to informational and research resources can play a significant role in this regard.

Conflict of interest

The authors declared no conflicts of interest.

Authors' contributions

All authors contributed to the original idea, study design.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability

The dataset generated and analyzed during the current study is available from the corresponding author on reasonable request.

References

- Abdelfattah F, Al Halbusi H, Al-Brwani RM. (2022). "Influence of self-perceived creativity and social media use in predicting E-entrepreneurial intention". *International Journal of Innovation Studies*. 6(3): 119-127. <https://doi.org/10.1016/j.ijis.2022.04.003>.
- Aghion P, Antonin C, Bunel S. (2021). *The Power of Creative Destruction: Economic Upheaval and the Wealth of Nations*. Harvard University Press.
- Aithal PS. (2023). "How to create business value through technological innovations using icct underlying technologies". *International Journal of Applied Engineering and Management Letters*. 7(2): 232-292. <https://doi.org/10.47992/ijaeml.2581.7000.0184>.
- Alcaraz J, Martinez-Suarez J, Montoya MA. (2024). "Effect of populism on the internationalization of emerging market firms". *European Business Review*. 36(1): 12-31. <https://doi.org/10.1108/EBR-01-2023-0025>.
- Anand J, McDermott G, Mudambi R, Narula R. (2021). "Innovation in and from emerging economies: New insights and lessons for international business research". *Journal of International Business Studies*. 52: 545-559. <https://doi.org/10.1057/s41267-021-00426-1>.
- Andrei MD. (2019). "Innovation and competitiveness". *The Annals of the University of Oradea*. 28(7): 385-98.
- Archibugi D, Michie J. (1995). "The globalization of technology: A new taxonomy". *Cambridge Journal of Economics*. 19(1): 121-140.
- Arekrans J, Ritzén S, Laurenti R. (2023). "The role of radical innovation in circular strategy deployment". *Business Strategy and the Environment*. 32(3). 1085-1105. <http://dx.doi.org/10.1002/bse.3108>.
- Audretsch DB, Belitski M, Caiazza R, Chowdhury F, Menter M. (2023). "Entrepreneurial growth, value creation and new technologies". *The Journal of Technology Transfer*. 48(5): 1535-1551. <https://doi.org/10.1007/s10961-023-10034-w>.
- Audretsch DB, Guenther C. (2023). "SME research: SMEs' internationalization and collaborative innovation as two central topics in the field". *Journal of Business Economics*. 93(6-7): 1213-1229. <https://doi.org/10.1007/s11573-023-01152-w>.
- Baghersad V, Davari A, Azizi M. (2020). "Entrepreneurial ecosystem and competitiveness in selected industries". *Journal of Entrepreneurship Development*. 12(4): 521-540. <https://doi.org/10.22059/jed.2020.294038.653209>. [in Persian]

- (2019). "The relationship between entrepreneurial ecosystem dimensions and competitiveness". *Iranian Journal of Management Sciences*. 14(55): 107-156. [in Persian]
- Bagozzi RP, Yi Y. (1988). "On the evaluation of structural equation models". *Journal of the Academy of Marketing Science*. 16: 74-94.
- Barney J. (1991). "Firm resources and sustained competitive advantage". *Journal of Management*. 17(1): 99-120.
- Borowski PF. (2021). "Innovation strategy on the example of companies using bamboo". *Journal of Innovation and Entrepreneurship*. 10(1): 3. <https://doi.org/10.1186/s13731-020-00144-2>.
- Brynjolfsson E, McAfee A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. WW Norton & Company.
- Buckley PJ, Clegg J, Cross AR, Xin L, Voss H, Zheng P. (2007). "The determinants of Chinese outward foreign direct investment". *Journal of International Business Studies*. 59(1): 125-131.
- Cassiman B, Golovko E. (2011). "Innovation and internationalization through exports". *Journal of International Business Studies*. 42: 56-75. <https://doi.org/10.1057/jibs.2010.36>.
- Chan CM, Makino S, Isobe T. (2010). "Does subnational region matter? Foreign affiliate performance in the United States and China". *Strategic Management Journal*. 31(11): 1226-1243. <https://doi.org/10.1002/smj.854>.
- Chen H, Zeng S, Wu C, Fu H. (2021). "The dual effect of foreign competition on emerging market firms' internationalization". *Management Decision*. 59(9): 2264-2285. <https://doi.org/10.1108/MD-11-2019-1525>.
- Chimakati FM, Macharia I. (2024). "Leading innovation, creativity and change approaches: The premeditated link in learning organization's success". *African Journal of Emerging Issues*. 6(2): 1-14.
- Contractor FJ, Dangol R, Nuruzzaman N, Raghunath S. (2020). "How do country regulations and business environment impact foreign direct investment (FDI) inflows?". *International Business Review*. 29(2): 101640. <https://doi.org/10.1016/j.ibusrev.2019.101640>.
- Davari A, Baghersad V, Vafaie V. (2021). "Corporate resilience and performance in food industry SMEs during COVID-19". *Journal of World Sociopolitical Studies*. 5(2): 333-366. doi: <https://doi.org/10.22059/wsp.2022.333749.1248>.
- Debellis F, Rondi E, Plakoyiannaki E, de Massis A. (2021). "Riding the waves of family firm internationalization: A systematic literature review, integrative framework, and research agenda". *Journal of World Business*. 56(1): 101144. <https://doi.org/10.1016/j.jwb.2020.101144>.
- Diebold W. (1990). *The Competitive Advantage of Nations*. JSTOR.
- Dieleman M, Markus S, Rajwani T, White III GO. (2022). "Revisiting institutional voids: Advancing the international business literature by leveraging social sciences". *Journal of International Management*. 28(3): 100935. <https://doi.org/10.1016/j.intman.2022.100935>.
- Dong G. (2023). *Innovation and Internationalization: Evidence from Chinese Manufacturing Enterprises*. PhD thesis, Copenhagen Business School.
- Fagerberg J. (2005). *The Oxford Handbook of Innovation*. Oxford University Press.
- Fornell C, Larcker DF. (1981). "Evaluating structural equation models with unobservable variables and measurement error". *Journal of Marketing Research*. 18(1): 39-50. <https://doi.org/10.1177/00224378101800104>.
- Gao X, Dong S, Liu C. (2024). "Overseas operations, global value chain position and technological innovation". *International Review of Economics & Finance*. 94: 103381. <https://doi.org/10.1016/j.iref.2024.103381>.
- Gaur AS, Kumar V, Singh D, Yiu DW. (2014). "Institutions, resources, and internationalization of emerging economy firms". *Journal of World Business*. 49(1): 12-20. <https://doi.org/10.1016/j.jwb.2013.04.002>.
- Geroski PA. (1990). "Innovation, technological opportunity, and market structure".

- Oxford Economic Papers*. 42(3): 586-602. <https://doi.org/10.1093/oxfordjournals.oep.a041965>.
- Haaja E. (2020). "Why do some SMEs engage in joint internationalization and others do not? Exploring the role of mental images in collective international opportunity recognition". *Journal of International Entrepreneurship*. 18(1): 15-43. <https://doi.org/10.1007/s10843-019-00253-4>.
- Hair JF, Ringle CM, Sarstedt M. (2011). "PLS-SEM: Indeed a silver bullet". *Journal of Marketing Theory and Practice*. 19(2): 139-152.
- Henseler J, Ringle CM, Sarstedt M. (2015). "A new criterion for assessing discriminant validity in variance-based structural equation modeling". *Journal of the Academy of Marketing Science*. 43: 115-135. <https://doi.org/10.1007/s11747-014-0403-8>.
- Henseler J, Ringle CM, Sinkovics RR. (2009). "The use of partial least squares path modeling in international marketing". *New Challenges to International Marketing* (pp. 277-319). Emerald Group Publishing Limited.
- Hitt MA, Hoskisson RE, Kim H. (1997). "International diversification: Effects on innovation and firm performance in product-diversified firms". *Academy of Management Journal*. 40(4): 767-798.
- Jafari-Sadeghi V, Amoozad Mahdiraji H, Devalle A, Pellicelli AC. (2022). "Somebody is hiding something: Disentangling interpersonal level drivers and consequences of knowledge hiding in international entrepreneurial firms". *Journal of Business Research*. 139: 383-396. <https://doi.org/10.1016/j.jbusres.2021.09.068>.
- Jafari-Sadeghi V, Dana LP. (2022). *International Entrepreneurship in Emerging markets*. Routledge.
- Kafetzopoulos P, Psomas E, Katou AA. (2023). "Promoting strategic flexibility and business performance through organizational ambidexterity". *Sustainability*. 15(17): 12997. <https://doi.org/10.3390/su151712997>.
- Khan T, Emon MMH. (2024). "Exploring the potential of the blue economy: A systematic review of strategies for enhancing international business in Bangladesh in the context of Indo-Pacific Region". *Review of Business and Economics Studies*. 12(2): 55-73. <https://doi.org/10.26794/2308-944X-2024-12-2-55-73>.
- Khelifa I, Romdhane R, Haj Salem H. (2024). "Unveiling the relationship between entrepreneurial aspirations and prosperity: An international panel study using GEM data". *International Entrepreneurship and Management Journal*. 20(1): 421-449. <http://dx.doi.org/10.1007/s11365-023-00859-0>.
- Kotabe M, Murray JY. (2004). "Global sourcing strategy and sustainable competitive advantage". *Industrial Marketing Management*. 33(1): 7-14.
- Lafuente E, Alonso-Ubieta S, Leiva JC, Mora-Esquivel R. (2021). "Strategic priorities and competitiveness of businesses operating in different entrepreneurial ecosystems: a benefit of the doubt (BOD) analysis". *International Journal of Entrepreneurial Behavior & Research*. 27(5): 1351-1377. <https://doi.org/10.1108/IJEER-06-2020-0425>.
- Lafuente E, Vaillant Y, Rabetino R. (2023). "Digital disruption of optimal co-innovation configurations". *Technovation*. 125: 102772. <https://doi.org/10.1016/j.technovation.2023.102772>.
- Li Y, Huang X. (2023). "Research on the impact of institutional environment, FDI and net export on international entrepreneurship". *Finance Research Letters*. 53(May): 103653. <https://doi.org/10.1016/j.frl.2023.103653>.
- Liu K. (2024). "Theoretical Evolution and Framework". *China's Direct Investment in Indonesia (1990-2022) Multiple Structure and Systemic Risks* (pp. 15-47). Singapore: Springer Nature Singapore.
- Lu JW, Beamish PW. (2001). "The internationalization and performance of SMEs". *Strategic Management Journal*. 22(6-7): 565-586.
- Mueller RO, Hancock GR. (2018). "Structural equation modeling". *The reviewer's*

- Guide to Quantitative Methods in the Social Sciences* (pp. 445-456). Routledge.
- Mukul K, Sheeri G. (2024). "A study on social capital and incubation in enriching rural entrepreneurship in rural areas". *Journal of Entrepreneurship & Management*. 13(1).
- Munemo J. (2022). "The effect of regulation-driven trade barriers and governance quality on export entrepreneurship". *Regulation and Governance*. 16(4): 1119-1140. <https://doi.org/10.1111/rego.12384>.
- Ochuba NA, Usman FO, Amoo OO, Okafor ES, Akinrinola O. (2024). "Innovations in business models through strategic analytics and management: conceptual exploration for sustainable growth". *International Journal of Management & Entrepreneurship Research*. 6(3): 554-566. <https://doi.org/10.51594/ijmer.v6i3.844>.
- Paul J, Rosado-Serrano A. (2019). "Gradual internationalization vs born-global/international new venture models: A review and research agenda". *International Marketing Review*. 36(6): 830-858. <https://doi.org/10.1108/IMR-10-2018-0280>.
- Porter M. (1990). *The Competitive Advantage of Nations*, Free Press, Nueva York, USA.
- Porter ME. (1998). "Clusters and the new economics of competition". *Harvard Business Review Boston*. 76(6). 77-90.
- Raats R, Krakauer P. (2020). "International entrepreneurial orientation: Exploring the Brazilian context". *Entrepreneurial Business and Economics Review*. 8(1): 51-69.
- Rachmawati E, Yudoko G, Prasetyo EA. (2022). "Underlying internationalization process theories for Small and Medium Enterprises (SMEs): A systematic literature review and classification of research streams". *Jurnal Manajemen Indonesia*. 22(2): 199. <http://dx.doi.org/10.25124/jmi.v22i2.4063>.
- Ragin CC. (2017). *User's Guide to Fuzzy-Set/Qualitative Comparative Analysis*. No. 87. University of Arizona.
- (2008). *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. University of Arizona.
- Ravšelj D, Aristovnik A. (2020). "The impact of R&D expenditures on corporate performance: Evidence from Slovenian and world R&D companies". *Sustainability*. 12(5): 1943. <https://doi.org/10.3390/su12051943>.
- Ritala P, Olander H, Michailova S, Husted K. (2015). "Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study". *Technovation*. 35: 22-31.
- Scheu M, Kuckertz A. (2023). "Explorers of the twenty-first century? A systematic literature review of the scholarship on international entrepreneurs from developed economies". *International Entrepreneurship and Management Journal*. 19(1): 177-235. <https://doi.org/10.1007/s11365-022-00815-4>.
- Schneider CQ, Wagemann C. (2012). *Set-theoretic methods for the social sciences: A guide to qualitative comparative analysis*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139004244>.
- Schumpeter J. (2013). *Capitalism, Socialism, and Democracy*. Routledge.
- Schumpeter JA. (1976). *Capitalism, Socialism, and Democracy*. Routledge: London, UK.
- Schwens C, Zapkau FB, Bierwerth M, Isidor R, Knight G, Kabst R. (2018). "International entrepreneurship: A meta-analysis on the internationalization and performance relationship". *Entrepreneurship Theory and Practice*. 42(5): 734-768. <https://doi.org/10.1177/1042258718795346>.
- Slesman L, Abubakar YA, Mitra J. (2021). "Foreign direct investment and entrepreneurship: Does the role of institutions matter?". *International Business Review*. 30(4): 101774. <https://doi.org/10.1016/j.ibusrev.2020.101774>.
- Teece DJ. (2009). *Dynamic Capabilities and Strategic Management: Organizing for Innovation and Growth*. Oxford University Press.
- Teece DJ, Pisano G, Shuen A. (1997). "Dynamic capabilities and strategic

- management". *Strategic Management Journal*. 18(7): 509-533.
- Ucbasaran D, Westhead P, Wright M. (2008). "Opportunity identification and pursuit: Does an entrepreneur's human capital matter?". *Small Business Economics*. 30(2): 153-173. <https://doi.org/10.1007/s11187-006-9020-3>.
- Vadana II, Torkkeli L, Kuivalainen O, Saarenketo S. (2019). "Digitalization of companies in international entrepreneurship and marketing". *International Marketing Review*. 37(3): 471-492. <https://doi.org/10.1108/IMR-04-2018-0129>.
- Volchek D, Jantunen A, Saarenketo S. (2013). "The institutional environment for international entrepreneurship in Russia: Reflections on growth decisions and performance in SMEs". *Journal of International Entrepreneurship*. 11(4): 320-350. <https://doi.org/10.1007/s10843-013-0115-z>.
- Zahoor N, Khan Z, Meyer M, Laker B. (2023). "International entrepreneurial behavior of internationalizing African SMEs– Towards a new research agenda". *Journal of Business Research*. 154(December 2021). <https://doi.org/10.1016/j.jbusres.2022.113367>.
- Zahra SA, George G. (2017). "International entrepreneurship: The current status of the field and future research agenda". *Strategic Entrepreneurship: Creating a New Mindset*. In Strategic Entrepreneurship. 253–288. <https://doi.org/10.1002/9781405164085.ch12>.
- Zahra SA, Hayton JC. (2008). "The effect of international venturing on firm performance: The moderating influence of absorptive capacity". *Journal of Business Venturing*. 23(2): 195-220.
- Zhou L, Wu W, Luo X. (2007). "Internationalization and the performance of born-global SMEs: the mediating role of social networks". *Journal of International Business Studies*. 38: 673-690.
- Zhou P, Zhou S, Zhang M, Miao S. (2022). "Executive overconfidence, digital transformation, and environmental innovation: The role of moderated mediator". *International Journal of Environmental Research and Public Health*. 19(10): 5990. <http://dx.doi.org/10.3390/ijerph19105990>.
- Zou T. (2024). "Technological innovation promotes industrial upgrading: An analytical framework". *Structural Change and Economic Dynamics*. 70: 150-167. <https://doi.org/10.1016/j.strueco.2024.01.012>.