

Journal *of*

ISSN 1821-1283

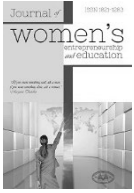
women's

entrepreneurship
and education

*"If you want something said, ask a man,
if you want something done, ask a woman."
Margaret Thatcher*

No. 1-2/2026





No. 1-2/2026
Twice a Year Scientific Journal
ISSN 1821-1283
ISSN 2406-0674 (online)
UDC 005.64:37:316.344.5
COBISS.SR-ID 157987852

PUBLISHER

Institute of Economic Sciences
12 Zmaj Jovina str.
11000 Belgrade, Serbia

EDITOR-IN-CHIEF

Prof. Dr. Mirjana Radović-Marković

Distinguished Professor, Hunan Normal University, Changsha, China
Center for Women Studies and Gender Relations, British American University, Miami,
Florida, United States of America

ASSOCIATE EDITORS

Beatrice Avolio, CENTRUM Católica Graduate Business School, Lima, Peru

Ivana Domazet, Institute of Economic Sciences, Belgrade, Serbia

Leo Paul Dana, Faculty of Management, Dalhousie University, Nova Scotia, Canada

Manuela Tvaronavičienė, Vilnius Gediminas Technical University, Faculty of Business
Management, Lithuania

Muhammad Shoaib Farooq, University of Management & Technology Lahore, Pakistan

Yashar Salamzadeh, University of Sunderland, Sunderland, United Kingdom

MANAGING EDITORS

Elena Jovičić, Institute of Economic Sciences, Serbia

Marija Antonijević, Institute of Economic Sciences, Belgrade, Serbia

EDITORIAL OFFICE

c/o Institute of Economic Sciences
12, Zmaj Jovina str., Belgrade, Serbia
Tel. +381 11 2622-357; 2629-960
www.ien.bg.ac.rs
jweoffice@ien.bg.ac.rs

EDITORIAL BOARD

Adrian Csordas, Faculty of Economics and Administrative Sciences, Cyprus International
University, Cyprus

Aidin Salamzadeh, Faculty of Management, University of Tehran, Iran

Almaz Giziew, Bahir Dar University, Bahir Dar, Ethiopia

Almir Pestek, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Aygun Alasgarova Agasalim, Azerbaijan State University of Economics, Baku, Azerbaijan

Boufeldja Ghiat, Oran University, Oran, Algeria

Christos Livas, University of Piraeus, Piraeus, Greece

Dan Yang, Department of Strategic Management & Organisation, Xi'an Jiaotong-Liverpool University, Suzhou, China

Darko Marjanović, Institute of Economic Sciences, Belgrade, Serbia

Dina Hziku, University of the West of Scotland, Great Britain

Donald Vullnetari, University of Tirana, Faculty of Economics, Department of Economics, Tirana, Albania

Emine Demiray, Anadolu University, Eskişehir, Türkiye

Faidon Theofanidis, Australian University, Kuwait City, Kuwait

Evelyn Derera, University of KwaZulu-Natal, South Africa

German Zambrano Verdesoto, Universidad Bolivariana del Ecuador, Durán, Ecuador

Grace Chinonye Ihejiamazu, Wilfrid Laurier University, Waterloo, ON, Canada

Halil Dincer Kaya, Northeastern State University, Broken Arrow, Oklahoma, United States of America

Harun Şeşen, European University of Lefke, Lefke, Cyprus

Hiroko Kawamorita Kesim, Hachinohe Gakuin University, Hachinohe, Japan

Imani Silver Kyaruzi, Ulster University, Belfast, United Kingdom

Isidora Beraha, Institute of Economic Sciences, Belgrade, Serbia

Jackson Kivui Maalu, University of Nairobi, Nairobi, Kenya

José C. Sánchez, University of Salamanca, Salamanca, Spain

Juliet John Inyang, University of Auckland, Auckland, New Zealand

Katherina Kuschel, CENTRUM Católica Graduate Business School, Pontificia Universidad Católica del Perú, Lima, Perú

Kosovka Ognjenović, Institute of Economic Sciences, Belgrade, Serbia

Marianna Siničáková, Technical University of Košice, Košice, Slovakia

Mark W. Pruett, University of South Carolina, South Carolina, USA

Mohsen Brahmī, University of Sfax, Sfax, Tunisia

Most. Tahura Pervin, Dhaka University of Engineering & Technology, Gazipur, Bangladesh

Müge Tunaer Vural, Dokuz Eylul University, Izmir, Türkiye

Mustafa A.M.M., Faculty of Management and Commerce, Colombo, Sri Lanka

Neven Vidaković, Zagreb School of Economics and Management, Zagreb, Croatia

Omolade Olomola, University of Ibadan, Ibadan, Nigeria

Radka Čopková, Technical University of Košice, Košice, Slovakia

Raghu Bir Bista, Tribhuvan University, Kirtipur, Nepal

Rahima Akther, Central Queensland University, Melbourne, Australia

Rajko Tomaš, University of Banja Luka, Banja Luka, Bosnia and Herzegovina

Saikat Gochhait, Symbiosis Institute of Digital and Telecom Management, a constituent of Symbiosis International Deemed University, Pune, India

Saptarshi Dhar, Institute of Business Administration (IBA-JU), Jahangirnagar University, Savar, Dhaka, Bangladesh

Simuzar Mammadova Sultan, Azerbaijan State University of Economics, Baku, Azerbaijan

Sirkku Männikkö Barbutiu, Stockholm University, Stockholm, Sweden

Sonja Đuričin, Institute of Economic Sciences, Belgrade, Serbia
Thilini De Silva, Stockholm University, Stockholm, Sweden
Vasileios Kallinterakis, Durham University, Durham, United Kingdom
Tiwalade Mary Ighomuaye, University of Lagos, Lagos, Nigeria
Vera Karadjova, University "St. Kliment Ohridski", Bitola, North Macedonia
Zélia Breda, University of Aveiro, Aveiro, Portugal
Widiyanto Widiyanto, Universitas Negeri Semarang, Central Java, Indonesia

JWEE is indexed in the following databases: **Scopus, DOAJ, ProQuest, EBSCO, EconLit, ERIH PLUS, EconBiz, RePEc, and ROAD.**

JWEE is included in the Peer Reviewed Journals List by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia

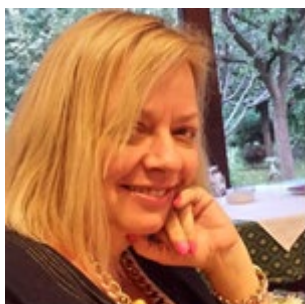
Copyright © 2026 by Institute of Economic Sciences Belgrade. All rights reserved

Contents

- Do Female Executives Manage Earnings Differently? A Gendered Analysis of Decision-Making** 1-22
Teodora Tica Ilić, Kristina Peštović, Bojana Vuković, Nedeljko Tica, Dušan Saković
- How Women Entrepreneurs Drive Business Sustainability? The Role of Financial Inclusion and Strategic Agility** 23-49
Amelia Sugangga, F. Danardana Murwani, Budi Eko Soetjipto, Nurika Restuningdiah
- Application of Circular Economy Principles in Women's Entrepreneurship: The Case of Serbia** 50-72
Sanja Popović Pantić, Nenad Ravić, Daniela Kuzmanović
- When Is Entrepreneurship a Career Option for Highly Educated Students? Evidence from Czechia** 73-95
Miroslav Suchanec, Ondřej Hora
- Do Investment Decisions Mediate the Effect of Cognitive and Emotional Bias on Financial Performance in Women SMEs?** 96-117
Wida Purwidianti, Retno Dwiyantri, Erny Rachmawati, Rita Kusumawati
- Perceptions of Flexible Work Arrangements Among Women Researchers in Serbia: Evidence from Social and Humanities Science Research Sectors** 118-143
Marija Lazarević-Moravčević, Jelena Minović, Mihajlo Đukić, Marija Mosurović Ružičić
- Beyond Access: Entrepreneurial Capabilities and Business Context in Shaping P2P Lending Usage among Women-Led MSMEs in an Emerging Economy** 144-168
Linda Ariany Mahastanti, Maria Rio Rita, Destri Sambara Sitorus, Apriani Dorkas R Atahau

Does Content Creation Strengthen the Personality-Entrepreneurial Intention Relationship? Evidence from Female University Students	169-194
<i>Vehap Kola, Gentjan Ulaj, Dorian Aliu, Iristi Kasapi, Elvira Drishti</i>	
Objective vs. Perceived Digital Entrepreneurial Competencies of Female Students in Serbia	195-217
<i>Nevena Veselinović, Ivana Domazet, Milena Lazić</i>	
An Analysis of the Influence of Entrepreneurship Education and the Family Context on Entrepreneurial Intentions among Higher Education Students	218-242
<i>Roni Wiranata, Susanti, Siti Sri Wulandari</i>	
The Importance of Intensifying Mentorship Support to Women Digital Entrepreneurs in the Emerging Markets	243-265
<i>Radmila Miković, Mila Jovkić, Mirjana Dejanović, Marina Jovanović-Milenković</i>	
Women Professionals in the Obscurity: Roles, Responsibilities and Emotional Costs in Accounting in Colombia	266-287
<i>Diego Mauricio Barragán Díaz, Juan Carlos Morales Piñero, María Eugenia Morales Rubiano</i>	

Note of Editor-in-Chief



Dear colleagues,

Since its establishment in 2008, the Journal of Women's Entrepreneurship and Education (JWEE) has developed into a recognized international scientific journal, achieving Q1 status in SCOPUS. This accomplishment reflects the continuous dedication of authors, reviewers, editors, and members of the academic community who have contributed to the Journal's development and reputation over the years.

JWEE remains committed to publishing original and impactful research in the fields of women's entrepreneurship, education, innovation, management, digital transformation, sustainability, and other interdisciplinary areas relevant to contemporary economic and social development. The growing interest in the Journal and the increasing number of submissions from researchers worldwide confirm the importance of these topics in today's academic and professional environment.

I would like to sincerely thank all authors whose valuable contributions have enriched this new issue. Due to the Journal's strong international position and high academic standards, the selection process is highly competitive. Each manuscript undergoes a rigorous peer-review procedure aimed at ensuring scientific quality, originality, and relevance. Maintaining these standards will remain one of the main priorities of JWEE in future issues as well.

To facilitate an efficient review and publication process, authors are kindly asked to submit their manuscripts exclusively through the Journal's platform and to carefully follow all submission guidelines and editorial procedures. Timely responses to editorial requests and reviewers' comments are essential for successful communication and the smooth progression of the review process.

At the same time, we would like to emphasize the importance of respecting publication ethics. Manuscripts submitted to JWEE must be original, unpublished, and not under consideration by another journal. After

a paper has successfully completed the review process and been accepted for publication, it cannot be withdrawn for submission elsewhere. Likewise, the number and order of authors indicated in the initial submission documents and cover letter cannot be changed at later stages of the publication procedure.

Finally, I encourage our readers, contributors, and colleagues to continue supporting JWEE by sharing information about the Journal within their academic networks and encouraging the submission of high-quality research papers. Through international collaboration and the exchange of new knowledge and ideas, we can continue strengthening the role of women's entrepreneurship and education in contemporary society.

5 June 2026

Editor-in-Chief

Journal of Women's Entrepreneurship and Education

prof. dr. Stjepan Andrić Šušteršič


DOI: 10.28934/jwee26.12.pp1-22


JEL: C2, J16, M12

ORIGINAL SCIENTIFIC PAPER

Do Female Executives Manage Earnings Differently? A Gendered Analysis of Decision-Making



Teodora Tica Ilić¹ 

Kristina Peštović² 

Bojana Vuković³ 

University of Novi Sad, Faculty of Economics in Subotica, Department of Finance and Accounting, Subotica, Republic of Serbia

Nedeljko Tica⁴ 

University of Novi Sad, Faculty of Agriculture, Department of Agricultural Economics, Novi Sad, Republic of Serbia

Dušan Saković⁵ 

University of Novi Sad, Faculty of Economics in Subotica, Department of Finance and Accounting, Subotica, Republic of Serbia

ABSTRACT

Given the fact that involvement of women in boardrooms and earnings reporting quality remain highly debated topics in the corporate environment — often offering mixed empirical evidence — this study reevaluates the gender-earnings management nexus from a regional perspective. Specifically, it investigates whether female presence on company boards and in CEO positions influences the extent of accrual-based earnings management. Applying panel data

¹ E-mail: teodora.tica.ilic@ef.uns.ac.rs

² Corresponding author, e-mail: kristina.pestovic@ef.uns.ac.rs

³ E-mail: bojana.vukovic@ef.uns.ac.rs

⁴ E-mail: nedeljko.tica@polj.edu.rs

⁵ E-mail: dusan.sakovic@ef.uns.ac.rs

regression on a sample of 9,984 observations operating across Balkan economies between 2020 and 2022, the results reveal that a higher proportion of gender diversity within the board demonstrates a statistically significant effect on the extent of earnings management practices. However, a woman holding the CEO position does not seem to significantly constrain conservative earnings management behavior. These findings provide insights into how gender composition affects managerial decision-making and professional judgment in financial disclosure. By focusing on a transitional and institutionally evolving region, this research adds to the broader debate on whether gender diversity enhances ethical sensitivity and transparency in corporate governance. The results emphasize that while gender-balanced boards may foster more prudent reporting environments, leadership positions alone are insufficient to mitigate opportunistic financial behavior. The paper thus underscores the relevance of examining both structural and behavioral dimensions of gender balance when assessing the quality of earnings and corporate accountability.

Introduction

As corporate governance continues to evolve, the significance of women in leadership positions has emerged as a central force reshaping the contours of decision-making and financial management within organizations. The 21st century has witnessed a paradigm shift in recognizing and enhancing gender balance within corporate boardrooms, a move driven not only by principles of equality but also by the potential economic and strategic benefits it promises. One of the fundamentals of the quality of a financial report is the absence of earnings management activities (Tica et al., 2023). Given the occurrence of material losses and investor failures in recent decades, resulting from disparities in access to information between company management and stakeholders, it is evident that the reliability of data disclosed within financial statements is of great interest to both the academic community and market participants. Financial reports are considered the most significant and comprehensive source of information. Financial report users are witnessing a concerning decline in the quality and transparency of public information. This is due to management's discretionary decision-making, which in turn erodes trust in the concept of financial disclosure. Hence, the impartiality and consistency in information presentation, the accuracy of information, and the materiality and completeness of reporting are fundamental tenets of the contemporary market system and the integrity of financial reporting. These principles ensure that stakeholders have access to dependable information for making

informed decisions. Earnings management, broadly explained as the strategic manipulation of financial accounts to achieve certain objectives, has been a matter of intense scrutiny within the accounting and finance context. While the motives behind earnings management are varied, encompassing both opportunistic and legitimate reasons, understanding the nuanced association between gender composition in managerial positions and earnings manipulation is crucial for fostering corporate governance practices that stand the test of ethical scrutiny.

The corporate governance system establishes guidelines for the manager-owner relationship and facilitates the alignment of stakeholders' objectives to enhance firm efficiency (Vuković et al., 2023). The enhancement of the reliability of reported earnings is a crucial objective of the board, as it is a significant outcome of effective governance that investors expect and value. Comprehending the factors that influence earnings manipulation is crucial for identifying the incentives behind potentially fraudulent activities. This study would suggest indicators that could alert legislative and regulatory bodies, individual and institutional investors, financial analysts, auditors, financial institutions, debtors, and creditors to potential diminished reliability of financial reports, particularly in relation to income. Moreover, the ability to identify manipulative behaviors is essential for maintaining the transparency and trustworthiness of capital markets. This is achieved by mitigating the occurrence of deceptive or misleading financial reporting, hence promoting greater trust and assurance in the market.

The basis for our empirical research stems from the extensively reported disparities in conservative views, risk aversion, and moral conduct between genders. Furthermore, the current corpus of corporate finance literature indicates that the gender of executives might impact their managerial actions, while a substantial amount of finance and accounting literature demonstrates that the accuracy and reliability of financial disclosure is shaped by the intentions of management. Therefore, central to this discourse is the examination of the influence exerted by female engagement on Boards of Directors (BoD) and their ascendancy to the position of Chief Executive Officer (CEO) on the practice of earnings management, a phenomenon that holds critical implications for financial transparency, accountability, and the overall sustainability of corporations.

The paper comprises five distinct sections. The first section provides the introductory segment. Section two pertains to the theoretical foundation,

clarifying the social exchange theory and the formulation of hypotheses. Segment three defines the methodological approach, revealing samples, methods and data gathering. The subsequent segment presents the findings of the data evaluation, accompanied by a discussion. The fifth section provides the conclusions, as well as the theoretical and practical repercussions.

Literature Background and Hypothesis Development

Earnings management involves the deliberate application of discretionary accounting policies and estimates to achieve thresholds of reported income (Siekelova, 2020). Earnings management is the strategic use of accounting procedures that are not in accordance with the best accounting practice to generate financial results that are beneficial for management and the organization, while harmful for third parties (El Diri, 2018). The topic of reporting quality is widely examined and is an issue of importance to shareholders (Durana et al., 2022). Earnings quality refers to the degree to which reported income accurately reflects an organization's financial position for stakeholders. Managers have a professional duty and ethical obligation to ensure that relevant parties get profit reports of exceptional quality in a prompt manner. After the exposure of significant accounting frauds at prominent corporations, researchers have directed their attention to the underlying reasons that drive managers to manipulate results. Earnings management is often motivated by the private benefits of management. Managers whose salary or compensation is based on the achieved financial result have a greater tendency to adopt an accounting methodology that fictitiously increases income to maximize their personal earnings (Badertscher, 2011).

A prominent topic in managerial research and operations is around the inquiry of whether gender differences are evident in leadership behavior and decision-making styles (Berber et al., 2022). The disparities between women and men in management ranks can be acknowledged as a complex interplay of historical, societal, and organizational factors. Women generally exhibit lower levels of insecurity, and risk-taking behavior (Zalata et al., 2022.), while displaying higher levels of legitimacy and ethical behavior what indicate a conservatism approach as fundamental principle of bookkeeping and accounting (Francis et al., 2015), and a reduced probability of engaging in manipulative activities (Ho et al., 2015, Capezio

& Mavisakalyan, 2016). Another contention posits that women exhibit lower levels of assertiveness in decision-making compared to men (Peni & Vähämaa, 2010). Cultural norms and societal attitudes, rather than economic conditions, could also be the primary barriers to women's presence and active involvement on corporate boards (Kamath, 2022).

Female Presence in Boardrooms vs Earnings Management

A growing body of empirical research investigates how gender representation in corporate governance affects both financial transparency and earnings quality. Traditionally, boardrooms were predominantly male-dominated spaces, reflective of societal norms and biases that permeated the corporate sphere. However, as global awareness surrounding gender equality gained momentum, there was a growing realization that harnessing diverse perspectives, experiences, and skills could enhance organizational performance and foster innovation (Kirsch, 2018). This realization laid the groundwork for initiatives promoting gender diversity, with an emphasis on strengthening the involvement of women in strategic governance.

More than ever before, the corporate boards of the largest and most recognized public firms are increasingly likely to exhibit a wide range of gender, ethnic and racial diversity. By 2022, the representation of women on Fortune 500 board seats had increased to above 30%, a significant rise from the 26.5% recorded in 2020 (Deloitte US, 2022). Within the realm of business, women exhibit higher levels of ethical conduct in work environments and demonstrate a reduced inclination to partake in immoral actions for the purpose of obtaining financial incentives (Rizzotti & Frisenna, 2025).

Most closely associated with the present research, Gavius et al. (2012), Arun, Almahrog and Ali Aribi (2015), Gull et al. (2018), Mnif and Cherif (2020), Luo, Xiang and Huang (2017) and Kouaib and Abdullah (2019) analyze the effect of female participation on BoD to incentives on the manipulation of earnings. Gavius et al. (2012) analyzed U.S.-listed high-technology firms and revealed that the presence of female directorship correlates with lower levels of earnings management. Arun et al. (2015) investigate the correlation among women on the BoD and the use of earnings manipulation methods in the United Kingdom. The results specify that organizations with a greater proportion of women on the board are more predisposed to implement less aggressive accounting practices in comparison to organizations with limited gender balance within the

boardroom, pointing out that female directors tend to opt for strategies that decrease earnings rather than strategies that increase profit. Initial results of the study conducted by Gull et al. (2018) are also consistent with previous claims. Their investigation of French publicly traded corporations reveals that female inclusion in boardrooms discourages fraudulent activities. Upon further analysis, they have shown that when taking into account the legal and demographic attributes of women as board members, the outcomes differ, concluding that effective earnings management demands specific competencies and abilities. Mnif and Cherif (2020) indicate that the adverse association between having a woman as a director and engaging in earnings management remains consistent for independent female directors, whereas the converse is true for female directors who have family connections. Luo et al. (2017) conducted an investigation that examines the influence of female directors on boards of directors on managers' manipulation of real activities to achieve the desired level of income. Through a widespread analysis of an extensive number of Chinese publicly traded companies, it is discovered a significant correlation between increased female representation on the BoD and fewer occurrences of manipulating real operations. Also, greater gender diversity at the board level may enhance the credibility of financial reporting and improve the information content reflected in stock prices (Mansoori, 2022). Additionally, this adverse correlation appears more significant when women directors possess a greater degree of ownership. Kouaib and Abdullah (2019) presume that an increase in the presence of gender diversity on corporate boards corresponds to a decrease in both accruals-based and real fraudulent activities. Srinidhi et al. (2011) reveal greater earnings quality within companies with an increased presence of women on their boards. Chen et al. (2016) claim that the presence of female directorship enhances the efficacy of boards in risk control associated with R&D investments. Chen and Gavius (2016) suggest that women in director-rank positions who possess financial literacy are further proficient than men in preventing the manipulation of earnings.

Nevertheless, contrary to these results, Sun et al. (2011) failed to uncover any proof to support the idea that female directorship has an impact on earnings management.

Considering the differing views, this paper examines the associations between female directors and earnings management in the Balkan companies. Thus, the first hypothesis in this research would be set as follows:

H1: Women's presence in board positions discourages and negatively influences earnings management.

Female CEOs and Earnings Management

Within the evolving framework of corporate governance, the role of the CEO has garnered increasing attention due to its profound implications for organizational performance and stakeholder interests. As businesses strive for inclusivity and diversity in leadership, the ascendancy of female CEOs to the helm of major corporations has become a focal point of interest and research. This analysis explores how the CEO's gender affects earnings management. Usman et al. (2018) reveal that the CEO's authority level is enhanced when the board of directors reflects gender diversity, implying that having female members in the boardroom diminishes the board's flexibility. Women's involvement in high-ranking managerial positions has witnessed a steady rise in recent years, marking a departure from traditional leadership structures. Furthermore, the effect of female Chief Financial Officers (CFOs) on earnings management is an equally examined topic, whereby revealing highly comparable findings that female CFOs are prone to show higher levels of caution and prudence in their financial disclosures (Francis et al., 2015; Duong & Evans, 2016). Gavius et al. (2012) indicated that earnings manipulation is less prevalent when either the Chief Executive Officer or the Chief Financial Officer is a woman. Gull et al. (2018) came to the same conclusions. Zalata et al. (2022) indicate that, through the pre-SOX period, corporations with both female and male CEOs significantly exhibited categorization shifting. However, their findings show that this phenomenon was more widespread in companies led by female CEOs. Conversely, their findings indicate that female CEOs, who are generally more cautious than their male counterparts, notably reduced their utilization of classification shifting after the implementation of the Sarbanes–Oxley Act. This suggests that the strict legal framework has influenced their approach to manipulating earnings. Kim et al. (2017) investigate the influence of female executives on mitigating earnings manipulation practices in Korea, a nation renowned for its prevalent male-dominated societal norms. Their analysis reveals that a higher share of female executives in leadership positions is linked to a decrease in discretionary accruals. This suggests that having a diversity of genders in the highest positions discourages the practice of opportunistic financial reporting, even in a business background that is predominantly male-dominated.

However, the results of some prior research fail to prove the claim concerning the correlation between female CEO roles and earnings management. In contrast to the conclusions observed in developed markets like the US, Ye et al. (2010) conducted research on Chinese listed companies and findings indicate that there is a lack of significant variations in earnings quality measures for companies with female and male top executives. The set of measures comprises earnings persistence, the capacity of current earnings to forecast future cash flows, the nexus between reported income and market returns, and the absolute level of discretionary accruals. Peni and Vähämaa (2010) discovered no correlation between profit manipulation and the gender of the company's CEO. Harris et al. (2019) demonstrate that female CEOs do not automatically lead to a decrease in earnings management. Female Chief Executive Officers at a lower degree of equity-based remuneration exhibit a lower tendency for manipulating earnings compared to their male counterparts. Nevertheless, when it comes to superior levels of equity-based remuneration, both genders of CEOs demonstrate nearly identical tendencies in manipulating their earnings. Therefore, when provided with significant equity incentives, CEOs, engage in a more significant level of earnings management actions. Li et al. (2021) indicate that female executive roles tend to limit the manipulation of real earnings, both in periods of market decline and growth. Another significant discovery is that female CEOs exhibit greater conservatism in real earnings management as a result of a risk-averse disposition during periods of market decline, but female CFOs are further inclined to restrict actual earnings management during periods of market growth. According to Na and Hong (2017), male CEOs may rely on aggressive discretionary accruals or real activity manipulation to report slight earnings gains, whereas female Chief Executive Officers tend to avoid such earnings management techniques. According to Kumar and Ravi (2022), female chief executive officers who possess less power have reduced levels of earnings manipulation. Nevertheless, female chief executive officers (CEOs) who possess higher levels of power exhibit a propensity for engaging in more pronounced levels of profit manipulation compared to males.

The key aim of the research is to support evolving discourse on corporate governance by examining the influence of female CEOs on practices of managing earnings. Consequently, the subsequent hypothesis is developed.

H2: Female CEOs discourage and negatively influence earnings management.

Methodology and Data

The empirical component of the research paper would involve the application of various methodologies to examine the set of hypotheses. The initial phase of empirical research will involve the selection of a sample where the methodological instruments will be implemented. Subsequently, the first section of the research will focus on the utilization of descriptive statistics. It represents the first stage in the research process by providing a detailed and objective summary of the data. This allows for greater knowledge and insight into the fundamental properties of the dataset, without making any assumptions about its deeper causes. To address the primary research question on the effect of women's participation in the BoD and CEO roles in economic entities in Balkan states, a panel data analysis would be employed. This section of the results will include all essential steps to guarantee the reliable execution of the selected methodology. In case of violated assumptions of panel data analysis, a regression analysis with corrected standard error would be applied.

The analysis is based on a sample of 9,984 observations, comprising companies that were actively operating during the 2020–2022 period across the Balkan countries, including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, Montenegro, North Macedonia, Romania, Serbia, and Slovenia. The sampled firms are registered under diverse industry classification codes, ensuring sectoral heterogeneity. The primary selection criterion was the availability of disclosed information on the gender of company board members and the CEO in the TP Catalyst database (Moody's, 2025). The selected time horizon, although relatively short, is methodologically justified as it allows for consistent and comparable analysis during a period of heightened uncertainty. Notably, this period was particularly critical due to the COVID-19 pandemic and the Russia–Ukraine war, both of which represented unexpected external shocks, making it especially relevant for examining earnings management behavior, as such events tend to increase managerial discretion and incentives for financial reporting adjustments.

Discretionary accruals, calculated according to the Modified Jones Model, are employed to measure the dependent variable (Dechow et al.,

1995). Since the financial statements do not include information on discretionary and non-discretionary accruals, it proves necessary to follow two steps to determine those values. Initially, it is required to compute the total accruals (TA) by employing the subsequent formula:

$$TA_{it} = (\Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STD_{it} - DEP_{it}) / A_{it-1} \quad (1)$$

Where i represents the company, t represents year, TA represents total accruals; CA represents current assets, CL represents short-term liabilities, CASH represents a change in Cash and cash equivalents for company i in year t ; STD represents the amount of debt in short-term liabilities; DEP represents the amount of depreciation, and A represents total assets.

In the second step, discretionary accruals will be calculated for each firm and for each year that is subject to analysis as a residual of regression equation whose formula is given below:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

Where REV represents the annual change of revenues, REC represents receivables, PPE represents tangible fixed assets, and ε_{it} represents a random error.

Once the discretionary accrual has been determined, the potential relationship between gender representation in key leadership positions—specifically female board directors and female Chief Executive Officers and earnings management can be systematically examined:

$$\begin{aligned} DCC_{it} = & \beta_0 + \beta_1 FBOD_{it} + \beta_2 FCEO_{it} \\ & + \beta_3 AS_{it} + \beta_4 SIZE_{it} + \beta_5 GR_{it} + \beta_6 LIQ_{it} + \beta_7 ROA_{it} \\ & + \beta_8 AGE_{it} + \beta_9 NI_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

Relying on the examination of the previous literature, the used independent variables are explained in detail in Table 1 that follows.

Table 1: Variable Specification

Type	Name	Abbr.	Formula	Origin
Dependent	Discretionary accrual	DCC	Modified Jones model	Dechow et al. (1995), Das et al. (2018), Cudia et al. (2020)
Independent	Female participation on BoD (%)	FBOD	Total female directors / Total directors	Srinidhi et al. (2011), Arun et al. (2015), Bennouri et al. (2018), Usman et al. (2018), Li et al. (2021), Kumar and Ravi (2022)
	Female as CEO	FCEO	CEO is female = 1, CEO is male = 0.	Peni and Vähämaa (2010), Kim et al. (2017), Bennouri et al. (2018), Li et al. (2021), Kumar and Ravi (2022), Zalata et al. (2022)
	Asset Structure	AS	Fixed asset / Total asset	Khanh and Thu(2019)
	Firm size	SIZE	ln (Total assets)	Lin et al. (2012), Arun et al. (2015), Moghaddam and Abbaspour (2017), Bennouri et al. (2018), Das et al. (2018), Saona and Muro (2018), Khanh and Thu (2019), Cudia et al. (2020), Chen et al. (2020), Kumar and Ravi (2022)
	Sales growth	GR	Annual change of Sales	Lin et al. (2012), Bennouri et al. (2018), Khanh and Thu (2019), Kumar and Ravi (2022)
	Liquidity	LIQ	Current Assets / Current Liabilities	Iatridis and Kadorinis (2009), Moghaddam and Abbaspour (2017)

Type	Name	Abbr.	Formula	Origin
	Profitability	ROA	Net income / Total Assets	Iatridis and Kadorinis (2009), Lin et al. (2012), Arun et al. (2015), Bennouri et al. (2018), Das et al. (2018), Saona and Muro (2018), Cudia et al. (2020)
	Firm Age	AGE	Years since firm establishment	Das et al. (2018)
	Net income	NI	Positive net income = 1, Negative net income = 0.	Lin et al. (2012), Heidarpoor et al. (2014), Arun et al. (2015)

Source: Authors' research

In accordance with the presented research problem, the goal of the research, as well as the basic hypothesis, the empirical research will be conducted on a sample of business entities with registered headquarters in the Balkan countries. The countries of the Balkans include, in a broad sense, Albania, Bosnia and Herzegovina, Bulgaria, Greece, Croatia, Montenegro, Serbia, Romania, North Macedonia, Slovenia and Türkiye. The period of the analysis would cover the years from 2020 to 2022. The set of observations in the research will amount to 9,984. The research problem requires that the input data on which the research would be performed be collected from the official, publicly disclosed financial statements of the entities. Due to the large number of business entities and the period of the analysis, the international financial database of TP Catalyst (Bureau Van Dijk, 2023) would be used to collect the necessary data.

Results and Discussion

The empirical investigation, which focused on assessing the quality and reliability of financial reporting from the aspect of earnings management, would start with descriptive statistics of financial indicators. The results are presented in Table 2. The median value of the earnings management variable (DCC) has a negative value, indicating that the companies in the sample dominantly manage earnings downward. Median value of Female

directorship variable and Female CEOs is 0, indicating that corporate governance of selected companies is male-oriented, usually with no women in the boardroom or in the CEO position. Asset structure is, on average, oriented towards current assets rather than fixed, which provides greater flexibility to adapt to changing market conditions and business needs, as these assets can be quickly converted or adjusted. The median value of the growth, liquidity and profitability indicator implies a satisfactory level, which generates a predisposition for sustainability. Companies from the sample, on average, achieve a negative net result.

Table 2: Summary Statistics

Variable	Median	Mean	Minimum	Maximum	Standard deviation
Discretionary accruals	-0.12	-0.22	-0.96	0.70	1.02
Female on BOD	0.00	0.12	0.00	1.00	0.23
Female CEO	0.00	0.12	0.00	1.00	0.32
Asset Structure	0.38	0.41	0.00	0.99	0.28
Firm Size	9.28	9.43	4.33	18.18	1.66
Growth	0.11	0.38	-1.00	751.82	8.31
Liquidity	1.62	2.62	0.02	90.05	4.18
Profitability	3.71	5.21	-91.11	83.70	10.13
Firm Age	31.00	56.25	-2.00	123.00	44.14
Net income	1.00	0.83	0.00	1.00	0.38

Source: Authors' computations

The assumption about the direction of the linear correlation between the dependent and independent variables would be estimated by the Pearson matrix listed in Table 3. The coefficients disclose a negative and statistically significant relationship between female participation on the BoD and earnings management, while a negative, but insignificant linear connection is recognized between the female CEOs variable and earnings management.

Table 3: Correlation matrix findings

Variable	DCC	FBOD	FCEO	AS	SIZE	GR	LIQ	ROA	AGE	NI
DCC	1.000									
FBOD	-0.02*	1.000								
FCEO	-0.01	0.64**	1.000							
AS	0.08**	0.05**	0.02*	1.000						
SIZE	0.01	-0.11**	-0.05**	0.24	1.000					
GR	-0.16**	0.03**	0.02*	0.01	-0.00	1.000				
LIQ	0.03*	0.01	0.01	-0.12**	-0.07**	-0.01	1.000			
ROA	-0.21**	0.01	0.00	-0.28**	-0.06**	0.05**	0.13**	1.000		
AGE	0.04**	-0.02*	-0.04**	-0.06**	0.11**	-0.01	0.36**	-0.00*	1.000	
NI	-0.10**	0.00	-0.00	-0.24**	-0.01	0.01	0.07**	0.53**	-0.00	1.000

*Statistical significance: ** < 0.01%, * < 0.05%; Source: Authors' computations*

Prior to implementing the analysis through panel regression, the validity of the model's assumptions must be verified to ensure the robustness of the results. Testing the basic premise that there is no link between independent variables is crucial. The results of the multicollinearity test of independent variables are shown in Table 4, using Variance Inflation Factors (VIF) for both models.

Table 4: Multicollinearity test

Variable	Variance Inflation Factor (VIF)	1/Variance Inflation Factor (TOL)
Female on BOD	1.72	0.58
Female CEO	1.70	0.59
Profitability	1.46	0.68
Net income	1.41	0.71
Asset Structure	1.19	0.84
Firm Size	1.10	0.91
Liquidity	1.03	0.97
Firm Age	1.03	0.97
Growth	1.00	0.99
Mean VIF		1.29

Source: Authors' computations

Given that the VIFs are below 10 and the TOL coefficients are below 1, multicollinearity may not be detected. Moreover, it is imperative to verify two other fundamental assumptions of the panel study, specifically the presence of heteroskedasticity and autocorrelation. The test results are presented in Table 5.

Table 5: Heteroskedasticity and autocorrelation tests

Test	t test	p value
Wooldridge test	0.33	0.56
Breusch-Pagan / Cook-Weisberg test	4,868.64	0.00

Source: Authors' computations

The Wooldridge test confirmed the deficiency of autocorrelation, indicated by the p-value exceeding the 5% significance level. The Breusch-Pagan Cook-Weisberg test is performed to assess the potential existence of heteroskedasticity. As far as the p-value is lower than the 5% significance level, the heteroskedasticity is detected. Hence, it becomes necessary to transform a regression model with computation of robust standard errors included. The transformed regression models' findings are summarized in Table 6.

Table 6: Transformed model findings

Variable	Coefficient	p value
Female on BOD	-0.18	0.02
Female CEO	0.07	0.14
Asset Structure	0.18	0.00
Firm Size	0.01	0.90
Growth	-0.02	0.00
Liquidity	0.01	0.00
Profitability	-0.02	0.00
Firm Age	0.00	0.13
Net income	0.04	0.35
Const	-0.27	0.01
No. of observations	9,984	
F test	24.72	
p-value	0.00	

Source: Authors' computations

The results discover that female directorship negatively and significantly impacts the earnings management, confirming H1. These outcomes are coherent with the results of Gavius et al. (2012), Arun et al. (2015), Gull et al. (2018), Mnif & Cherif (2020), Luo et al. (2017) and Kouaib & Abdullah (2019). Findings suggest that greater gender diversity could foster better managerial decisions, more robust risk control, and

strengthened corporate social responsibility. From a corporate governance perspective, having women in leadership positions may bring unique insights and approaches that could contribute to a more ethical and transparent financial environment. Findings have implied that women in leadership positions may possess different communication styles and ethical considerations than their male counterparts. This divergence in approaches could potentially lead to a more comprehensive evaluation of financial data and a heightened sensitivity to potential red flags related to earnings manipulation. Female directors may prioritize open communication and collaboration, creating an environment that discourages unethical financial practices. The proposition that female directors have a better predisposition to decrease earnings manipulation is grounded in the belief that diversity in leadership leads to more robust decision-making processes.

Moreover, findings envisages that the female gender of a CEO is not a determining factor in whether manipulative activities occur in accounting, regarding income level, which confirms the conclusions of Ye et al. (2010) and Peni and Vähämaa (2010) and rejects H2, indicating the fact that fraudulent activities in accounting are typically driven by various factors, including organizational culture, internal controls, ethical standards, and individual motivations, rather than the gender of the CEO. Instead, the focus should be on promoting a strong ethical culture, implementing robust internal controls, and fostering an environment that encourages transparency and accountability. Despite anticipating a negative relationship, the reasoning is based on the indication that women CEOs often have a strategic mindset, decisiveness, effective communication skills to articulate the organization's vision, adaptability in navigating dynamic business environments and the capacity to manage stress adeptly, it is essential to acknowledge that the effectiveness of a CEO in deterring earnings manipulation is influenced by a myriad of factors beyond gender, such as leadership style, experience, and individual ethical values. The assumption that a female CEO automatically leads to a reduction in earnings manipulation oversimplifies the intricate interplay of these variables. Results reveal that both male and female CEOs could demonstrate strong ethical leadership or, conversely, engage in questionable financial practices. Leadership tone, irrespective of the CEO's gender, sets ethical standards for the entire organization. A corporate culture that prioritizes transparency, accountability, and long-term sustainability is more likely to deter earnings manipulation, regardless of whether the CEO is male or female.

Conclusion

In this research, panel data regression is conducted using 9,984 observations. The relationship between earnings quality and a pair of female roles dummies, together with control firm-specific control factors, is examined. Specifically, the empirical investigation of Balkan companies reveals that the gender of the directors could impact the accuracy of reported earnings. These regressions give strong evidence to demonstrate that corporation with female directorship has an association with income decreasing discretionary accruals, signifying that female participation in boardroom results with implementation of more cautious financial reporting techniques. This discovery aligns closely with the current body of research on gender disparities in conservative views and risk avoidance. Consistent with prior studies, such as Gavious et al. (2012), Arun et al. (2015) and Gull et al. (2018), the results support the argument that female directors tend to exhibit stronger ethical awareness and risk-averse behavior, which translates into more conservative accounting choices. Similar evidence documented in both developed and emerging markets suggests that gender-diverse boards enhance the credibility of financial reporting by limiting opportunistic earnings manipulation. However, no connection has been found between profit manipulation and the gender of the company's CEO. This result is in line with Ye et al. (2010) and Peni and Vähämaa (2010), who argue that CEO gender alone does not systematically explain earnings management practices once governance and firm-level characteristics are controlled for. The outcome indicates that earnings management behavior is likely driven by broader organizational and governance-related factors rather than by the CEO's gender alone. Some leaders, irrespective of gender, may adopt a collaborative and transparent approach that encourages ethical decision-making, while others may prioritize more authoritarian or secretive strategies.

In conclusion, this research seeks to unravel the complex function of women's participation in the boardroom and in the CEO position, and its consequential influence on earnings manipulation habits. As organizations strive for greater inclusiveness and accountability, understanding the dynamics at play in the intersection of gender diversity and financial reporting is imperative.

With respect to the study constraints and the prospects for further investigation, the effect of female participation on BoD and female CEOs on

earnings management may vary based on cultural, institutional, and contextual factors. It is essential to recognize that the success of female leadership in mitigating fraudulent earnings reporting may be influenced by cultural perceptions, legal frameworks, and industry norms. Different industries may have unique characteristics that affect the relationship between female leadership and earnings management. For instance, sectors with high regulatory oversight might experience different dynamics compared to industries with more flexibility in financial reporting. Additionally, implementing changes in leadership often takes time, and their effects may not be immediately reflected in financial performance. A longitudinal study might be required to capture the long-term impact of female directors and CEOs on earnings management accurately.

By shedding light on this critical aspect of corporate governance, we aspire to inform corporate governance practices by emphasizing the potential gains of gender diversity in top leadership positions. Also, investors, particularly those with a spotlight on environmental, social, and governance (ESG) factors, can use the study's insights to make more informed investment decisions. Companies with diverse leadership teams may be perceived as having lower risks associated with earnings management. Policymakers and advocacy groups could leverage the study's results to advocate for policies promoting gender diversity in corporate leadership. Understanding the potential impact on financial practices could strengthen the case for implementing and supporting initiatives aimed at increasing female representation. At the end, organizations could develop targeted professional development programs to nurture and support female talent, fostering their advancement into leadership roles.

References

- [1] **Arun, T. G., Almahrog, Y. E., & Ali Aribi, Z.** (2015). Female directors and earnings management: Evidence from UK companies. *International Review of Financial Analysis*, 39, 137–146. <https://doi.org/10.1016/j.irfa.2015.03.002>
- [2] **Badertscher, B. A.** (2011). Overvaluation and the Choice of Alternative Earnings Management Mechanisms. *The Accounting Review*, 86(5), 1491–1518. <https://doi.org/10.2308/accr-10092>
- [3] **Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M.** (2018). Female board directorship and firm performance: What really matters? *Journal of Banking & Finance*, 88, 267–291. <https://doi.org/10.1016/j.jbankfin.2017.12.010>

- [4] **Berber, N., Strugar-Jelača, M., Bjekić, R., & Marić, S.** (2022). Effects of socio-demographic factors on leadership style in Serbian banking industry. *Anali Ekonomskog Fakulteta u Subotici*, 58(47), 117–130. <https://doi.org/10.5937/AnEkSub2247117B>
- [5] **Capezio, A., & Mavisakalyan, A.** (2016). Women in the boardroom and fraud: Evidence from Australia. *Australian Journal of Management*, 41(4), 719–734. <https://doi.org/10.1177/0312896215579463>
- [6] **Chen, E., & Gavius, I.** (2016). Complementary relationship between female directors and financial literacy in deterring earnings management: The case of high-technology firms. *Advances in Accounting*, 35, 114–124. <https://doi.org/10.1016/j.adiac.2016.06.001>
- [7] **Chen, H., Jory, S., & Ngo, T.** (2020). Earnings management under different ownership and corporate governance structure: A natural experiment with master limited partnerships. *The Quarterly Review of Economics and Finance*, 76, 139–156. <https://doi.org/10.1016/j.qref.2019.05.005>
- [8] **Chen, S., Ni, X., & Tong, J. Y.** (2016). Gender Diversity in the Boardroom and Risk Management: A Case of R&D Investment. *Journal of Business Ethics*, 136(3), 599–621. <https://doi.org/10.1007/s10551-014-2528-6>
- [9] **Cudia, C. P., Cruz, A. L. D., & Estabillo, M. B.** (2021). Effect of Firm Characteristics and Corporate Governance Practices on Earnings Management: Evidence from Publicly Listed Property Sector Firms in the Philippines. *Vision: The Journal of Business Perspective*, 25(1), 77–87. <https://doi.org/10.1177/0972262920953428>
- [10] **Das, R. C., Mishra, C. S., & Rajib, P.** (2018). Firm-specific Parameters and Earnings Management: A Study in the Indian Context. *Global Business Review*, 19(5), 1240–1260. <https://doi.org/10.1177/0972150918788748>
- [11] **Dechow, P. M., Hutton, A. P., Kim, J. H., & Sloan, R. G.** (2012). Detecting Earnings Management: A New Approach. *Journal of Accounting Research*, 50(2), 275–334. <https://doi.org/10.1111/j.1475-679X.2012.00449.x>
- [12] **Dechow, P. M., Sloan, R. G., & Sweeney, A. P.** (1995). Detecting Earnings Management. *The Accounting Review*, 70(2), 193–225.
- [13] **Deloitte US.** (2025) Missing Pieces Report on Board Diversity. Retrieved May 30, 2025, from <https://www.deloitte.com/us/en/programs/center-for-board-effectiveness/articles/missing-pieces-report-board-diversity.html>
- [14] **Duong, L., & Evans, J.** (2016). Gender differences in compensation and earnings management: Evidence from Australian CFOs. *Pacific-Basin Finance Journal*, 40, 17–35. <https://doi.org/10.1016/j.pacfin.2016.07.004>
- [15] **Durana, P., Valaskova, K., Siekelova, A., & Michalkova, L.** (2022). Appraisal of Earnings Management across the Sectors. *Journal of Business Economics and Management*, 23(2), 399–425. <https://doi.org/10.3846/jbem.2022.16563>

- [16] **El Diri, M.** (2018). *Introduction to Earnings Management*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-62686-4>
- [17] **Francis, B., Hasan, I., Park, J. C., & Wu, Q.** (2015). Gender Differences in Financial Reporting Decision Making: Evidence from Accounting Conservatism. *Contemporary Accounting Research*, 32(3), 1285–1318. <https://doi.org/10.1111/1911-3846.12098>
- [18] **Gavious, I., Segev, E., & Yosef, R.** (2012). Female directors and earnings management in high-technology firms. *Pacific Accounting Review*, 24(1), 4–32. <https://doi.org/10.1108/01140581211221533>
- [19] **Gull, A. A., Nekhili, M., Nagati, H., & Chtioui, T.** (2018). Beyond gender diversity: How specific attributes of female directors affect earnings management. *The British Accounting Review*, 50(3), 255–274. <https://doi.org/10.1016/j.bar.2017.09.001>
- [20] **Harris, O., Karl, J. B., & Lawrence, E.** (2019). CEO compensation and earnings management: Does gender really matter? *Journal of Business Research*, 98, 1–14. <https://doi.org/10.1016/j.jbusres.2019.01.013>
- [21] **Heidarpoor, F., Zare Rafiee, S., & Zare Rafiee, S.** (2014). Drivers of Earnings Management: The Profit and Loss before Earning Management. *International Journal of Accounting and Financial Reporting*, 1(1), 23. <https://doi.org/10.5296/ijaf.v4i2.5674>
- [22] **Ho, S. S. M., Li, A. Y., Tam, K., & Zhang, F.** (2015). CEO Gender, Ethical Leadership, and Accounting Conservatism. *Journal of Business Ethics*, 127(2), 351–370. <https://doi.org/10.1007/s10551-013-2044-0>
- [23] **Iatridis, G., & Kadorinis, G.** (2009). Earnings management and firm financial motives: A financial investigation of UK listed firms. *International Review of Financial Analysis*, 18(4), 164–173. <https://doi.org/10.1016/j.irfa.2009.06.001>
- [24] **Jones, J. J.** (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, 29(2), 193. <https://doi.org/10.2307/2491047>
- [25] **Kamath, B.** (2022). Board gender diversity and intellectual capital performance of firms in India. *Journal of Women's Entrepreneurship and Education*, (1-2), 97-116. <https://doi.org/10.28934/jwee22.12.pp97-116>
- [26] **Kim, H. A., Jeong, S. W., Kang, T., & Lee, D.** (2017). Does the Presence of Female Executives Curb Earnings Management? Evidence from Korea. *Australian Accounting Review*, 27(4), 494–506. <https://doi.org/10.1111/auar.12169>
- [27] **Kirsch, A.** (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, 29(2), 346–364. <https://doi.org/10.1016/j.leaqua.2017.06.001>
- [28] **Kouaib, A., & Almulhim, A.** (2019). Earnings manipulations and board's diversity: The moderating role of audit. *The Journal of High Technology*

- Management Research*, 30(2), 100356.
<https://doi.org/10.1016/j.hitech.2019.100356>
- [29] **Kumar, S., & Ravi, R.** (2023). Earnings management: Are men from Mars and women from Venus? *Managerial Finance*, 49(6), 1017–1035.
<https://doi.org/10.1108/MF-04-2022-0154>
- [30] **Li, X., Than, E. T., Ahmed, R., Ishaque, M., & Huynh, T. L. D.** (2023). Gender diversity of boards and executives on real earnings management in the bull or bear period: Empirical evidence from China. *International Journal of Finance & Economics*, 28(3), 2753–2771.
<https://doi.org/10.1002/ijfe.2562>
- [31] **Lin, B., Lu, R., & Zhang, T.** (2012). Tax-Induced Earnings Management in Emerging Markets: Evidence from China. *Journal of the American Taxation Association*, 34(2), 19–44. <https://doi.org/10.2308/atax-10236>
- [32] **Luo, J., Xiang, Y., & Huang, Z.** (2017). Female directors and real activities manipulation: Evidence from China. *China Journal of Accounting Research*, 10(2), 141–166. <https://doi.org/10.1016/j.cjar.2016.12.004>
- [33] **Mansoori, E.** (2022). Earnings quality and price informativeness: The moderating role of females on board of directors. *Journal of Women's Entrepreneurship and Education*, (1–2), 176–193.
<https://doi.org/10.28934/jwee22.34.pp176-193>
- [34] **Mnif, Y., & Cherif, I.** (2021). Female board directorship and earnings management. *Pacific Accounting Review*, 33(1), 114–141.
<https://doi.org/10.1108/PAR-04-2020-0049>
- [35] **Moghaddam, A., & Abbaspour, N.** (2017). The Effect of Leverage and Liquidity Ratios on Earnings Management and Capital of Banks Listed on the Tehran Stock Exchange. *International Review of Management and Marketing*, 7(4), 99–107.
- [36] **Moody's Analytics, Inc.** (2025). TP Catalyst (Version 2025). Retrieved May 30, 2025, from <https://login.bvdinfo.com/R1/TPCatalyst>
- [37] **Na, K., & Hong, J.** (2017). CEO Gender And Earnings Management. *Journal of Applied Business Research (JABR)*, 33(2), 297–308.
<https://doi.org/10.19030/jabr.v33i2.9902>
- [38] **Peni, E., & Vähämaa, S.** (2010). Female executives and earnings management. *Managerial Finance*, 36(7), 629–645.
<https://doi.org/10.1108/03074351011050343>
- [39] **Rizzotti, D., & Frisenna, C.** (2025). Do Women Behave More Ethically Than Men? Evidence from the Impact of Female CEO on the Level of Earnings Management. In M. Agostini, V. Beretta, M. C. Demartini, A. Ghio, & S. Trucco (Eds.), *Diversity and Equity in Accounting: Emerging Issues, Challenges and Opportunities* (pp. 215–225). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-78247-3_15

- [40] **Saona, P., & Muro, L.** (2018). Firm- and Country-Level Attributes as Determinants of Earnings Management: An Analysis for Latin American Firms. *Emerging Markets Finance and Trade*, 54(12), 2736–2764. <https://doi.org/10.1080/1540496X.2017.1410127>
- [41] **Siekelova, A., Androniceanu, A., Durana, P., & Michalikova, K. F.** (2020). Earnings Management (EM), Initiatives and Company Size: An Empirical Study. *Acta Polytechnica Hungarica*, 17(9), 41–56. <https://doi.org/10.12700/APH.17.9.2020.9.3>
- [42] **Srinidhi, B., Gul, F. A., & Tsui, J.** (2011). Female Directors and Earnings Quality. *Contemporary Accounting Research*, 28(5), 1610–1644. <https://doi.org/10.1111/j.1911-3846.2011.01071.x>
- [43] **Sun, J., Liu, G., & Lan, G.** (2011). Does Female Directorship on Independent Audit Committees Constrain Earnings Management? *Journal of Business Ethics*, 99(3), 369–382. <https://doi.org/10.1007/s10551-010-0657-0>
- [44] **Tica, T., Vuković, B., Jakšić, D., & Tica, N.** (2023). Strategic Aspects of Earnings Management. *Proceedings of the 28th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management*. 28th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management. https://doi.org/10.46541/978-86-7233-416-6_51
- [45] **Usman, M., Zhang, J., Farooq, M. U., Makki, M. A. M., & Dong, N.** (2018). Female directors and CEO power. *Economics Letters*, 165, 44–47. <https://doi.org/10.1016/j.econlet.2018.01.030>
- [46] **Vuković, B., Tica, T., & Jakšić, D.** (2024). Firm value determinants: Panel evidence from European listed companies. *Strategic Management*, 29(1), 55–71. <https://doi.org/10.5937/StraMan2300052V>
- [47] **Ye, K., Zhang, R., & Rezaee, Z.** (2010). Does top executive gender diversity affect earnings quality? A large sample analysis of Chinese listed firms. *Advances in Accounting*, 26(1), 47–54. <https://doi.org/10.1016/j.adiac.2010.02.008>
- [48] **Zalata, A. M., Ntim, C., Aboud, A., & Gyapong, E.** (2022). Female CEOs and Core Earnings Quality: New Evidence on the Ethics Versus Risk-Aversion Puzzle. In K. Martin, K. Shilton, & J. Smith (Eds.), *Business and the Ethical Implications of Technology* (pp. 209–228). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-18794-0_12

Article history: Received: October 14, 2025

Accepted: January 30, 2026

First Online: February 6, 2026


DOI: 10.28934/jwee26.12.pp23-49

JEL: G21, L26, Q52

ORIGINAL SCIENTIFIC PAPER


How Women Entrepreneurs Drive Business Sustainability? The Role of Financial Inclusion and Strategic Agility




Amelia Sugangga¹ 

Faculty of Economics and Business, Universitas Negeri Malang, Malang,
East Java, Indonesia

STIE Malang Indonesia, Malang, East Java, Indonesia

F. Danardana Murwani² 

Budi Eko Soetjipto³ 

Nurika Restuningdiah⁴ 

Faculty of Economics and Business, Universitas Negeri Malang, Malang,
East Java, Indonesia

ABSTRACT

Despite being an important component of Indonesia's small business sector, women entrepreneurs struggle to sustain their businesses. This study aims to examine the influence of financial inclusion and entrepreneurial orientation on business sustainability among female SMEs and investigate the mediating role of strategic agility. This study employed a self-administered survey of 354 women-owned SMEs in Bandung, Indonesia, from March to April 2025. Data were further analyzed using Covariance-Based Structural Equation Modeling (CB-SEM) to test and confirm the proposed conceptual framework. The results indicate that although entrepreneurial orientation and financial inclusion do not influence

¹ Corresponding author, e-mail: amelia.sugangga.2304139@students.um.ac.id

² E-mail: f.danardana.fe@um.ac.id

³ E-mail: budi.eko.fe@um.ac.id

⁴ E-mail: nurika.restuningdyah.fe@um.ac.id

business sustainability, both have significant influences on strategic agility among women-owned SMEs in Bandung. Meanwhile, strategic agility indicates a robust influence on business sustainability among women-owned SMEs. The mediation analysis reveals that strategic agility fully mediates the relationship between entrepreneurial orientation and financial inclusion, as well as financial inclusion and business sustainability.

KEYWORDS: *financial inclusion, entrepreneurial orientation, strategic agility, business sustainability, women entrepreneurs, SMEs*

Introduction

Global business conditions have undergone a fundamental transformation due to persistent supply chain disruptions, heightened post-COVID-19 uncertainty, and fluctuating consumer demand. According to the World Economic Forum (2023), these structural changes have complicated SMEs' ability to maintain product availability and have delayed sales cycles, contributing to inflationary pressures and a slower economic recovery. SMEs, as a primary driver of national and regional economies, are vulnerable to these disruptions (Legenzova et al., 2025). Their survival and resilience require adaptive strategies to address immediate risks and prepare enterprises for sustainability. SMEs are prominent contributors to innovation and employment opportunities, yet their capacity to absorb shocks is weaker compared to larger corporations (Inegbedion et al., 2024).

The contribution of women to the SME ecosystem has become an increasingly significant driver of economic and social development, with women-owned enterprises accounting for nearly 30% of SMEs in developing nations (Singh et al., 2020). Women entrepreneurs equally contribute to inclusive growth through job creation and community empowerment (Ogbari et al., 2024). Nevertheless, empirical evidence shows that women face more persistent barriers than male entrepreneurs, such as narrower business networks and sociocultural constraints (Soomro et al., 2024). The entrepreneurial environment is therefore not uniform, and the systemic disadvantages faced by women hinder the potential of their enterprises to scale or achieve long-term viability (Martins et al., 2024).

Indonesia provides a significant example, as its SME sector forms the foundation of the national economy. SMEs contribute more than 61.7% to the national gross domestic product (GDP) and absorb approximately 97% of the workforce (Kamar Dagang & Industri Indonesia, 2023). Notably,

women entrepreneurs are disproportionately represented, accounting for an estimated 64% of Indonesian SMEs owned or managed by women (Fauzan, 2024). The aforementioned study remarked that Bandung, known as a hub of the creative economy, is home to nearly 55% of women-owned SMEs in the sector. Despite this prominence, the sustainability of these enterprises remains under strain, as women entrepreneurs face a lack of access to reliable market information and adaptive business strategies (Kogut & Mejri, 2022; Kakeesh, 2024).

Business sustainability (BS) has long been conceptualized as the ability of enterprises to continue operations over the long term while balancing economic performance with social and environmental responsibility (Battour et al., 2021; Jindal, 2025). This triple bottom line model underlines that enterprises need to acquire profit without compromising social and ecological integrity (Nogueira et al., 2025). Concerning SMEs, sustainability is influenced by several factors, including access to resources and adaptability. Prior studies have remarked that women-owned SMEs confront some challenges that weaken their BS, including limited access to financing and reduced resilience in times of crisis (Odoch et al., 2025). Scholars have further argued that financial inclusion supports enterprise sustainability through improved access to credit and expanding markets (Eton et al., 2021; Bongomin et al., 2025).

In addition, entrepreneurial orientation (EO) is also a determinant of BS. It is characterized by proactiveness, innovativeness, and risk-taking (Wach et al., 2023). Furthermore, strategic agility (SA), defined as the capacity to respond quickly and flexibly to environmental change, has emerged as a critical variable in volatile contexts (Shams et al., 2021). Despite research examining individual constructs, there remains a paucity of studies that integrate these variables into a unified framework to deal with women SMEs' sustainability. Existing studies consider financial inclusion in terms of general access to credit, without exploring its interaction with EO in promoting BS (Han & Zhang, 2025; Chibueze et al., 2025). While SA has been recognized as essential for organizational resilience, its role in driving BS among women-owned SMEs is not yet sufficiently discovered (e.g., Ahammad et al., 2020; Xing et al., 2020).

Furthermore, women entrepreneurs in developing economies, such as Indonesia, remain underrepresented in empirical research on SME sustainability. This gap limits the capacity to design policies and interventions that address their unique needs. The present study aims to fill

the gaps and analyze the combined influence of financial inclusion, EO, and SA on the sustainability of women SMEs in Bandung. This study contributes to the literature on entrepreneurship and BS in three distinct ways. First, it expands theoretical understanding by integrating financial inclusion, EO, and SA into a single model that is relevant to BS.

Second, it contributes by situating the analysis within Bandung, a unique study area and a leading center of Indonesia's creative economy, where women SMEs form a majority of enterprises yet continue to struggle with sustainability challenges. Third, the study provides practical implications for policymakers and practitioners to promote entrepreneurial capability and enhance organizational agility. The findings are expected to inform targeted interventions that empower women entrepreneurs to contribute more effectively to national economic development.

Literature Review

Triple Bottom Line

This study employed the Triple Bottom Line (TBL) model developed by Elkington (1994) as a foundation for comprehending the sustainability of women SMEs. TBL integrates three dimensions of sustainability: profit (economic benefits), people (social welfare), and planet (environmental conservation) (Singh & Srivastava, 2022). The aforementioned study indicates that the TBL framework is relevant to SMEs that impact economic, social, and environmental aspects. According to TBL, it posits that business sustainability is an outcome variable influenced by financial inclusion (FI) in driving access to financial resources, entrepreneurial orientation (EO) in adopting sustainable practices and leveraging opportunities that support all three TBL aspects simultaneously (Caha et al., 2024), and strategic agility (SA) in responding to market changes that increasingly care about sustainable products (Al Taweel & Al-Hawary, 2021).

Financial Inclusion, Strategic Agility, and Business Sustainability

Financial inclusion (FI) constitutes a key factor in supporting women entrepreneurs (Abdallah et al., 2025; Antonijević et al., 2024). It provides a foundation for adequate financial access to support business sustainability (BS) among women SMEs through strategic agility (SA). FI is defined as

the process of ensuring that individual and business actors have access to quality financial products and services at affordable costs (Chitimira & Warikandwa, 2023). It involves account ownership and the use of financial services to raise welfare (Kodariyah et al., 2025). Some prior works (e.g., Leong et al., 2023; Wijewardena & Rammal, 2025) revealed that FI provides SMEs access to affordable financial products and essential transactional services can support long-term planning regarding capital allocation and investment, which is prominent for BS. This is particularly relevant for women entrepreneurs in Bandung, who often face structural constraints such as limited access to formal finance and reliance on informal funding sources. This is consistent with Sobhan and Hassan (2024), who found that women entrepreneurs face structural challenges, such as limited access to formal financial services, which underlines the importance of financial digitalization in improving operational efficiency and expanding market reach.

SA refers to an organization's ability to deal with changes flexibly (Kale et al., 2019). Also, a study stated that the automation and digitization of workplaces pose a threat to women's business (Mingaleva & Shironina, 2021), which raises the need for SA to deal with this issue. SA focuses on three main elements, including strategic sensitivity, resource fluidity, and leadership unity (Al Taweel & Al-Hawary, 2021). Bocken and Geradts (2020) explained that FI provides SMEs access to experiment with new products and takes bolder strategic steps, which is then strengthened by SA. Siddik et al. (2023) also added that FI helps to build organizational capability through access to financial technology and financial management training that can further promote SA in facing market changes. In Bandung, SMEs operate in competitive retail, culinary, and creative industries (Maulida et al., 2023). FI through digital payments, platform-based lending, and mobile banking supports faster resource reallocation. BS integrates economic, social, and environmental aspects that enable businesses to deliver sustainable profits and minimize negative environmental impacts (Jindal, 2025). Additionally, prior studies (e.g., Yang et al., 2022; Peter et al., 2025) reported that FI has been shown to ease financing constraints and improve access to business information, which can enhance strategic decision-making and agility. Hence, the first set of hypotheses is presented below.

H1. FI influences BS

H2. FI influences SA

Entrepreneurial Orientation, Strategic Agility, and Business Sustainability

EO presents as a motor that creates a behavioral foundation for developing SA in achieving BS for female SMEs. Some studies (e.g., Devi et al., 2019; Corrêa et al., 2022) defined EO as an approach that reflects attitudes, actions, and decision-making processes driven by innovation, proactivity, and risk-taking propensity. The innovation dimension in EO drives SME to develop new products and services, while the proactivity dimension enables them to anticipate market changes (Ahmed & Wahab, 2019). Risk-taking propensity as the third dimension of EO proposes mental readiness to exploit uncertain business opportunities (Corrêa et al., 2022). These dimensions facilitate the development of strategic sensitivity and resource fluidity, which are the main components of SA. There is some consensus that EO impacts business sustainability by fostering innovation, proactiveness, and risk-taking, which are essential for adapting to market changes and sustaining competitive advantage (Jallad & Karadas, 2024; Ooi et al., 2025).

Some prior works (e.g., Kale et al., 2019; Shams et al., 2021) identified three main elements of SA: strategic sensitivity, resource fluidity, and leadership unity. Ahammad et al. (2020) and Koç et al. (2022) explained that SA helps SMEs to optimize innovation resulting from EO and accelerate responses to market changes. In female SMEs, SA can be strengthened by EO through optimization of limited resources and product innovation processes (Alborathy et al., 2023). This relationship is relevant for SMEs in Bandung, where intense competition in retail, culinary, and creative industries require rapid adaptation to consumer preferences (Maulida et al., 2023), as well as to confront challenges to their development and sustainability (Lestari et al., 2025). At the same time, BS is achieved through the integration of EO and SA to create sustainable value creation. BS requires organizational capability to maintain long-term operations while providing benefits to stakeholders (Bui, 2020). BS indicators such as financial stability, business growth, and customer satisfaction are achieved through the synergy of EO and SA in facing the business environment (Peter et al., 2025). Thus, the following hypothesis is presented.

H3. EO influences BS

H4. EO influences SA

H5. SA influences BS

Strategic Agility as a Mediator

As a mediator, SA plays an essential part in the linkage between organizational and entrepreneurial factors toward BS. According to the Dynamic Capabilities Theory (DCT), organizations achieve sustainability through their capacity to sense opportunities and reorganize operations in response to changing environments (Teece et al., 1997). Within the Resource-Based View (RBV), financial inclusion and entrepreneurial orientation are valuable and distinct resources that require adaptive utilization to sustain competitive advantage (Barney, 1991). Preliminary investigation (e.g., Ahammad et al., 2020; Doz, 2020) remarked that SA drives a contingent effect that enables organizations to optimize the utilization of internal capabilities and EO according to external environmental conditions. Kale et al. (2019) and Shams et al. (2021) explained that high SA raises the positive impact of EO on BS through enhancing organizational capability and vice versa. The mediation path of SA can be explained by strategic sensitivity, resource fluidity, and leadership unity, which promote adaptive capacity. Al Taweel and Al-Hawary (2021) stated that strategic sensitivity will help organizations detect weak signals from environmental changes. Concerning SMEs, SA helps translate financial and entrepreneurial resources into responsive actions that support long-term sustainability (Abuanzeh et al., 2022). Thus, the last set of hypotheses is provided below.

H6. SA mediates FI and BS

H7. SA mediates EO and BS:

Methods

Study Design

This study adopted a quantitative approach with a descriptive explanatory design to identify and analyze the influence of financial inclusion (FI) and entrepreneurial orientation (EO) on business sustainability (BS) among female SMEs in Greater Bandung with a total of seven hypotheses. This study also captures the mediating role of strategic agility (SA) for these linkages. The analytical method chosen is Structural

Equation Modeling (SEM) using SmartPLS 4, which enables the simultaneous testing of complex relationships among variables and provides estimates of both direct and indirect effects within a comprehensive structural model. The selection of CB-SEM is based on its capability to handle multiple relationships and provide statistical efficiency in analyzing conceptual models involving mediation variables, as well as its ability to confirm the proposed model.

Population and Sample

The population in this study consisted of all women SME business actors in Greater Bandung, Indonesia. It was selected based on Bandung's strategic position as a creative economy center with a rapidly developing SME ecosystem. According to data from the Department of Cooperatives and SMEs of Bandung City (2022), the Food and Beverage (F&B) sector comprises nearly 40% of total SMEs, with approximately 55% owned by women, resulting in a total research population of 4,485 women business units based on 2025 data from DISKOPUKM Bandung City. A simple random sampling method was applied, yielding 354 respondents, with a 95% confidence level, 5% margin of error, and a 50% population proportion.

Instruments and Data Collection

This study used a closed-ended questionnaire with a 5-point Likert scale developed based on an extensive literature review (see Appendix 1). The five main constructs in this study were developed as follows: FI with six items adapted from ElDeeb et al. (2021), EO with six items based on Susanto et al. (2023), SA with six items adapted from Uddin et al. (2023), and BS with six items based on Leesatapornwongsa et al. (2023). Data collection utilized questionnaires in the form of Google Forms, which were distributed to women F&B SMEs in Greater Bandung. In the study, respondents were assured anonymity to protect their identities and encourage honest participation. This was achieved through informed consent, where participants were briefed on how their data would be used and that their personal details would remain confidential. Any identifiable information was either removed or anonymized, and data were securely stored.

Data Analysis

The obtained data were further estimated using CB-SEM with SmartPLS version 4, selected for its robust graphical capabilities compared to AMOS. CB-SEM was chosen for its capability to evaluate multiple relationships and confirm the proposed model. The analysis followed a two-stage process: measurement model evaluation and structural model assessment. The measurement model was assessed through Confirmatory Factor Analysis (CFA). Also, this stage evaluated construct reliability, convergent, and discriminant validity using metrics, such as Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and loading values. Following the measurement model evaluation, the structural model was tested, focusing on the direct relationships between latent variables. Bootstrapping with 5000 resamples was employed to evaluate the significance of the path coefficients and indirect effects, providing robust standard errors for more reliable results.

Results and Discussion

Validity and Reliability

Table 1 shows the validity and reliability estimations. The financial inclusion (FI) variable has loading factor values of 0.862-0.965, entrepreneurial orientation (EO) ranging from 0.920-0.964, strategic agility (SA) ranging from 0.881-0.968, and business sustainability (BS) between 0.693 and 0.961. All indicators have loadings greater than 0.70, thus considered valid to meet convergent validity. In addition, CA and CR for each measurement item are higher than the threshold. For instance, BS has CA (0.938) and CR (0.923), while EO has CA (0.980) and CR (0.980). In addition, FI has CA (0.974) and CR (0.974). The constructs also demonstrate that the AVE is higher than 0.5, indicating that the constructs possess good convergent validity.

Table 1: Validity and reliability measures

Construct	Loading Factor	CA	CR	AVE
Business Sustainability (BS)		0.938	0.923	0.726
BS1	0.749			
BS2	0.870			
BS3	0.954			
BS4	0.961			
BS5	0.693			
BS6	0.851			
Entrepreneurial Orientation (EO)		0.980	0.980	0.888
EO1	0.943			
EO2	0.930			
EO3	0.920			
EO4	0.964			
EO5	0.957			
EO6	0.940			
Financial Inclusion (FI)		0.974	0.974	0.843
FI1	0.878			
FI2	0.930			
FI3	0.940			
FI4	0.965			
FI5	0.930			
FI6	0.919			
Strategic Agility (SA)		0.970	0.971	0.871
SA1	0.881			
SA2	0.957			
SA3	0.939			
SA4	0.968			
SA5	0.919			

Source: Author's calculation

Furthermore, this paper also tests for discriminant validity using the Fornell-Larcker Criterion. The bold values in Table 2 represent the square root of AVE ($\sqrt{\text{AVE}}$) for each construct, which is higher than that of other constructs in the table. In detail, the BS with a value of 0.852 is greater than the correlation values with other variables below it. Indeed, for other variables involved, including EO, FI, and SA.

Table 2: Discriminant validity

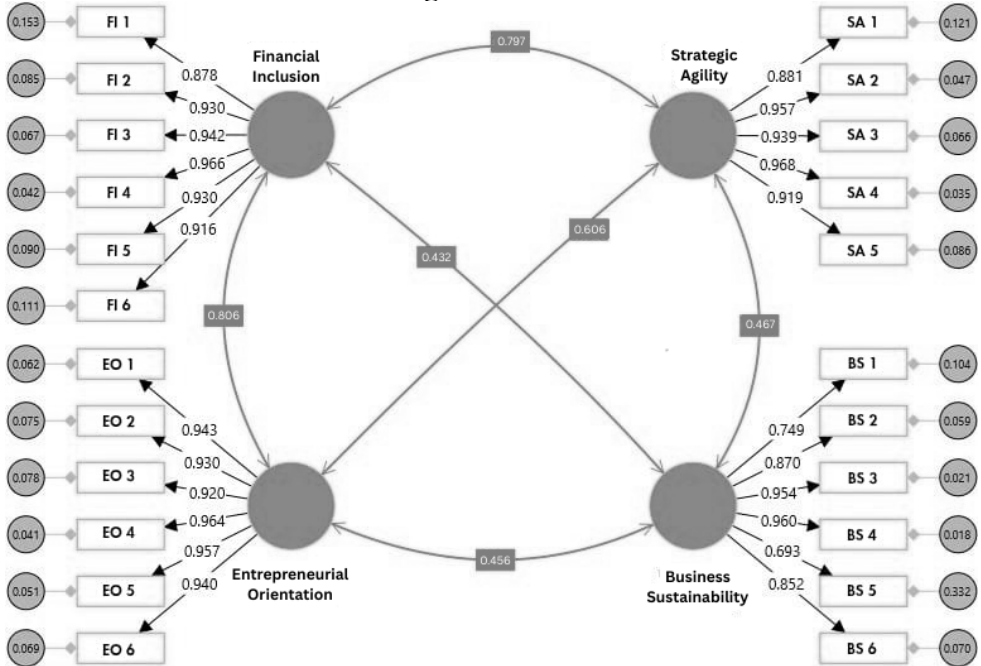
	BS	EO	FI	SA
Business Sustainability (BS)	0.852			
Entrepreneurial Orientation (EO)	0.456	0.942		
Financial Inclusion (FI)	0.429	0.807	0.918	
Strategic Agility (SA)	0.467	0.930	0.798	0.933

Source: Authors' calculation

Confirmatory Factor Analysis (CFA)

The measurement model also covers the CFA and its model fit. As shown in Table 3 and Figure 1, the CFA results include absolute fit with RMSEA = 0.066 (<0.08) and GFI = 0.887 (0.80-0.90), incremental fit with AGFI = 0.855 (0.80-0.90), CFI=0.945 (>0.90), TLI=0.937 (>0.90), and Chi-square/df=2.160 (<3.000). Although GFI and AGFI are below 0.90, these values are still acceptable as minimum thresholds, where 0.80 for GFI and

Figure 1: CFA



Source: Authors' calculation, SmartPLS output

0.90 for AGFI, indicating the model can be accepted as a marginal fit (Dash & Paul, 2021). To find this model fit, we deleted one item for SA.

Table 3: Model of fit

	Estimated model
P value	0.000
ChiSqr/df	2.160
RMSEA	0.066
GFI	0.887
AGFI	0.855
TLI	0.937
CFI	0.945

Source: Authors' calculation, SmartPLS output

Structural Model

After accomplishing the measurement model, this study proceeds with the structural model. In this stage, we test the predictive capability based on R^2 values. R^2 indicates greater explanatory power on a range from 0 to 1 (Hair et al., 2019). R^2 values of 0.75, 0.50, and 0.25 explain substantial, moderate, and weak effects, respectively. For BS is 22.7%, which indicates that BS can be explained by EO, FI, and SA. While the R^2 for SA is 92.3%, showing that SA can be explained by EO and SA with a robust relation (see Table 5).

Table 5: R^2 estimation

	R-squared
Business Sustainability	0.227
Strategic Agility	0.923

Source: Authors' calculation, SmartPLS output

Hypothesis Testing

The analysis (Table 6 and Figure 2) shows that EO influences SA ($\beta = 0.140$, $t = 3.336$, $p = 0.001$), but it failed to drive BS ($\beta = 0.057$, $t = 1.498$, p

= 0.135). This study provides evidence that FI also failed in impacting on BS ($\beta = 0.037, t = 1.284, p = 0.200$), but it can drive SA ($\beta = 0.737, t = 21.642, p < 0.001$). This study also demonstrates that SA has a significant influence on BS ($\beta = 0.895, t = 23.557, p < 0.001$). In addition to having a direct effect, SA can play a role as a mediator.

Table 6: Hypotheses estimation

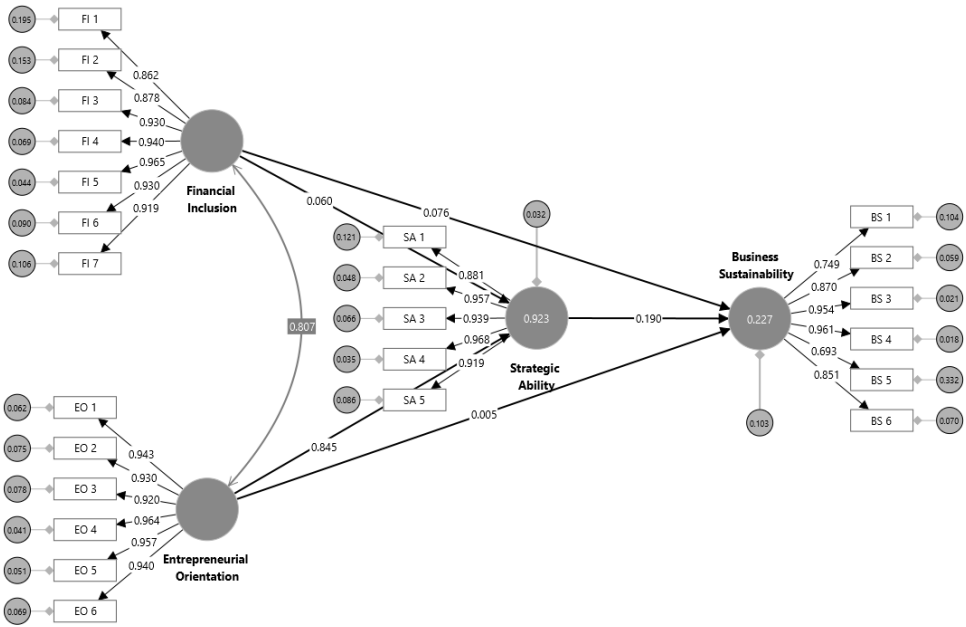
	Original sample	T statistics	P values	Decision
H1. FI → BS	0.037	1.284	0.200	Not confirmed
H2. FI → SA	0.140	3.336	0.001	confirmed
H3. EO → BS	0.057	1.498	0.135	Not confirmed
H4. EO → SA	0.737	21.642	0.000	confirmed
H5. SA → BS	0.895	23.557	0.000	confirmed
H6. EO → SA → BS	0.660	15.022	0.000	Full Mediation
H7. FI → SA → BS	0.126	3.315	0.001	Full Mediation

Source: Authors' calculation

Note. EO =entrepreneurial orientation, FI=financial inclusion, BS=business sustainability, SA=strategic agility

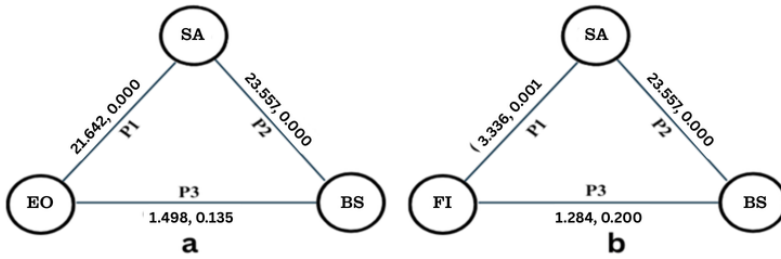
Indirect effect is provided using the bootstrapping method. As illustrated in Figure 3, based on Hair et al. (2021) mediation analysis, the direct effect (p3) between EO and FI variables on BS was examined. The indirect effect represents the strategic agility mediator in the connection between EO and FI on BS. The type of mediation was determined through mediation analysis procedures. Figure 3(a) shows a non-significant effect with a p3 value of 1.498 (>1.96) and 0.135 (<0.05). Indeed, Figure 3(b) shows a non-significant effect with a p3 value of 1.284 (>1.96) and 0.200 (<0.05). The indirect effect (p1×p2) indicates a significant indirect influence. The mediation estimation (Figure 3a), the EO–SA (p1) and SA–BS (p2) pathways are significant with positive directions. Meanwhile, FD–BS (p3) shows a non-significant influence. According to Zhao et al. (2010), this pattern is classified as indirect-only mediation or full mediation (see Table 7).

Figure 2: Structural model



Source: Authors' calculation, SmartPLS output

Figure 3: Mediating estimation



Source: Adapted from Hair et al. (2019)

Table 7: Decision for mediating estimation

Path	p3	p1×p2	Mediation Type
EO → SA → BS	Not significant	Significant	Full mediation
FI → SA → BS	Not significant	Significant	Full mediation

Source: Authors

Note. EO =entrepreneurial orientation, FI=financial inclusion, BS=business sustainability, SA=strategic agility

Discussion

In this study, financial inclusion (FI) shows no significant direct influence on business sustainability (BS), thereby rejecting the first hypothesis. This finding differs from Lestari et al. (2025), who emphasized the direct role of FI in supporting performance and BS among women entrepreneurs in Indonesia. This is also contrary to a prior study by Abdallah et al. (2025), which stated that FI is prominent for women entrepreneurs in the four Gulf countries and five Western Balkan countries. The explanation to support this finding is that women entrepreneurs in Bandung face challenges such as high banking costs, cultural norms, and limited financial education, which hinder their FI (Vong et al., 2014; Kodariyah et al., 2025).

In this study, FI successfully influences strategic agility (SA), confirming the second hypothesis. For women SMEs, adequate financial access enables greater flexibility in resource allocation and encourages strategic experimentation (Purwoto et al., 2025). In line with Chauvet and Jacolin (2017), the integration of financial technology into FI stimulates adaptive capabilities and escalates business resilience. Considering this matter, some studies (e.g., Abdallah et al., 2025; Antonijević et al., 2024) suggested enhancing FI among women entrepreneurs through education and empowerment.

The next finding indicates that entrepreneurial orientation (EO) failed to influence BS, rejecting the third hypothesis. This finding aligns with Abbas et al. (2022), who pointed out that EO requires mediation to deliver optimal impact on business performance. The fundamental explanation for this unexpected outcome is due to the fact that high EO among women SMEs does not automatically provide BS without adequate strategic agility (SA). In this context, high EO cannot ensure business sustainability without adequate strategic support. At the same time, another study remarked that EO promotes women entrepreneurs instead of BS (Umar et al., 2023). In addition, cultural factors can explain why women entrepreneurs in Bandung, Indonesia, face traditional expectations that restrict decision-making freedom and risk-taking behavior. Consistent with the Triple Bottom Line (TBL) theory, BS demands the integration of economic, social, and environmental dimensions (Gimenez et al., 2012). Therefore, innovation, proactivity, and risk-taking propensity inherent in EO must be transformed through SA to achieve impact on BS.

The subsequent finding reveals that EO influences SA, confirming the fourth hypothesis and supporting prior studies (Aloulou et al., 2024; Satar et al., 2025), which posited that EO facilitates the development of SA through adaptive capabilities. Concerning women entrepreneurs in Bandung, high EO stimulates proactivity in identifying opportunities and developing adaptive strategies. This finding indicates that EO is crucial for developing SA, which is vital in overcoming local economic and cultural challenges. A prior study by Rodrigues and Raposo (2011) remarked that EO has been proven to reinforce organizational capacity to respond to changes, which constitutes the essence of SA.

The next result shows that SA can directly influence BS, supporting the fifth hypothesis. This finding is consistent with Al Taweel and Al-Hawary (2021), who noted the prominent role of SA in achieving BS. Some prior studies stated that SA drives women entrepreneurs to respond swiftly to market demands and competitive pressures, thereby sustaining their businesses (Adesanya et al., 2024; Herath, 2023). To enhance SA among women entrepreneurs, Marin et al. (2024) suggested promoting soft skills and training with a focus on crisis management and adaptation to adverse situations. In addition, SA can fully mediate the connection between EO and BS, confirming the sixth hypothesis.

This finding indicated that EO in women SMEs must be transformed through strategic capabilities to enhance BS. Consistent with Elali (2021), SA helps organizations to convert entrepreneurial potential into sustainable competitive advantage and risk-taking to be directed toward adaptive strategies to accomplish BS. In addition, SA has been proven to fully mediate the linkage between FI and BS, supporting the seventh hypothesis. This finding confirms that SA can mediate the linkage between FI and BS by enabling women entrepreneurs to better utilize financial resources and adapt to changing market conditions (Adesanya et al., 2024).

The findings align with the Triple Bottom Line (TBL) framework, which integrates economic, social, and environmental aspects of business sustainability (Gimenez et al., 2012). In this regard, improving financial literacy enhances financial management among women entrepreneurs (Tumba et al., 2022). In addition, an environmental perspective is required to provide innovative programs in promoting BS. Dynamic Capabilities Theory (DCT) also explains that businesses need adaptive capacity to sense opportunities and adjust operations under changing conditions (Teece et al., 1997). Within the Resource-Based View, financial literacy, innovation

capability, and institutional support are valuable internal resources that sustain competitiveness and long-term growth (Barney, 1991). Gender-responsive policies should enhance access to finance and technology for women entrepreneurs.

Conclusion

The study has important theoretical implications. First, this research adds empirical evidence of the direct and indirect links of EO and FI on BS, contributing to the literature on how these factors impact long-term business viability. Second, the study contributes to the literature on strategic management by showing that SA acts as a critical mediator in the connection between EO, FI, and BS. Hence, there is a need for the capability to adapt and deal with market changes. Next, the bottom-line model is that enhancing EO and FI is not sufficient for BS unless SA is developed.

The research findings indicate that SA constitutes a key factor for achieving BS among women-owned SMEs. Therefore, business practitioners need to develop the capability to detect environmental changes and implement adaptive strategies through various initiatives, such as training, workshops, and mentoring programs. The technological aspect is also essential, as digitalization can enhance business responsiveness. Furthermore, although EO does not directly influence BS, this EO contributes robustly to SA. Hence, women SMEs need to sharpen product and process innovation, and risk-taking courage through training and entrepreneurial communities. On the other hand, the incorporation of FI must be conducted by enhancing financial literacy and integrating financial technology into business operations.

Limitation and Future Direction

This study has several limitations that should be considered in the interpretation of results. First, the GFI and AGFI values fall within the marginal fit range (0.887 and 0.855), although still acceptable according to the criteria of Hair et al. (2019), indicating that the model could be strengthened by adding relevant variables or indicators. Second, the R² value for business sustainability of 22.7% indicates that 77.3% of the variance is still explained by other factors outside the model, necessitating

exploration of additional factors that influence the business sustainability of women SMEs. Third, the research focuses on women SMEs, which limits the generalizability of the results to other sectors or contexts; thus, replication studies across different sectors and regions would strengthen the external validity of the findings.

Based on the findings and limitations of this research, several future research directions can be recommended. First, an exploration of additional factors that influence the business sustainability of women's SMEs, such as social support, access to technology, and government policies. Second, the development of longitudinal models to understand the inter-variable relationships in the long-term. Third, comparative research on women-and men-owned SMEs to identify differences in patterns and factors affecting business sustainability. Fourth, a deeper investigation into other mediation mechanisms linking entrepreneurial orientation and financial inclusion to business sustainability.

Acknowledgments

We would like to thank women entrepreneurs in Bandung, Indonesia, for providing information about their businesses. However, this study has not received any funding support.

References

- [1] **Abbas, M. G., Wang, Z., Ullah, H., Mohsin, M., Abbas, H., & Mahmood, M. R.** (2022). Do entrepreneurial orientation and intellectual capital influence SMEs' growth? Evidence from Pakistan. *Environmental Science and Pollution Research*, 29(17), 25774-25789. <https://doi.org/10.1007/s11356-021-17542-y>
- [2] **Abdallah, F., Antonijević, M., & Domazet, I.** (2025). Determinants of women's financial inclusion: Evidence from the Gulf and the Western Balkan Region. *Journal of Women's Entrepreneurship and Education*, (3/4), 95-112. <https://doi.org/10.28934/jwee25.34.pp95-112>
- [3] **Abuanzeh, A., Alnawayseh, A., Qtaishat, G., & Alshurideh, M.** (2022). The role of strategic agility towards competitiveness with mediating effect of knowledge management. *Uncertain Supply Chain Management*, 10(4), 1523–1534. <https://doi.org/10.5267/j.uscm.2022.6.003>
- [4] **Adesanya, O. D., Ogunnaike, O. O., Ufua, D. E., Onayemi, O. O., Dada, A. E., & Edewor, O. J.** (2024). Strategic fit orientation and business agility

- of non-oil export women entrepreneurs in a developing economy. *Sustainability*, 16(15), 6360. <https://doi.org/10.3390/su16156360>
- [5] **Ahammad, Mohammad F., Glaister, K. W., & Gomes, E.** (2020). Strategic agility and human resource management. *Human Resource Management Review*, 30(1), 100700. <https://doi.org/10.1016/j.hrmr.2019.100700>
- [6] **Aloulou, W. J., Alsadi, A. K., Ayadi, F. M., & Alaskar, T. H.** (2024). Exploring the effects of entrepreneurial and digital orientations on the competitive advantage of Saudi Firms: Is Strategic Agility the Missing Link?. *Administrative Sciences*, 14(11), 306. <https://doi.org/10.3390/admsci14110306>
- [7] **Al Taweel, I. R., & Al-Hawary, S. I.** (2021). The mediating role of innovation capability on the relationship between strategic agility and organizational performance. *Sustainability (Switzerland)*, 13(14), 1–14. <https://doi.org/10.3390/su13147564>
- [8] **Antonijević, M., Domazet, I., Kojić, M., & Simović, V.** (2024). financial inclusion-a driving force for women's entrepreneurship development. *Journal of Women's Entrepreneurship and Education*, (3/4), 73-92. <https://doi.org/10.28934/jwee24.34.pp73-92>
- [9] **Barney, J.** (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- [10] **Battour, M., Barahma, M., & Al-Awlaqi, M.** (2021). The relationship between HRM strategies and sustainable competitive advantage: Testing the mediating role of strategic agility. *Sustainability (Switzerland)*, 13(9). <https://doi.org/10.3390/su13095315>
- [11] **Bocken, N. M. P., & Geradts, T. H. J.** (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, 53(4), 101950. <https://doi.org/10.1016/j.lrp.2019.101950>
- [12] **Bongomin, G. O. C, Chrysostome, E., Nkongolo-Bakenda, J. M., & Yourougou, P.** (2025). Toward increasing financial inclusion and sustainability of indigenous microenterprises in Africa in the presence of financial literacy. *Journal of Business and Socio-economic Development*, 5(3), 296-310. <https://doi.org/10.1108/JBSED-07-2023-0056>
- [13] **Caha, Z., Skýpalová, R., & Mrhálek, T.** (2024). CSR as a framework for sustainability in SMEs: The relationship between company size, industrial sector, and triple bottom line activities. *Asia Pacific Management Review*, 29(4), 451-461. <https://doi.org/10.1016/j.apmrv.2024.09.006>
- [14] **Chauvet, L., & Jacolin, L.** (2017). Financial inclusion, bank concentration, and firm performance. *World Development*, 97, 1–13. <https://doi.org/10.1016/j.worlddev.2017.03.018>

- [15] **Chitimira, H., & Warikandwa, T. V.** (2023). Financial inclusion as an enabler of United Nations sustainable development goals in the twenty-first century: An introduction. In *Financial inclusion and digital transformation regulatory practices in selected SADC countries: South Africa, Namibia, Botswana and Zimbabwe* (pp. 1-22). Cham: Springer International Publishing.
- [16] **Chibueze, T., Taiwo Adeshina, L. U. C., Ewubajo, S. D., & Ebere, L.** (2025). Access to credit and financial inclusion of MSMEs in sub-Saharan Africa: Challenges and opportunities. *International Journal of Financial Management and Economics*, 8(2), 861-872. <https://doi.org/10.33545/26179210.2025.v8.i2.609>
- [17] **Corrêa, V. S., Queiroz, M. M., Cruz, M. A., & Shigaki, H. B.** (2022). Entrepreneurial orientation far beyond opportunity: the influence of the necessity for innovativeness, proactiveness and risk-taking. *International Journal of Entrepreneurial Behavior & Research*, 28(4), 952-979. <https://doi.org/10.52088/ijesty.v5i4.1526>
- [18] **Dash, G., & Paul, J.** (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, 173, 121092. <https://doi.org/10.1016/j.techfore.2021.121092>
- [19] **Devi, T. P., Panigrahi, S. K., Maisnam, C., Alyani, W. Al, & Bino, E.** (2019). The female entrepreneurs' attitude towards entrepreneurship. *Delhi Business Review*, 20(2), 11-24. <https://doi.org/10.51768/dbr.v20i2.202201902>
- [20] **Doz, Y.** (2020). Fostering strategic agility: How individual executives and human resource practices contribute. *Human Resource Management Review*, 30(1), 100693. <https://doi.org/10.1016/j.hrmr.2019.100693>
- [21] **Elali, W.** (2021). The importance of strategic agility to business survival during corona crisis and beyond. *International Journal of Business Ethics and Governance*, 1, 1-8. <https://doi.org/10.51325/ijbeg.v4i2.64>
- [22] **EIDeeb, M. S., Halim, Y. T., & Kamel, E. M.** (2021). The pillars determining financial inclusion among SMEs in Egypt: service awareness, access and usage metrics and macroeconomic policies. *Future Business Journal*, 7(1), 32. <https://doi.org/10.1186/s43093-021-00073-w>
- [23] **Elkington, J.** (1994). Toward the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, 90-100. <https://doi.org/10.2307/41165746>
- [24] **Eton, M., Mwosi, F., Okello-Obura, C., Turyehewa, A., & Uwonda, G.** (2021). Financial inclusion and the growth of small medium enterprises in Uganda: empirical evidence from selected districts in Lango sub-region. *Journal of Innovation and Entrepreneurship*, 10(1), 23. <https://doi.org/10.1186/s13731-021-00168-2>

- [25] **Fauzan, A. M.** (2024, 31 January). Menkop UKM sebut 64 persen pelaku UMKM adalah perempuan. Antara News. <https://www.antaranews.com/berita/3953202/menkop-ukm-sebut-64-persen-pelaku-umkm-adalah-perempuan>
- [26] **Fornell, C., & Larcker, D. F.** (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- [27] **Gimenez, C., Sierra, V., & Rodon, J.** (2012). Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*, 140(1), 149-159. <https://doi.org/10.1016/j.ijpe.2012.01.035>
- [28] **Han, L., Lv, Q., & Zhang, Q.** (2025). Digital financial inclusion, credit access and non-farm employment. *Finance Research Letters*, 72, 106510. <https://doi.org/10.1016/j.frl.2024.106510>
- [29] **Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S.** (2021). Mediation analysis. In Partial least squares structural equation modeling (PLS-SEM) using R: A workbook (pp. 139-153). Cham: Springer International Publishing.
- [30] **Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M.** (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- [31] **Herath, H. M. T. S.** (2023). Female entrepreneurial orientation and firm performance: with special reference to Sri Lanka. *World Review of Entrepreneurship, Management and Sustainable Development*, 19(1-2), 157-173. <https://doi.org/10.1504/WREMSD.2023.127259>
- [32] **Inegbedion, H. E., Thikan, P. R., David, J. O., Ajani, J. O., & Peter, F. O.** (2024). Small and medium enterprise (SME) competitiveness and employment creation: the mediating role of SME growth. *Humanities and Social Sciences Communications*, 11(1), 1-10. <https://doi.org/10.1057/s41599-023-02434-y>
- [33] **Jallad, M. N., & Karadas, G.** (2024). Entrepreneurial orientation and performance outcomes in Palestinian SMEs: The role of absorptive capacity and industry type. *Sustainability*, 16(23), 10637. <https://doi.org/10.3390/su162310637>
- [34] **Jindal, P.** (2025). Economic, social, and environmental aspects of sustainable development-direct and indirect effects on business practices. In *Greening Our Economy for a Sustainable Future* (pp. 227-240). Elsevier.
- [35] **Kakeesh, D. F.** (2024). Female entrepreneurship and entrepreneurial ecosystems. *Journal of Research in Marketing and Entrepreneurship*, 26(3), 485-526. <https://doi.org/10.1108/JRME-09-2023-0158>
- [36] **Kale, E., Aknar, A., & Başar, Ö.** (2019). Absorptive capacity and firm performance: The mediating role of strategic agility. *International Journal of*

- Hospitality Management*, 78, 276–283.
<https://doi.org/10.1016/j.ijhm.2018.09.010>
- [37] **Kamar Dagang dan Industri Indonesia.** (2023). Data dan statistik UMKM Indonesia. Retrieved from <https://kadin.id/data-dan-statistik/umkm-indonesia/>
- [38] **Kodariyah, L., Suseno, B. D., & Sari, G. I.** (2025). Financial inclusion: Boosting green practices and innovation for female vendors well-being. *Journal of Women's Entrepreneurship and Education*, (1-2), 83-106.
<https://doi.org/10.28934/jwee25.12.pp83-106>
- [39] **Kogut, C. S., & Mejri, K.** (2022). Female entrepreneurship in emerging markets: challenges of running a business in turbulent contexts and times. *International Journal of Gender and Entrepreneurship*, 14(1), 95-116.
<https://doi.org/10.1108/IJGE-03-2021-0052>
- [40] **Leesatapornwongsa, F., Thawesaengkulthai, N., & Vaiyavuth, R.** (2023). Developing a sustainability measurement for innovation performance for the food industry. *Sustainability*, 15(24), 16714.
<https://doi.org/10.3390/su152416714>
- [41] **Legenzova, R., Lecké, G., & Lupeikytė, E.** (2025). How prepared are SMEs for market disturbances? A dynamic approach to SMEs' financial resilience. *Cogent Business & Management*, 12(1), 2520463.
- [42] **Leong, C. M., Ali, M., Raza, S. A., Puah, C. H., & Eksi, I. H.** (2023). Financial inclusion across Asia: Bringing opportunities for businesses. Emerald Publishing Limited.
- [43] **Lestari, E. D., Kurniasari, F., Pratiwi, P. Y., Thilaga, S., & Ooi, B. W.** (2025). Empowering women entrepreneurs: the role of financial literacy, inclusion, and access in enhancing MSE's performance and sustainability via women development program in Indonesia. *Cogent Business & Management*, 12(1), 2593078.
<https://doi.org/10.1080/23311975.2025.2593078>
- [44] **Marin, Y. R., Bardales, E. S., Rituay, A. M. C., Caro, O. C., & Santos, R. C.** (2024). Empowering entrepreneurial success through the development of interpersonal skills and business plans in women entrepreneurs. *Journal of Women's Entrepreneurship and Education*, (3/4), 249-276.
<https://doi.org/10.28934/jwee24.34.pp249-276>
- [45] **Martins, I., Nunez, M. A., Perez, J. P., & Villanueva, E.** (2024). Scrutinizing informal female entrepreneurship: a systematic review and research agenda. *Journal of Small Business and Enterprise Development*.
<https://doi.org/10.1108/JSBED-03-2024-0165>
- [46] **Maulida, D., Febrian, F., & Mulyana, A.** (2023). The influence of marketing strategy and entrepreneurial competence on competitive advantage and its implications for marketing performance (A survey on fashion, culinary and craft small and medium industries assisted by the

- department of trade and industry of Bandung City). *Greenation International Journal of Law and Social Sciences*, 1(1), 52-60. <https://doi.org/10.38035/gijlss.v1i1.266>
- [47] **Mingaleva, Z., & Shironina, E.** (2021). Gender aspects of digital workplace transformation. *Journal of Women's Entrepreneurship and Education*, (1-2), 1-17. <https://doi.org/10.28934/jwee21.12.pp1-17>
- [48] **Nogueira, E., Gomes, S., & Lopes, J. M.** (2025). Unveiling triple bottom line's influence on business performance. *Discover Sustainability*, 6(1), 43. <https://doi.org/10.1007/s43621-025-00804-x>
- [49] **Odoch, H. J., Namono, R., & Wofuma, G.** (2025). Enhancing financial resilience of women-owned SMEs in the aftermath of COVID-19 pandemic: the antecedent role of social capital. *Vilakshan-XIMB Journal of Management*, 22(1), 14-27. <https://doi.org/10.1108/XJM-01-2024-0007>
- [50] **Ogbari, M. E., Folorunso, F., Simon-Ilogho, B., Adebayo, O., Olanrewaju, K., Efegbudu, J., & Omoregbe, M.** (2024). Social empowerment and its effect on poverty alleviation for sustainable development among women entrepreneurs in the Nigerian agricultural sector. *Sustainability*, 16(6), 2225. <https://doi.org/10.3390/su16062225>
- [51] **Ooi, S. K., Yang, S., & Adeneye, Y. B.** (2025). Sustainable development practices as a mediator: Linking entrepreneurial orientation to SME business performance. *Asian Journal of Business Ethics*, 1-25. <https://doi.org/10.1007/s13520-025-00233-z>
- [52] **Peter, S., Elangovan, G., & Gupta, A.** (2025). Digital engagement in financial inclusion for bridging the gendered entrepreneurial financial gap: Evidence from India. *Cogent Business & Management*, 12(1), 2518492. <https://doi.org/10.1080/23311975.2025.2518492>
- [53] **Purwoto, L., Rahmawati, C. H. T., Rahayu, T., & Abhedananda, E. A. S.** (2025). Digital financial literacy and entrepreneurial resilience of women entrepreneurs: A moderated model of overconfidence. *Journal of Women's Entrepreneurship and Education*, (1-2), 1-25. <https://doi.org/10.28934/jwee25.12.pp1-25>
- [54] **Rodrigues, R. G., & Raposo, M.** (2011). Entrepreneurial orientation, human resources information management, and firm performance in SMEs. *Canadian Journal of Administrative Sciences*, 28(2), 143–153. <https://doi.org/10.1002/cjas.205>
- [55] **Satar, M. S., Alshibani, S. M., & Alarifi, G.** (2025). Effects of firm-level entrepreneurship orientation on digital transformation in SMEs: the moderating role of strategic agility. *Entrepreneurship Research Journal*, 15(1), 91-124. <https://doi.org/10.1515/erj-2023-0267>
- [56] **Shams, R., Vrontis, D., Belyaeva, Z., Ferraris, A., & Czinkota, M. R.** (2021). Strategic agility in international business: A conceptual framework

- for “agile” multinationals. *Journal of International Management*, 27(1), 100737. <https://doi.org/10.1016/j.intman.2020.100737>
- [57] **Siddik, A. B., Rahman, M. N., & Yong, L.** (2023). Do fintech adoption and financial literacy improve corporate sustainability performance? The mediating role of access to finance. *Journal of Cleaner Production*, 421, 137658. <https://doi.org/10.1016/j.jclepro.2023.137658>
- [58] **Singh, S., & Srivastava, S. K.** (2022). Decision support framework for integrating triple bottom line (TBL) sustainability in agriculture supply chain. *Sustainability Accounting, Management and Policy Journal*, 13(2), 387-413. <https://doi.org/10.1108/SAMPJ-07-2021-0264>
- [59] **Sobhan, N., & Hassan, A.** (2024). The effect of institutional environment on entrepreneurship in emerging economies: female entrepreneurs in Bangladesh. *Journal of Entrepreneurship in Emerging Economies*, 16(1), 12-32. <https://doi.org/10.1108/JEEE-01-2023-0028>
- [60] **Soomro, B. A., Abdelwahed, N. A. A., & Shah, N.** (2024). Entrepreneurship barriers faced by Pakistani female students in relation to their entrepreneurial inclinations and entrepreneurial success. *Journal of Science and Technology Policy Management*, 15(3), 569-590. <https://doi.org/10.1108/JSTPM-12-2021-0188>
- [61] **Susanto, P., Hoque, M. E., Shah, N. U., Candra, A. H., Hashim, N. M. H. N., & Abdullah, N. L.** (2023). Entrepreneurial orientation and performance of SMEs: the roles of marketing capabilities and social media usage. *Journal of Entrepreneurship in Emerging Economies*, 15(2), 379-403. <https://doi.org/10.1108/JEEE-03-2021-0090>
- [62] **Tece, D. J., Pisano, G., & Shuen, A.** (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- [63] **Tumba, N. J., Onodugo, V. A., Akpan, E. E., & Babarinde, G. F.** (2022). Financial literacy and business performance among female micro-entrepreneurs. *Investment Management & Financial Innovations*, 19(1), 156. [http://dx.doi.org/10.21511/imfi.19\(1\).2022.12](http://dx.doi.org/10.21511/imfi.19(1).2022.12)
- [64] **Uddin, A., Cetindamar, D., Hawryszkiewicz, I., & Sohaib, O.** (2023). The role of dynamic cloud capability in improving SME's strategic agility and resource flexibility: An empirical study. *Sustainability*, 15(11), 8467. <https://doi.org/10.3390/su15118467>
- [65] **Umar, F., Kadir, A. R., Reni, A., & Thaha, R. R.** (2023). Improving business performance through entrepreneurship orientation and management capacity for women entrepreneurs. *Journal of Women's Entrepreneurship and Education*, 37-57. <https://doi.org/10.28934/jwee23.pp37-57>
- [66] **Vong, J., Song, I., Salian, R. D., Kariath, R., & Bunyong, K.** (2014). Improving the process of financial inclusion for women entrepreneurs in

- Indonesia. *International Journal of Process Management and Benchmarking*, 4(2), 167-185. <https://doi.org/10.1504/IJPMB.2014.060406>
- [67] **Wach, K., Maciejewski, M., & Glodowska, A.** (2023). Inside entrepreneurial orientation: do risk-taking and innovativeness influence proactiveness?. *Economics & Sociology*, 16(1), 159-175. <https://doi.org/10.14254/2071789X.2023/16-1/11>
- [68] **Wijewardena, C., & Rammal, H. G.** (2025). Empowering circular economies: unveiling the dynamics of social business models in rural Sri Lanka. In *Circular Entrepreneurship Ecosystems* (pp. 152-175). Edward Elgar Publishing.
- [69] **World Economic Forum.** (2023). Annual Report 2023-2024. World Economic Forum. Retrieved from <https://www.weforum.org/publications/annual-report-2023-2024/in-full/our-organization-5f5b6f9aba/>
- [70] **Xing, Y., Liu, Y., Boojihawon, D. K., & Tarba, S.** (2020). Entrepreneurial team and strategic agility: A conceptual framework and research agenda. *Human Resource Management Review*, 30(1), 100696. <https://doi.org/10.1016/j.hrmr.2019.100696>
- [71] **Yang, X., Huang, Y., & Gao, M.** (2022). Can digital financial inclusion promote female entrepreneurship? Evidence and mechanisms. *The North American Journal of Economics and Finance*, 63, 101800. <https://doi.org/10.1016/j.najef.2022.101800>
- [72] **Zhao, X., Lynch, J. G., & Chen, Q.** (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37(2), 197–206. <https://doi.org/10.1086/651257>

Article history: Received: October 27, 2025

Accepted: February 2, 2026

First Online: February 6, 2026

Appendix 1. Research Instruments

Business Sustainability

SD D N A SA

My business focuses on increasing income and reducing expenses to improve efficiency.

My business seeks to enhance financial stability and maintain sound financial health.

My business strives to expand opportunities to sell products to more markets or customers.

My business adopts methods to reduce or properly manage production waste.

My business uses environmentally friendly materials, conserves raw resources, and selects suppliers who demonstrate environmental responsibility.

My business ensures that its products are safe to use and prioritizes customer health and safety.

Entrepreneurial Orientation

My business consistently innovates its products to remain competitive within the local market.

My business introduces new and innovative products to the market.

My business usually acts early in response to anticipated market conditions.

My business continuously seeks new opportunities to address changing market conditions.

My business consistently adapts to meet fluctuating market demands.

My business utilizes emerging opportunities as part of its overall business strategy.

Organizational Capability

My business applies flexible marketing methods such as advertising, promotion, and distribution for various product types.

My business adjusts production processes to align with the characteristics of different products.

My business modifies product strategies to match the needs of targeted markets.

My business provides services that can be adapted according to customer requests.

My business develops products based on customer feedback and specific market requirements.

My business observes how customers use or benefit from its products to improve future designs and performance.

Strategic Agility

My business responds quickly to changes in competitors' strategies.

My business makes product adjustments when customer needs or complaints change.

My business adjusts production levels according to customer demand.

My business applies innovative and modern methods to maintain and increase customer loyalty.

My business actively seeks new customers or markets for its products and services.

My business takes advantage of opportunities in new or emerging markets


DOI: 10.28934/jwee26.12.pp50-72

JEL: Q50, Q53, Q56, L26

ORIGINAL SCIENTIFIC PAPER

Application of Circular Economy Principles in Women's Entrepreneurship: The Case of Serbia




Sanja Popović Pantić¹ 

Institute Mihajlo Pupin, Belgrade, Serbia

Nenad Ravić² 

Visoka ekonomska škola strukovnih studija, Belgrade, Serbia

Daniela Kuzmanović³ 

Institute Mihajlo Pupin, Belgrade, Serbia

ABSTRACT

This study explores the application of circular economy (CE) principles among women entrepreneurs in Serbia. Using survey data from 35 women-owned enterprises collected in 2024, the research analysed awareness, adoption patterns, and key drivers of CE implementation through Spearman's rho correlation and descriptive statistics (IBM SPSS v29). Findings reveal high awareness of CE principles but modest practical adoption, mainly in waste reduction, reuse, and renewable material use. No significant link was found between enterprise size and CE adoption, suggesting that firm size does not determine circular engagement. Managerial mindset, environmental commitment, and consumer expectations emerged as the strongest motivators, while limited technical knowledge and financing remain major barriers. The study contributes to understanding gendered entrepreneurship in sustainability contexts and calls for targeted CE training,

¹ E-mail: sanjap.pantic@pupin.rs

² Corresponding author, e-mail: nenad.ravic@vpsbeograd.edu.rs

³ E-mail: daniela.kuzmanovic@pupin.rs

access to green financing, and stronger institutional support to advance women's participation in the circular transition.

KEYWORDS: *women's entrepreneurship, SMEs, circular economy, sustainable development*

Introduction

The focus of this paper is on the results of research conducted as part of the project "Strengthening Digital and Industrial Capacities for Sustainable Circular Transition of Female Entrepreneurs in the Danube Region." The project is funded under the Danube Transnational Programme - WE.Circular¹.

This research aims to enhance opportunities for women's participation in the sustainable economy by identifying existing skill gaps and labour market needs, with particular emphasis on women's role in the transition to a circular economy. In Serbia, as in other countries in the region, the concept of the circular economy is gaining increasing relevance. However, women continue to face structural barriers related to limited access to knowledge, resources, and employment opportunities in "green" sectors. By addressing these issues, the present study contributes to a deeper understanding of the challenges faced by women in this context and provides evidence-based recommendations to support their greater involvement in sustainable development.

The research topic addressed in this paper is significant on multiple levels. The study examines the application of circular economy principles in women's entrepreneurship in Serbia, an area with the potential to generate substantial business and environmental benefits, including the use of renewable energy sources, product regeneration and reuse, recycling, waste minimisation, and related practices. By focusing on this topic, the paper draws the attention of both academic and professional audiences to the potential of the circular economy, which remains insufficiently explored and implemented in the Serbian context. Furthermore, the existing body of scientific literature on the application of circular economy principles in Serbia is limited. When the focus is further narrowed to women's

¹ WE. Circular project (Boosting digital and industrial capacity for sustainable circular transition of women entrepreneurs in the Danube Region, more information available at: <https://interreg-danube.eu/projects/wecircular> (EU, 2024))

entrepreneurship, relevant scientific research is almost entirely absent. As a result, there is a lack of empirical evidence and established findings from previous studies. These circumstances underscore the innovative character of the present research, as well as the relevance, originality, and timeliness of the topic under investigation.

Several existing studies are only partially related to the present research, as they address the circular economy in Serbia but do not specifically examine it within the context of women's entrepreneurship. The findings of Vučinić et al. (2022) show that the achieved level of circularity in the Republic of Serbia is still exceptionally low. Research findings also indicate that organic production has significant potential for applying the circular economy, thereby confirming the fundamental assumption on which this paper is based. Among the most important recommendations for accelerating the transition from a linear to a circular economy in the Republic of Serbia are (Ibid):

1. Aligning environmental laws and standards with European Union legislation;
2. Increasing the area under organic production;
3. Raising the recycling rate of materials;
4. Using energy from renewable sources;
5. Increasing public and business awareness of the circular economy concept.

Gajić (2024) examined the progress of Western Balkan countries in adopting the circular economy, highlighting the application of innovative technologies and scientific methodologies in addressing regional challenges. The results of his research show that the Western Balkan countries have adopted an environmentally sustainable development approach, prioritizing both environmental protection and the improvement of quality of life. Through the Berlin Process, a framework has been established to support innovative projects, particularly those focusing on green economy principles such as the circular economy and the bioeconomy.

According to Kokeza et al. (2021), implementing the circular economy in the domestic textile industry and across the economy can have positive impacts on the economy, society, and the environment. These benefits include increased economic competitiveness, the creation of new jobs, the introduction of "sustainable" and "eco-friendly" standards and certifications, higher final product values, increased public awareness of issues related to future development, the preservation of natural resources, and more.

In their study, Urošević et al. (2024) concluded that Serbia's development policy has acknowledged the circular economy and its potential for future economic growth.

A limitation of the study is the small number of respondents, but it should be emphasised that the questionnaire was filled out only by women-owned enterprises, most of which apply at least one circular economy model. Due to the limited sample size, the results of this study are indicative.

Although existing studies address circular economy practices in Serbia and the Western Balkans, empirical evidence on the application of circular economy principles within women-owned enterprises remains extremely limited. In particular, there is a lack of primary data-based studies examining women entrepreneurs' awareness, adoption of circular models, and the role of digital technologies in supporting circular transition. This research gap limits the understanding of gender-specific challenges and opportunities in the circular economy transition in emerging economies such as Serbia.

Therefore, building on the identified research gap, the objective of this paper is to examine the level of awareness, application, and key drivers of circular economy principles among women-owned enterprises in Serbia, with particular attention to the role of digital technologies. The study contributes to the literature by providing original empirical evidence, while also offering practical insights for policymakers and support organisations aiming to strengthen women's participation in the circular economy.

Literature Review

Sustainable development has been recognised as a dominant development paradigm of the 21st century, prompting businesses to adapt their models and processes to sustainability requirements (Vićentijević, 2023).

Within this context, the circular economy represents an economic strategy aimed at transforming linear production and consumption systems into circular ones, focusing on resource efficiency, waste reduction, and environmental optimization (Singh & Ordóñez, 2016).

Unlike traditional growth-oriented models, the circular economy promotes multidimensional progress, including environmental quality, human well-being, and long-term economic resilience, while enhancing

business competitiveness through innovation, cost reduction, and efficient resource use (Vićentijević, 2023; Velenturf & Purnell, 2021)

The circular economy paradigm is commonly structured around five core pillars: sustainable resources, product-as-a-service models, sharing platforms, extended product lifecycles, and new lifecycle systems. Circular business models emphasise renewable energy use, waste prevention, product durability, reuse, and regeneration, creating opportunities for economic growth, employment, and environmental protection. Importantly, the circular economy shifts the purpose of economic activity toward maintaining social well-being and environmental quality (Velenturf & Purnell, 2021).

Women-owned businesses are predominantly micro and small enterprises, often operating in traditional sectors, characterized by lower revenues and slower growth. These enterprises frequently face barriers related to access to finance, procurement opportunities, certification, and digital technologies, limiting their capacity for innovation and integration into higher value chains (Popović-Pantić, 2020).

Digitalisation has been identified as a critical pathway for reducing these gaps, supporting both green transition and compliance with EU Green Agenda standards, while enabling faster internationalisation and increased competitiveness of women-owned enterprises (Popović Pantić et al., 2020).

Leadership strategies that prioritise inclusivity, innovation, and digital adaptation play a key role in fostering sustainable growth among women-led SMEs (Radović Marković et al., 2025). At the same time, organisational contexts, such as enterprise size and governance structures, can either support or constrain transformational leadership behaviours (Al-Dalahmeh et al., 2025).

In Serbia, the development of women's entrepreneurship requires targeted public policies that support skill development, innovation, and professional management practices, particularly in the area of green entrepreneurship (Ravić & Nikitović, 2016). Additionally, implementing a professional approach to management and organization is necessary for small firms to achieve growth and development (Ravić et al., 2021). Broader conceptual discussions also question the assumed neutrality of entrepreneurship and highlight structural inequalities affecting women entrepreneurs (McAdam, 2022). Circular business model innovation has been identified as a key driver of both digital and green transitions (Bocken, 2024). Recent research increasingly confirms that women entrepreneurs are

key actors in advancing sustainable and inclusive business models, including those aligned with circular economy principles. Women-led micro, small and medium-sized enterprises (MSMEs) and social enterprises have been identified as particularly well positioned to drive sustainable transformation, due to leadership styles characterised by collaboration, participatory decision-making, and strong value orientations (Damayanti, 2025). These attributes support the integration of social and environmental considerations into business practices and enable a more holistic approach to sustainability. Accordingly, Damayanti and Sofilda (2025) propose a gender-sensitive circular economy business model that promotes an inclusive, phased, and context-specific transition toward sustainability.

The sustainability orientation of women entrepreneurs is also reflected in their strategic priorities. Empirical evidence shows that the gender of the CEO significantly influences how the Sustainable Development Goals (SDGs) are prioritised within organisations. Female CEOs tend to place greater emphasis on gender equality (SDG 5), quality education (SDG 4), and good health and well-being (SDG 3), reflecting a stronger commitment to long-term societal well-being and sustainable development, whereas male CEOs more often prioritise short-term economic performance (Kapse et al., 2024). This long-term, socially oriented perspective aligns closely with the principles of the circular economy, which emphasises resource efficiency, environmental responsibility, and systemic change rather than short-term profit maximisation.

At the same time, the ability of women entrepreneurs to translate sustainability-oriented leadership into successful business outcomes depends on access to different forms of capital. Research by Feranita et al. (2024) demonstrates that human, financial, physical, and intellectual capital have a significant positive impact on women's entrepreneurial performance, while social capital, although positive, is less decisive. These findings highlight the importance of strengthening women entrepreneurs' access to resources in order to enable them to implement more complex and innovative circular business models. Growing empirical evidence further indicates that women entrepreneurs display a relatively high level of environmental awareness and engagement in sustainable business practices. Activities such as recycling, reduced resource consumption, and the use of eco-labelled products are increasingly embedded in women-led enterprises, often as part of broader ethical and socially responsible business approaches (Ambepitiya, 2016; Bartik et al., 2020; Bulut et al., 2017; Grandy et al.,

2020; International Labour Organization, 2022; Khan & Trivedi, 2015; Yaccato & Jaeger, 2004). These behavioural patterns are consistent with findings showing that women entrepreneurs exert a positive influence on social, economic, and environmental outcomes (Clausen, 2025) and that women's active participation in corporate and entrepreneurial decision-making is associated with stronger commitments to environmental protection, human development, and long-term economic prosperity, driven by their distinctive knowledge and leadership spillovers (Enciso-Alfaro & García-Sánchez, 2024). Together, these insights suggest a strong compatibility between women's entrepreneurial practices and the operational logic of the circular economy.

However, while women entrepreneurs demonstrate strong sustainability orientations, research remains limited regarding the underlying mechanisms through which they translate these values into concrete circular and sustainable business strategies, particularly in terms of their entrepreneurial effectuation, mindsets, and decision-making drivers (Mahajan & Bandyopadhyay, 2021). At the same time, their capacity to engage in circular business practices is also shaped by access to financial and institutional resources. Green practices and entrepreneurial innovation have been shown to improve vendors' income and business resilience, especially when supported by financial inclusion (Kodariyah et al., 2025). Financial inclusion plays a crucial role in empowering women to start, grow, and sustain businesses, allocate resources efficiently, and participate more actively in economic life (Antonijević et al., 2024), with education, income, and employment identified as key predictors of such inclusion (Antonijević et al., 2024). Nevertheless, existing studies still provide insufficient insight into the specific institutional and contextual conditions under which women entrepreneurs operate, despite their decisive importance for enabling the adoption and scaling of circular economy models (Mahajan & Bandyopadhyay, 2021).

In the Serbian context, women's entrepreneurial potential is strongly influenced by the legal and institutional environment. Đuričin and Beraha (2024) show that although Serbia has established a relatively solid framework for supporting women's entrepreneurship, existing policies often fail to adequately address the specific challenges women face. The authors emphasise the need for targeted support programmes, systematic integration of gender perspectives into legal and institutional frameworks, and continuous alignment with European and international standards (Đuričin &

Beraha, 2024). Such conditions are essential for enabling women entrepreneurs to fully realise their capacity to adopt and scale circular and sustainable business models.

The circular economy itself encompasses a wide range of technologies and practices, including waste and pollution minimisation, repair, reuse, recycling, renewable materials, extended product lifecycles, sharing platforms, and digital tools for resource optimisation (Vasiljević & Petrović, 2020). Rather than focusing only on waste management, it promotes product design for durability, repairability, and recyclability, leading to significant environmental and resource efficiency gains (Mitrović et al., 2017). In Serbia, the implementation of circular economy principles is closely linked to corporate social responsibility (CSR) and ESG standards and requires targeted institutional support, particularly for SMEs and women-owned enterprises (Kuzmanović et al., 2023; Vasiljević & Petrović, 2020).

Considering that women entrepreneurs represent an increasingly important economic force in Serbia, accounting for 34% of sole proprietors and 27.3% of companies, their capacity to adopt and implement circular economy principles is both economically significant and highly policy-relevant. Examining how women entrepreneurs combine sustainability-oriented leadership, access to capital, and institutional support to drive circular business models is therefore critical for advancing both gender equality and sustainable development in the Serbian economy.

The results of research conducted by the authors (Vujadinović & Marjanović, 2025) show that women's entrepreneurship in rural areas of the Republic of Serbia has significant potential for development and can play an important role in the socio-economic empowerment of women. The same authors state that a comprehensive strategy that integrates economic activity with education, policy support, and local community engagement is needed to empower women in rural areas of the Republic of Serbia through entrepreneurial projects.

Methodology

This study is based on empirical research conducted using a structured survey questionnaire distributed to women entrepreneurs in Serbia, primarily members of the Association of Business Women in Serbia, as well as members of other female entrepreneurial associations reached through their organisational databases. Secondary sources, including OECD reports

and the EU Progress Report 2023, were used solely to provide background context and policy relevance.

The subject of the research is the application of circular economy principles in women's entrepreneurship in Serbia.

The aim of the study is to examine the extent to which women-owned businesses in Serbia implement circular economy principles and to explore whether observable differences exist in the application of circular economy models across enterprises of different sizes.

The research was conducted between 24 April and 31 May 2024. A total of 35 respondents from various sectors participated, completing the questionnaire via the SurveyMonkey platform. The survey collected both quantitative data and qualitative insights, enabling an analysis of prevailing skills gaps and entrepreneurial needs.

The research questionnaire was structured into four sections: 1) Basic Information, 2) Understanding Circular Economy, 3) Digitalisation and Industry 04 4) Smart Specialisation Strategy (S3) and external influences.

This paper analyses Sections 1 and 2, focusing on company characteristics and familiarity with CE principles. Respondents could provide multiple answers per question, with responses ranked by frequency.

The research seeks to answer the following questions:

- What is the level of awareness of circular economy principles among women-owned enterprises?
- Which circular economy technologies or models are applied in women-owned businesses?
- What are the main drivers and barriers influencing the adoption of circular economy principles?

Based on these research questions, the following hypotheses (H) were formulated:

- H1:** As the size of the enterprise increases, the application of circular economy principles increases.
- H2:** Managerial mindset, knowledge, commitment, and engagement in the green transition represent the most important drivers for the adoption of circular economy technologies or models.
- H3:** Women entrepreneurs demonstrate an increasing level of awareness of the circular economy and sustainable development principles.

Description of the Sample

The sample consists of 35 female entrepreneurs, which represents a limitation of the study and renders the findings indicative rather than generalisable. Although the survey was distributed to 300 members of the Association of Business Women in Serbia, the low response rate reflects the early stage of circular economy (CE) implementation and sustainability reporting in the Serbian business sector. As sustainability and ESG reporting remain voluntary, particularly among micro and small enterprises, only a limited number of companies systematically apply CE practices. Even among large companies, sustainability reporting is not yet standard practice; for instance, only 21 of the 50 largest companies in Serbia published sustainability reports in 2020 (Novaković & Cvetanović, 2022). In this context, identifying a larger number of women-led enterprises actively applying CE principles proved challenging, due to low awareness, limited institutional support, insufficient financial and technical resources, and an underdeveloped regulatory framework.

Most respondents (91.43%) confirmed that their businesses are women-owned. Among the 31 respondents who specified their sector, the largest share (35%) selected "Other," followed by "Food and Agriculture" and "Manufacturing and Production," each at 16.13%. "Textiles and Fashion" accounted for 9.68%, while "Technology, Electronics, and IT" and "Healthcare" represented 6.45% each. The least represented sectors, each with 3.23%, were "Construction and Real Estate," "Waste and Water Management," and "Retail and E-commerce."

Regarding company age ($n = 31$), 45.16% have been operating for over 10 years, 25.81% for 1-3 years, 25.81% for 3-10 years, and 3.23% for less than a year. Most businesses are small: 67.74% have fewer than 10 employees, 22.58% have 10-49 employees, and 9.68% employ 50-249 people.

This structure confirms the dominance of long-established, women-owned micro-enterprises, with diverse sector representation but limited size and younger companies being less prevalent.

The survey method served as the primary research tool, supported by descriptive, inductive, and content analysis methods to interpret and contextualise findings. Quantitative data were analysed using IBM SPSS Statistics version 29.

To test the hypotheses, the following statistical procedures were applied:

- H1:** A *Spearman's rho correlation test* examined the relationship between enterprise size (1 = micro, 2 = small, 3 = medium) and the application of CE models (1 = yes, 0 = no).
- H2:** *Descriptive statistics* (frequency and percentage distributions) were applied to identify the main drivers of CE adoption among women-owned enterprises.
- H3:** *Awareness of CE principles* was measured using a 10-item Likert scale (1 = absolutely unfamiliar, 5 = absolutely familiar), with mean (M) and standard deviation (SD) reported to construct an overall awareness index.

Results and Discussion

Awareness and Understanding of Circular Economy Principles

To assess the level of awareness and understanding of circular economy principles, respondents were asked to indicate their level of agreement with a series of statements beginning with "I am familiar with..." A total of 24 respondents provided valid responses. The descriptive results are presented in Table 1, while Figure 1 illustrates the distribution of responses across individual statements. Respondents assessed their familiarity with CE principles using a five-point Likert scale. Results (Table 1; Figure 1) indicate that most women entrepreneurs demonstrate a strong understanding of CE concepts, including waste and pollution reduction, product longevity (repair, reuse, recycling), and regeneration of natural systems. More than 50% strongly agree or are fully familiar with these principles, while one-quarter are undecided and fewer than 10% disagree. These findings confirm high awareness levels, consistent with H3 (M = 5.00, SD = 0.00) (Table 4), suggesting a growing alignment with sustainable business practices noted in previous research (Ambepitiya, 2016; Grandy et al., 2020).

Respondents also reported familiarity with advanced CE strategies such as redesigning business models toward products-as-a-service, using renewable materials, and adopting sharing-economy approaches, though familiarity with digitalisation-related aspects was somewhat lower. This

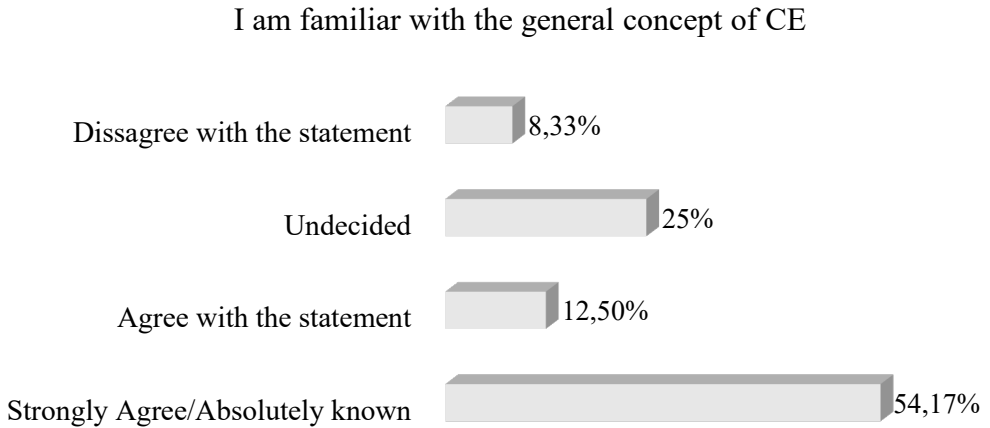
supports the view that awareness precedes but does not automatically translate into adoption, echoing patterns identified by Kokeza et al. (2021) and Vučinić et al. (2022).

Table 1: Familiarity of Women Entrepreneurs with Circular Economy Principles

CE principles	Strongly disagree/ Absolutely unknown		Disagree		Undecided		Agree		Strongly agree/ Absolutely known	
	Responses	%	Responses	%	Responses	%	Responses	%	Responses	%
The general concept of the circular economy	/	/	2	8.33	6	25	3	12.5	13	54.17
Designing products and processes to minimise waste and pollution	/	/	/	/	7	29.17	4	16.67	13	54.17
Keeping products and materials in use (repair, reuse, recycling)	1	4.17	/	/	4	16.67	5	20.83	14	58.33
Regenerating natural systems	/	/	/	/	5	20.83	5	20.83	14	58.33
Rethinking business models (products-as-a-service)	/	/	/	/	7	29.17	5	20.83	12	50
Products-as-a-service business model										
Use of renewable, recyclable, or biodegradable resources	1	4.17	2	8.33	4	16.67	7	29.17	10	41.67

Source: Author's research

Figure 1: The familiarity of women entrepreneurs with the circular economy principles



Source: Author's research

Application of Circular Economy Practices

Out of 24 respondents, 16 reported adopting CE technologies or models.

The most frequent practice was minimising waste and pollution in product and process design (80%), followed by repair, reuse, and recycling (53.3%), and the use of renewable materials (46.7%) (Table 2). These results reveal that CE application among women-owned businesses primarily occurs in early-stage or low-cost areas, reflecting practical constraints of smaller enterprises. These findings align with international evidence (Rizos et al., 2016) showing that small firms often adopt CE practices incrementally, focusing first on cost-saving and efficiency improvements rather than full model innovation.

Table 2: Application of Circular Economy Technologies and Models among Women Entrepreneurs

Circular practice applied	Respondents	%
Minimising waste and pollution in product and process design	12	80.0
Repair, refurbishment, reuse, and recycling	8	53.3
Use of renewable, recyclable, or biodegradable resources (<i>not standard CE practice</i>)	7	46.7
End-of-life recovery and regeneration of products/materials	4	26.7
Extending product lifespan through durability and repairability	3	20.0
Other circular models	1	6.7

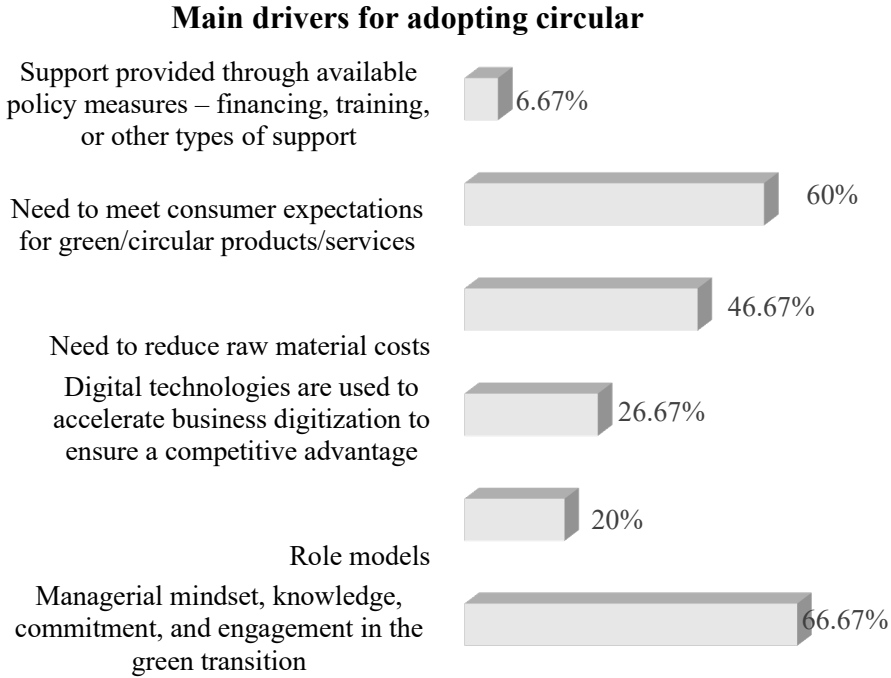
Source: Author's research

Drivers and Barriers to Circular Economy Adoption

To identify the key factors motivating women entrepreneurs to adopt circular economy technologies and models, respondents who confirmed the application of circular practices were asked to indicate the main drivers influencing their decision.

As shown in Figure 2, two-thirds of respondents identified managerial mindset, knowledge, and green commitment as the main drivers of CE implementation, followed by consumer expectations (60%) and cost reduction (46.7%). These results empirically confirm *H2*, highlighting the pivotal role of leadership orientation and environmental values in enabling circular transitions. This is consistent with the work of Radović Marković et al. (2025) and Popović-Pantić (2020), who link sustainability-oriented leadership to women entrepreneurs' competitiveness.

Figure 2: Main drivers of women entrepreneurs for adopting circular technology/circular models



Source: Author's research

Key barriers to CE adoption remain a lack of technical knowledge, limited awareness of Industry 4.0 tools, and restricted access to finance, similar to those outlined in Rizos et al. (2016).

Training Needs

Out of 22 respondents, two-thirds prioritised training in sector-specific circular economy applications, access to finance, and introductory knowledge. About half also emphasised digital tools, AI, and digital skills for transition.

Most Common Circular Practices

Most frequently reported practices were:

- Minimising waste and pollution in design (12 responses),
- Repair, refurbishment, reuse, and recycling (8),
- Use of renewable, recyclable, or biodegradable resources (7).

These were most often linked to the drivers “Managerial mindset and green engagement” and “Meeting consumer expectations,” with waste minimisation consistently ranked highest.

Familiarity and Adoption of Circular Economy by Enterprise Size

To explore differences in the level of familiarity with circular economy principles across enterprises of different sizes, the authors conducted a comparative analysis based on the number of employees. Average familiarity scores for key circular economy dimensions are presented in Table 3.

Table 3: Familiarity with Circular Economy Principles by Enterprise Size

Circular economy dimension	Micro enterprises (average familiarity)	Small enterprises	Medium enterprises
Circular economy basics	4.1–4.4	4.2–4.5	4.0–4.5
Waste and pollution reduction in design	4.3	4.6	5.0
Regeneration of natural systems	4.2	4.8	4.5
Extending product lifespan	4.1	4.7	4.3
Sharing economy	3.8–3.9	3.8	3.5
Digital technologies for CE	4.0	4.4	3.5

Source: Author’s research

Note: Average familiarity scores represent mean values calculated on a five-point Likert scale (1 = strongly disagree/absolutely unknown; 5 = strongly agree/absolutely known)

To test H1, Spearman’s rho was used to assess the association between enterprise size and CE adoption. Results revealed a positive but non-significant correlation ($\rho = 0.414$, $p = 0.056$), indicating firm size does not predict the likelihood of CE adoption. Actually, micro-enterprises apply circular technology/models to a greater extent than small and medium-sized enterprises. Interestingly, the smallest application of circular technology/models was recorded among medium-sized enterprises, thus

disproving the assumption that with an increase in the size of the business measured by the number of employees, there is a greater application of circular technology/models. Thus, Hypothesis 1 (H1) was rejected.

Supporting H2, the results indicate that 66.7% of women entrepreneurs have adopted CE models, mainly driven by managerial mindset and green engagement (67%), consumer expectations (60%), and cost reduction (50%). Therefore, Hypothesis 2 (H2) is confirmed, emphasising that managerial mindset and green engagement represent the strongest drivers of circular model adoption.

Regarding Hypothesis 3 (H3), the awareness index yielded a mean score of $M = 5.00$ and a standard deviation of $SD = 0.00$, confirming high familiarity with CE concepts (Table 4). Consequently, the hypothesis that awareness of sustainable development issues among women entrepreneurs is increasing is also supported.

Table 4: Summary of Statistical Results

Hypothesis	Test	Variables	ρ / Mean / %	P-value	Interpretation
H1	Spearman's rho	Enterprise size \times CE application	$\rho = 0.414$	0.056	Not significant
H2	Descriptive	CE model adoption	66.7%	-	Managerial mindset drives adoption
H3	Descriptive	Awareness index	Mean=5.00 SD = 0.00	-	High awareness

Source: Author's research

The comparative analysis is consistent with Kokeza et al. (2021) and Vučinić et al. (2022), who note high awareness but limited structural support. These findings emphasize the need for digitalization and institutional incentives to enhance women's engagement in circular models.

Conclusion

This study provides valuable insights into the implementation of circular economy (CE) principles among women entrepreneurs in Serbia. Despite the limited sample size, the findings offer a meaningful snapshot of the current stage of CE adoption, revealing both progress and persistent barriers. The results show that women-led enterprises demonstrate high awareness and conceptual understanding of CE principles, yet their practical application remains constrained by limited institutional support, financial resources, and technological capacities. Micro-enterprises, in particular, exhibit greater flexibility and readiness to experiment with circular practices, whereas medium-sized enterprises appear less active, suggesting that business size alone does not determine the level of CE engagement.

Overall, the study contributes novel empirical evidence to the underexplored intersection of gender, entrepreneurship, and the circular economy in Serbia. The findings enrich the theoretical understanding of gendered entrepreneurship by illustrating how managerial mindset, environmental commitment, and leadership orientation shape the adoption of CE among women-owned SMEs. Practically, the research highlights the need to strengthen support mechanisms for women entrepreneurs through targeted CE training, capacity-building initiatives, and greater access to green financing instruments.

From a policy perspective, the results underscore the importance of creating enabling conditions for women's participation in the green transition. Policymakers should develop tailored financial incentives and simplified procedures for accessing EU green and innovation funds. In parallel, national and local institutions should promote digitalisation as a key driver of circular innovation, integrating it into entrepreneurship support programmes. Establishing structured partnerships among business associations, research institutions, and government agencies would further enhance women's access to the knowledge, resources, and networks necessary to implement CE practices.

Finally, future research should expand the scope and scale of analysis by including larger and cross-national samples, as well as longitudinal data, to track the evolution of CE adoption over time. Such efforts would provide a stronger empirical foundation for designing policies and interventions that accelerate the circular transition within women-led enterprises across the region.

Acknowledgments

The research presented in this paper was funded under the Danube Transnational Programme - WE.Circular – „Boosting Digital and Industrial Capacity for Sustainable Circular Transition of Women Entrepreneurs in the Danube Region”.

References

- [1] **Antonijević, M., Domazet, I., Kojić, M., & Simović, V.** (2024). Financial Inclusion - A Driving Force for Women's Entrepreneurship Development. *Journal of Women's Entrepreneurship and Education* (3/4), 73-92. <https://doi.org/10.28934/jwee24.34.pp73-92>
- [2] **Al-Dalameh, M., & Csordas, A.** (2025). Technological innovation versus gender equality: Perspectives in the dairy sector. *Journal of Women's Entrepreneurship and Education*, (1-2), 217-241. <https://doi.org/10.28934/jwee25.12.pp217-241>
- [3] **Ambepitiya, K. R.** (2016). The role of women entrepreneurs in establishing sustainable development in developing nations. *World Review of Business Research*, 6(1), 161-178.
- [4] **Bartik, A. B., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C.** (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the National Academy of Sciences*, 117(30), 17656-17666. <https://doi.org/10.1073/pnas.2006991117>
- [5] **Bocken, N. M.** (2024). Circular business model innovation: New avenues and game changers. In A. Aagaard (Ed.), *Business model innovation: Game changers and contemporary issues* (pp. 193-225). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-57511-2_7
- [6] **Bulut, Z. A., Cimrin, F. K., & Dogan, O.** (2017). Gender, generation and sustainable consumption: Exploring the behaviour of consumers from Izmir, Turkey. *International Journal of Consumer Studies*, 41(5), 597-604. <https://doi.org/10.1111/ijcs.12371>
- [7] **Clausen, L.** (2025). Women entrepreneurs in the circular economy: Global experiences. Emerald Publishing Limited. <https://doi.org/10.1108/978-1-83708-254-4202510012>
- [8] **da Costa Fernandes, S., Pigosso, D. C. A., McAlone, T. C., & Rozenfeld, H.** (2020). Towards product-service system oriented to circular economy: A systematic review of value proposition design approaches. *Journal of Cleaner Production*, 257, 120507. <https://doi.org/10.1016/j.jclepro.2020.120507>

- [9] **Damayanti, L.** (2025). An Analysis of Circular Economy Implementation In Women-Led Msmes and/or Social Enterprises. *Journal Research of Social Science, Economics & Management*, 5(1), 1989-2004. <https://doi.org/10.59141/jrssem.v5i1.993>
- [10] **Đuričin, S., & Beraha, I.** (2024). Promoting Economic Inclusivity in Serbia - Recommendations for Enhancing National and Local Policies in Women's Entrepreneurship. *Journal of Women's Entrepreneurship and Education* (3-4), 138-159. <https://doi.org/10.28934/jwee24.34.pp138-159>
- [11] **Enciso-Alfaro, S.-Y. & Garcia-Sanchez, I.-M.** (2024). Are innovative firms more circular when women hold upper positions? *Journal of Innovation & Knowledge*. 9(4), 100556. <https://doi.org/10.1016/j.jik.2024.100556>
- [12] **Feranita, N.V., Mahendrawan, A.D., & Asmuni, A.** (2024). Determinants of Digital Technology Adoption Among Women Entrepreneurs. *Journal of Women's Entrepreneurship and Education* (1-2), 66-92. <https://doi.org/10.28934/jwee24.12.pp66-92>
- [13] **Interreg Danube Region Programme.** (2024). *WE.Circular*. <https://interreg-danube.eu/projects/wecircular>
- [14] **Gajić, A.** (2024). Inovacije i primena savremenih tehnologija u oblasti cirkularne ekonomije zemalja Zapadnog Balkana. *Zbornik radova Internacionalnog univerziteta Travnik* (pp. 154–164). Internacionalni univerzitet Travnik.
- [15] **Grandy, G., Cukier, W., & Gagnon, S.** (2020). (In)visibility in the margins: COVID-19, women entrepreneurs and the need for inclusive recovery. *Gender in Management: An International Journal*, 35(7/8), 667–675. <https://doi.org/10.1108/GM-07-2020-0207>
- [16] **International Labour Organization.** (2022). *Women entrepreneurs leading the way: Promoting a circular economy and more sustainable practices in the garment sector*. <https://www.ilo.org/publications/women-entrepreneurs-leading-way-promoting-circular-economy-and-more>
- [17] **Jensen, J. P., Prendeville, S. M., Bulut, N. M. P., & Peck, D.** (2019). Creating sustainable value through remanufacturing: Three industry cases. *Journal of Cleaner Production*, 218, 304–314. <https://doi.org/10.1016/j.jclepro.2019.01.301>
- [18] **Kapse, M., Radović-Marković, M., Sharma, V., Mahajan, Y., & Hiremath, R.B.** (2024). The Influence of Women's Leadership on Organizational Alignment with Sustainable Development Goals: A Discriminant Analysis Approach. *Journal of Women's Entrepreneurship and Education* (3/4), 230-248. <https://doi.org/10.28934/jwee24.34.pp230-247>
- [19] **Khan, N. T., & Trivedi, A.** (2015). Gender differences and sustainable consumption behavior. *British Journal of Marketing Studies*, 3(3), 29–35.

- <https://www.eajournals.org/wp-content/uploads/Gender-Differences-and-Sustainable-Consumption-Behavior.pdf>
- [20] **Kodariyah, L., Suseno, B.D., & Sari, G.I.** (2025). Financial Inclusion: Boosting Green Practices and Innovation for Female Vendors Well-Being. *Journal of Women's Entrepreneurship and Education*, 1-2, 83-106. <https://doi.org/10.28934/jwee25.12.pp83-106>
- [21] **Kokeza, G., Josipović, S., & Urošević, S.** (2021). Application of the concept of circular economy: A chance for the textile industry. Proceedings of the *IV International Scientific Conference Contemporary Trends and Innovations in the Textile Industry (CT&ITI 2021)* (pp. 175–186). Faculty of Technology and Metallurgy, University of Belgrade.
- [22] **Kuzmanović, D., Popović Pantić, S. & Dejanović, M.** (2023). Primena odabranih eko-standarda u poslovanju ženskih preduzeća. In *Tehnologija, kultura, razvoj* (pp. 232–245). Institut Mihajlo Pupin. <https://www.pupin.rs/cirnt/wp-content/uploads/2024/03/TKR30-zbornik-final-2.pdf>
- [23] **McAdam, M.** (2022). *Women's entrepreneurship*. Routledge.
- [24] **Mahajan, R., & Bandyopadhyay, K.R.** (2021). Women entrepreneurship and sustainable development: Select case studies from the sustainable energy sector. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(1), 42-75. <https://doi.org/10.1108/JEC-11-2020-0184>
- [25] **Mitrović, S., Radosavljević, I., & Veselinov, M.** (2017). *Cirkularna ekonomija kao šansa za razvoj Srbije*. OEBS. <https://serbia.osce.org/sr/node/292306>
- [26] **Novaković, I., & Cvetanović, N.** (2022). *Izveštavanje o održivosti 50 najvećih kompanija u Srbiji*. Centar za savremene politike. <https://centarsavremenepolitike.rs/biblioteka/izvestavanje-o-odrzivosti-50-najvecih-kompanija-u-srbiji/>
- [27] **Popović-Pantić, S., Semenčenko, D., & Vasilić, N.** (2020). Digital technology and the financial performance of female SMEs in Serbia: The mediation role of innovation. *Economic Annals*, 65(224), 53–81. <https://doi.org/10.2298/EKA2024053P>
- [28] **Popović-Pantić, S.** (2020). *Dve decenije ženskog preduzetništva u Srbiji*. Institut Mihajlo Pupin. <http://www.pupin.rs/cirnt/wp-content/uploads/2020/11/Dve-decenije-%C5%BEenskog-preduzetni%C5%A1tva-u-Srbiji.pdf>
- [29] **Radović Marković, M., Srebro, B., Dedjanski S., & Vrbanac, M.** (2025). Gender Perspectives on SME International Trade and Revenue in the Digital Era: Evidence from Serbia. *Journal of Women's Entrepreneurship and Education* (1-2), 198-216.
- [30] **Ravić, N., Đekić, M., & Radić, N.** (2021). Profesionalizacija menadžerskih funkcija u MSP u Srbiji. *Megatrend revija*, 18(3), 71–88.

- [31] Ravić, N., & Nikitović, Z. (2016). Entrepreneurial education as a new paradigm of the development of women entrepreneurship in Serbia. *Journal of Women's Entrepreneurship and Education*, 3–4, 102–116.
- [32] Rizos, V., Behrens, A., Van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., & Topi, C. (2016). Implementation of circular economy business models by SMEs: Barriers and enablers. *Sustainability*, 8(11), 1212. <https://doi.org/10.3390/su8111212>
- [33] Singh, J., & Ordoñez, I. (2016). Resource recovery from post-consumer waste: Important lessons for the circular economy. *Journal of Cleaner Production*, 134, 342–353. <https://doi.org/10.1016/j.jclepro.2015.12.020>
- [34] Tukker, A. (2004). Eight types of product–service systems: Eight ways to sustainability? *Business Strategy and the Environment*, 13(4), 246–260. <https://doi.org/10.1002/bse.414>
- [35] Tukker, A. (2015). Product services for a resource-efficient and circular economy: A review. *Journal of Cleaner Production*, 97(3), 76–91. <https://doi.org/10.1016/j.jclepro.2013.11.049>
- [36] Urošević, S., Urošević, I., & Vuković, M. (2024). Case Circular Economy of Serbia. In G. Guxho, T. Kosova Spahiu, V. Prifti, A. Gjeta, E. Xhafka, & A. Sulejmani (Eds.), *Proceedings of the Joint International Conference: 10th Textile Conference and 4th Conference on Engineering and Entrepreneurship*. ITC-ICEE 2023. (pp. 56–64) Lecture Notes on Multidisciplinary Industrial Engineering. Tirana: Springer, Cham. https://doi.org/10.1007/978-3-031-48933-4_6
- [37] Vasiljević, D., & Petrović, D. (2020). *Izveštaj o sprovedenoj ex ante analizi efekata za oblast cirkularne ekonomije* (Policy and Legal Advice Centre – PLAC III). https://www.ekologija.gov.rs/sites/default/files/2021-01/exante-analiza_efekata-za-oblast-cirkularne-ekonomije.pdf
- [38] Velenturf, A. P. M., & Purnell, P. (2021). Principles for a sustainable circular economy. *Sustainable Production and Consumption*, 27, 1437–1457. <https://doi.org/10.1016/j.spc.2021.02.018>
- [39] Vićentijević, K. (2023). Održivost i cirkularna ekonomija. In *Mediji i ekonomija* (pp. 287–299). Banja Luka: Banja Luka College, Ekonomski fakultet Univerziteta Plekhanov Moskva.
- [40] Vujadinović, J., & Marjanović, D. (2025). Empowering Women in Serbian Rural Areas with Entrepreneurial Initiatives. *Journal of Women's Entrepreneurship and Education*, 1(2), 40–58. <https://doi.org/10.28934/jwee25.12>
- [41] Vučinić, I., Arsić, Lj., & Vujović, S. (2022). Mogućnosti primene koncepta cirkularne ekonomije u organskoj proizvodnji. *Ecologica*, 29(107), 373–381.
- [42] Yaccato, J. T., & Jaeger, J. (2004). *The 80% minority: Reaching the real world of women*. Penguin Canada.

Article history: Received: October 3, 2025

Accepted: February 24, 2026

First Online: March 3, 2026

DOI: 10.28934/jwee26.12.pp73-95


JEL: D81, D63

ORIGINAL SCIENTIFIC PAPER

When Is Entrepreneurship a Career Option for Highly Educated Students? Evidence from Czechia



Miroslav Suchanec¹ 

Ondřej Hora² 

Masaryk University, Faculty of Social Studies, Department of Social Policy and Social Work, Brno, the Czech Republic

ABSTRACT

This article focuses on youths' opinions on becoming entrepreneurs. The primary objective of the research was to identify the motives, trigger events, and conditions that younger people consider when deciding to become entrepreneurs, in order to understand the decision-making process for entrepreneurship among young university students. We conducted 22 focus group discussions with 133 participants, comprising 15 initial focus groups with 94 participants (approximately half of whom were women) and seven follow-up focus groups with 39 participants. We found the Kaleidoscope career model (authenticity, balance, and challenge) highly relevant in explaining youths' decision-making. For youth, it was mainly a matter of their free choice, which depends on many factors relevant to their personal experiences. The cultural factors, including perceived family obligations, mainly constrain women.

KEYWORDS: nascent entrepreneurship, kaleidoscope career model, university students, decision-making, women entrepreneurship

¹ E-mail: suchanec@mail.muni.cz

² Corresponding author, e-mail: hora@fss.muni.cz

Introduction

This article focuses on youths' opinions on becoming entrepreneurs. Entrepreneurship is a vital opportunity for both men and women to develop their careers, gain self-fulfilment, and escape economic hardship. Some studies found increased interest in entrepreneurship and minimal differences in entrepreneurial intentions among younger men and women (Santana Vega et al., 2016; OECD/EU, 2019); however, several studies noted a gender gap in entrepreneurship among younger entrepreneurs – young men are about twice as likely to start a business (Holiienka et al., 2016; OECD/EU, 2019). Women's entrepreneurial ventures may be different and motivated by different factors (OECD/EU 2019); for example, for women more than men, the choice to start a business is linked to necessity or to time and location flexibility, which is indicative of a level of independence that can accommodate family needs and child rearing (Minnity & Nardone, 2007).

We focused on choosing one's life course during university studies. University students are well-suited for exploring entrepreneurship intentions. Younger people frequently engage in decision-making about their lives and are often unsure about their future career paths. Due to their commitment to their studies, their level of engagement in entrepreneurship activities is often lower (Holiienka et al., 2016). The primary aim of the research was to identify topics and categories related to the decision about entrepreneurship. We wanted to identify the experiences, motives, trigger events, and conditions that younger people consider when making decisions about entrepreneurship. We also examined arguments against aspects that do not support entrepreneurship and its potential role in the respondents' life course. We discussed the relevant life-course conditions and pathways and addressed how students debated the perceived gender differences.

The article's contribution lies in providing insight into the perceptions, opinions, and claims of youth who choose to become entrepreneurs, as opposed to those who do not. Starting a business was largely a matter of choice for younger people. We identified differences between how young men and women are perceived as entrepreneurs. Aspects of the Kaleidoscope model were relevant to the decision-making processes of young people. The empirical part of the article is divided into four sections: general impulses and personal reasons for entrepreneurship; the life-course perspective; and perceived gender differences in entrepreneurship.

Literature Review

We defined entrepreneurship as a process with specific phases (Shane et al., 2003; Srivastava & Misra, 2017). Younger people may perceive entrepreneurship as a career choice (Krueger et al., 2000). Our career perspective is rooted in the stage passages approach (Burton et al., 2016). We understand careers as non-linear and multifaceted journeys (Christophe et al., 2024), interacting with past, present, and future events, as well as life stages and transitions (Bowen & Hisrich, 1986; Burton et al., 2016). Transitions are parts of the life cycle trajectory. A career is a sequence of decisions and events that creates a pattern of employment and self-employment history. A boundaryless career extends beyond structural constraints and organisational arrangements (Sullivan & Arthur, 2006), encompassing both physical mobility and accompanying psychological flexibility. The protean career model emphasises the individuals' ability to guide and manage their career in alignment with personal goals and values (Greer et al., 2024). Kaleidoscope career model – KCM (Mainiero & Sullivan, 2005; Mainiero & Gibson, 2018; Christophe et al., 2024) addresses how people reflect on authenticity (following personal values), balance (family life), and challenge (development) in various life stages based on their career considerations, shifting priorities, and changing life situations. Gender is brought to the forefront of this model. Women look for a mosaic that best suits their life circumstances, wants, and needs. In the Kaleidoscope model, family and context are defined as sets of connections representing individuals who deserve consideration in a weigh-in decision (Mainiero & Sullivan, 2005).

A career transition is the specific period during which individuals change their status. Greer et al. (2024) expect the transition to include the career preparation phase (learning) and identity formation phase. Young people are in the building competencies, early exploration and establishment stage of their lives (Baù et al., 2016; de Villiers Scheepers et al., 2017). The expectations and projections of young people regarding their future lives (Bussi et al., 2024) and the concrete boundaries they perceive (Braches & Elliott, 2017; De Klerk et al., 2024) are relevant to their decision-making.

Ajzen (1991) developed the theory of planned behaviour, which posits that intentions depend on belief-forming attitudes towards startups, subjective norms, and perceived behavioural control. Ajzen (1985) argued that people's beliefs represent information about their inner worlds, and it

follows that this information determines their behaviour. The interaction of several tipping points contributes to the success of a business startup (Stephan et al., 2015). Conditions may be attractive to some younger people, while others may find them discouraging (Christophe et al., 2024).

Schoof (2006) and Stephan et al. (2015) discussed necessity-based (NBE) and opportunity-based entrepreneurship (OBE). OBE is more prevalent than NBE in high-income countries, particularly among individuals with higher levels of education and younger populations. Stephan et al. (2015) argued that the NBE-OBE dichotomy captures only a small part of the relevant motivations. Acs et al. (2016) stated that work satisfaction is essential for entrepreneurship and may even overcome other motives. Dvouletý et al. (2018) listed demographic characteristics and socioeconomic factors, psychological factors, role models, and considerations for economic and institutional circumstances. Schoof (2006) and Stephan et al. (2015) named the following motives: achievements, challenges, learning and opportunities, independence and autonomy, income security, financial success, personal recognition and status, family, aspirations, dissatisfactions, and community (social) motivations. Henrekson (2007) found motives involved fraudulent and predatory behaviours. Underlying decision factors may include possessing the appropriate skills, knowing the right people, identifying a good opportunity, and securing financial means (Schoof, 2006). Decision-making includes doubts, concerns, and perceptions of barriers to starting a business (Stephan et al., 2015). Barriers to starting a business may include a lack of skills, work experience, finances, and networks, as well as market barriers and social attitudes (Halabinsky, 2012).

Stephan et al. (2015) highlighted that the motives for entrepreneurship differ across life phases, reflecting personal experiences and changing life circumstances. Young people, in particular, have fewer obligations related to family and economic security (Schoof, 2006; Stephan et al., 2015). Since individuals are risk-averse, the perceived possibility of failure is essential to an individual's decision to start a business (Minnity & Nardone, 2007). Brück et al. (2011) noted that extreme events may influence populations' willingness to start an entrepreneurial venture.

Family background and role models are crucial for entrepreneurship, as they help bridge the gap in entrepreneurial experience (Bosma et al., 2012). People in their social networks, media stars, and campaigns can influence young people. Bosma et al. (2012) defined the following functions of role

models: 1) inspiration and motivation, 2) increasing self-efficacy, 3) learning by example, and 4) learning by support. If people believe influential individuals and role models approve of their decision to become entrepreneurs, they are more likely to be attracted to entrepreneurship and feel more capable of pursuing it (Liñán & Chen, 2009). Social contacts can serve as tipping points for starting an opportunity-led business, particularly when collaborating with others (Stephan et al., 2015). Younger people were more likely to work in teams on their new startups than adults (OECD/EU, 2019). Cooperatives can be attractive because members can increase their financial and human capital and benefit from economies of scale (Halabinsky, 2012).

Some studies argue that the influence of gender on entrepreneurial intention is indirect (Prakash et al., 2023; Paunovic & Musial, 2024). Feminist theories (Fischer et al., 1993) suggest that gender differences in entrepreneurship can be influenced by structural conditions for men and women, as well as by their perceptions, which may lead men and women to behave differently due to varying preferences. The liberal feminist theory hypothesises that women may be deprived of essential opportunities and are subject to discrimination or misguidance. Social feminist theory emphasises the differences in social experiences. Among men and women, shared experiences are assumed to help define a group-based rationality or mode of knowing. Minniti and Nardone (2007) found that differences in personal perceptions most likely explain differences across genders in entrepreneurship behavior. Paunovic & Musial (2024) documented relevant gender differences in perceptions of financial risk and business responsibility (perceived risk was higher for women). Women may also more incorporate the “balance” aspect of the KCM model (Maineiro & Gibson, 2018).

Schoof (2006) argued that sociocultural constraints may contribute to lower women's engagement in entrepreneurship. Men and women are perceived differently as entrepreneurs, and social attitudes may discourage some women from starting businesses (OECD/EU, 2019). The perceived legitimacy of entrepreneurship, encompassing its general reputation, acceptance, and credibility, can influence people's decision to start a business (Schoof, 2006; Acs et al., 2016). Srivastava and Misra (2017) argued that women's entrepreneurship legitimacy could explain some women's intention to start a business. In developing countries, specific

conditions, such as high levels of misconduct including corruption and favouritism, imperil the acceptance of entrepreneurship (Schoof, 2006).

Materials and Methods

Focus group discussions, used for this research, are appropriate for studying and learning about concrete situations, sharing experiences, and fostering interactions and dialogue. Participants can qualify their responses or identify important contingencies associated with their answers (Steward & Shamdasani, 2015). Research was conducted in Brno, one of the largest cities in the Czech Republic. We used purposive sampling based on definitive selection criteria, including gender and full-time university attendance (resulting in an age range of 19-25 years for most students). Most of the students come from the faculties of one university (see Table 1 for the studied fields), although some students from other universities may also participate. We recruited students through the university's research participant recruitment system and via dashboard advertising. The focus groups consisted of semi-structured interviews, concentrating on six general, open-ended questions and questions that emerged from discussions. Follow-up focus groups concentrated on respondents' developments over the past year. We conducted 22 focus group discussions with 133 participants, including 15 initial focus groups with 94 participants and seven follow-up focus groups with 39 participants. They were conducted in the autumns of 2022 and 2023.

Table 1: Characteristics of participants

Category		N Participants
Gender	Men	41
	Women	53
Field of Study	Management	20
	Economics (inc. public economics)	19
	Finance	14
	Social Sciences (Psychology, Sociology)	12
	Natural Sciences (Biology, Informatics)	11
	Humanities (Languages, Library studies)	8
	Regional Development	5
	Medicine	5
Total		94

Source: Authors' work

We used inductive qualitative content analysis (Cho & Lee, 2014; Vaismoradi & Snelgrove, 2019; Vears & Gillam, 2022). It is a method that systematically classifies data by their similarity in meaning, identifies patterns in the data, and provides descriptions and interpretations. The researcher defines the units of analysis, meaning units, code categories, content categories, and subcategories. Analysis is conducted using a coding scheme (Schamber, 2000). The researcher does reiterative data analysis through constant comparison, testing, revision, and refinement. Researchers seek patterns that link pieces of data by similarity and bring them together, both within and across documents. Priority categories that cover the data can be divided into subcategories.

Table 2: Coding Scheme

Original themes	Developed themes
Thinking about entrepreneurship, the conditions of decisions	Opportunity recognition Role models and forming events Difficulty of entrepreneurship and fear Responsibility Risks and barriers (structural constraints) Social contacts Economic conditions and social policy
Being an entrepreneur is consistent with their preferred ways of living	Motives for entrepreneurship Career Hobbies and personal life Job alternative Economic security Family plans Timing of entrepreneurship in the life course
Balance between entrepreneurial responsibilities and family life	Family model Entrepreneurship flexibility Care Role of the partner Society pressure Culture
Perceived gender differences in becoming entrepreneurs	Explaining differences: - irrelevant (no differences) - children and family life - motivation and aspirations - traits and skills - society's (people's) stance toward women

Source: Authors' work

Results

We identified four groups of students with different stances toward entrepreneurship. Categories indicated whether students had personal experience with entrepreneurship or were interested in business, and how they perceived their statuses, life plans, goals, and chosen professions. From the KCM model perspective, we found that people who lacked both interest in entrepreneurship [authenticity] and motivation for high effort [challenge] were those who denied entrepreneurship and were probably not suitable candidates for entrepreneurship.

Table 3: Categories of respondents concerning prior stances toward entrepreneurship

Title	Description
Entrepreneurs	People who had already confirmed some form of longer-lasting entrepreneurship and related interests. These individuals often drew on their experiences with entrepreneurship as a reference.
Aspirants	People who were not currently entrepreneurs but were interested in the conditions. They had declared a relatively firm interest in starting a business and, in some cases, had already taken concrete steps to prepare for entrepreneurship.
Hesitating	People who had generally positive feelings towards entrepreneurship. Their visions were more general and surface-level. They were deciding whether to pursue entrepreneurship, wait, or consider ideas with friends. Although they acknowledged entrepreneurship was one of the options in their decision-making process, they were not eager to pursue it soon.
Refusing and neglecting	People who were relatively uninterested in entrepreneurship or strongly opposed to it. This group included individuals who had never considered starting a business and viewed themselves as unsuitable candidates for entrepreneurship due to their traits (e.g., low self-esteem) or circumstances.

Source: Authors' work

The General Impulse for Entrepreneurship

Among perceptual variables, opportunity recognition represents the most distinctive and fundamental expression of entrepreneurial behaviours (Minnity & Nardone, 2007). Opportunities could emerge as business ideas,

at an event, or from external offers. For many youths, a suitable business idea was the principal and most difficult or disqualifying condition for entrepreneurship.

I cannot imagine starting a business again now. However, it can quickly change if I get a brilliant idea and know how to bring it to life. If I had something, I could start in one month (FG4, woman).

The discourse on business ideas concerns the viability of businesses in enhancing economic security and doing something enjoyable, thereby allowing self-fulfilment [authenticity]. Decision-making at the idea stage was the primary concern for some younger individuals, rather than administrative barriers, entrepreneurial plans, or financial burdens. For some, starting a business was about seizing emerging opportunities as external events or offers arose, as they had the capacity to do so, starting immediately.

Relatives and friends were crucial sources of information, feedback, and economic and emotional support. Youth described people inspiring them to pursue entrepreneurship through their approach, success, leadership, orientation, self-confidence, and courage.

My parents inspired me because they gradually started their business. It took a long time and was very demanding, but they succeeded and can now reap the benefits of this. Many people told them it was worthless and that they would not prosper. However, they exemplify this option and fulfil their dreams (FG12, woman).

Students also perceived the negative, such as discouragement, after seeing parents or family members go bankrupt. They valued negative experiences as a means of gaining knowledge about what to avoid in the future. A high level of effort and difficulty in the startup process or acquiring knowledge of concrete circumstances was also a deterrent.

Specifically, students discussed periods and events (e.g., COVID-19) and generalised experiences from these events in their decision-making. Some spoke about inspiring firms or famous business owners and argued for features they (dis)liked, especially marketing, branding, social responsibility, controversies, and ethics. Another relevant source of inspiration was people on social networks, including various influencers who continue to provide video advice about entrepreneurship. Others,

however, remained sceptical towards these idols due to the unreliability and specificity of their visions.

Some students thought that people in post-socialist countries were still not sufficiently used to entrepreneurship. The state is not interested in popularising entrepreneurship, and the public perceives it negatively. People often portray some entrepreneurs as villains, crooks, and thieves. Some family members were, due to refusal of entrepreneurship and fears about their children, sceptical and unsupportive of entrepreneurship:

In the Czech Republic, it was not long ago that the regime restricted people from becoming entrepreneurs. Many older people have instilled those habits in their children: employment is security. When I told my family that I would be an entrepreneur, they looked at me like I was insane. It can influence younger entrepreneurs when family members tell them their ideas are entirely foolish (FG2, man).

Entrepreneurship was interesting for young people when those in their relationships encouraged “authenticity” and “challenge” aspects related to entrepreneurship (e.g., through examples and support).

Personal Reasons for Starting or Not Starting Entrepreneurship

Students considered entrepreneurship alongside other opportunities, interests, and preferred future lifestyles. No university student respondent mentioned the need to become an entrepreneur for financial reasons. Students argued that the motivations for going into business are:

- money and economic advantages, to be independent, have more personal control, and not work for others,
- a sense of enjoyment in building, of ownership, and creative purposes,
- to do something sensible and fulfilling – a noble cause, added value,
- time flexibility, living preferred life, fulfilling vision and goals,

These findings mainly correspond with the authenticity aspect of the KCM model, although challenge and balance are also present. Some respondents' positive stances towards entrepreneurship were sources of intrinsic motivation, while others argued that there are other ways to make their lives meaningful.

I see something happening due to me, some growth and success, and this is fulfilling for most people. Plus, I can set and adjust incomes based on my capacity and economic situation, which I find interesting. Everything is based on my success, leading me further (FG14, woman).

Students noted that entrepreneurship conflicted with their other life goals, such as having a family, travelling, or securing housing. Others described themselves as unwilling to take risks or stressed. Students felt that lowered living standards were not worth the effort. The aspects of authenticity and challenge conflicted for some, while for others, they were congruent.

Students often compared entrepreneurship with employment, but these comparisons were often inconclusive due to the complexity of the comparisons, diverse preferences, and subjective perceptions. For some younger people, what you do is more important than whether they can achieve this through traditional employment or entrepreneurship. Students reflected on the more demanding character of entrepreneurship [challenge] compared to employment, where employers handle everything administratively. While starting a business can be relatively fast and easy, maintaining it for the long term can be much more challenging. Entrepreneurial demands include a significant time investment, a high work volume, sustained financial investment, and job insecurity. Four main aspects emerged:

- Necessary high time and effort investment (less time for their family).
- Individual responsibility, obligations, and securing all things.
- The complexity and unpredictability of entrepreneurship and the fear of mistakes and losses.
- Financial factors (highly financially demanding businesses, money for equipment, and the risk of incurring debts).

Investment in entrepreneurship was seen as a matter of choice. When there was no extrinsic pressure, being an employee was a more suitable alternative, allowing for an easier life and more time [high balance]. A female participant reflected on these motives:

Entrepreneurship is a 24/7 issue. Even when I come home, I must think about it or look for solutions to problems. It is hard to be outside of it. Additionally, you have many responsibilities,

so you are always required to work. In contrast, some jobs allow employees to come home, switch off, and care about nothing. This model is an excellent basis for caring for the family (FG10, woman).

Another essential issue is economic security (Greer et al., 2024), which students perceive as less than in employment. Lesser security was related to the prospective field of business and discomfort; students wanted fewer risks and a more stable income. They also discussed the importance of having extra money in case of unexpected problems. Broader economic security is relevant when considering loans. It was crucial whether entrepreneurship was the primary or additional source of income, whether it was the second income in the family, and whether it provided some protection due to the partner's or parents' incomes. The main goal for both men and women was to secure their futures.

When I consider balancing business demands with starting a family, I find them to be incompatible. When you want to start a family, you need stability and a stable income. Someone should care for the family, and when I take all the money and start a business with a potential for loss, this is not something the family can fully appreciate versus stability, security, and a peaceful night's rest (FG4, man).

Respondents reflected on the low feasibility and high risk of securing the family's and the business's economic future, especially during the initial stages (effort, money, care). Many respondents thought it was better or more viable to consolidate the business before starting a family [a challenge before balance]. Some respondents noted there is a gender-based difference (see below).

Younger people thought of harmonising family life and entrepreneurship. Youth must prepare for entrepreneurship by creating a stable, solid life base with a financial 'cushion'. The opinion was divided between respondents who believed that established businesses were advantageous for family life due to the increased freedom and flexibility, versus those who warned against blurring work and family life, the high time and effort investments required, and the demanding nature of business.

Reasoning Behind the Timing of Entrepreneurship in the Life Course

Some respondents discussed entrepreneurship from the perspective of their life course. Simultaneously studying and starting an entrepreneurial venture may lead to stressful time pressure and an increased risk of school dropout. Some students did not want to start entrepreneurship immediately after completing their education. Many younger people believe that completing their studies and gaining work experience and skills as an employee are prerequisites for entrepreneurship or finding a career that best suits them.

I will secure a job in a field that aligns with my business aspirations. I would spend 5-10 years there, because the theory is excellent, but you need practical experience. I would bear such a risk [entrepreneurship] when I felt stable enough in my personal life and career (FG1, man).

This widely adopted approach was viewed as more accessible, enabling individuals to gain experience and business contacts, achieve economic security, accumulate capital for future business ventures, and postpone critical life decisions (see also Kirkwood et al., 2014; Stephen et al., 2015). The social security system conditions were relevant for some women, and from this perspective, employment was seen as an advantage [for security].

Some young people declared that the strategy is to start sooner, with limited time for business activity and capital, often combined with studying or working. This strategy was perceived as relatively more achievable, less demanding, and risk-free, providing an opportunity to assess whether it would be suitable for them or viable for securing some initial capital. Only some entrepreneurial attempts were meant to be lifetime businesses, but even these were quickly abandoned once they became unsuitable.

It is okay to start a business as young as possible when we have business ideas and all those things. Later, when we want to start a family and have children, the business can be an advantage rather than a burden for the family because it was established earlier (FG4, man).

Other respondents liked having permanent entrepreneurship as a second activity. Respondents perceived this strategy as more manageable and less risky, offering greater economic security and greater life variability [authenticity]. Some people also mentioned that this strategy is viable for

women with children to return to work after maternity and parental leave [balance].

Differences Among Students of Economics and Other Fields

There were apparent differences among students regarding their educational backgrounds, including both high school education and university education. Most focus group participants were interested in entrepreneurship (which was probably why they decided to join the focus groups). Former Gymnasium (specific grammar school) students and university students in non-economic fields (social sciences, medicine) demonstrated much lower levels of basic economic literacy and entrepreneurial education than students in economic fields. Students who did not receive entrepreneurial education were less knowledgeable about the steps and requirements of entrepreneurship. Nevertheless, entrepreneurship education was perceived more as an advantage than as a necessity for starting an enterprise. The field of study was most relevant to students who studied to become entrepreneurs or considered entrepreneurship in their chosen professions, such as general practitioners or law consultants (compared to those whose entrepreneurship interest stemmed from hobbies or specific business ideas). Students who wanted to get practice in their fields preferred employment. Students considered whether their field of study is suitable for entrepreneurship (competition, financial, and legal requirements) – those who saw their field as unsuitable reported a need for specific knowledge, field orientation, and social capital.

Perceived Differences Between Men and Women in Entrepreneurship

Discussing the gender differences centred on family life, culture, and society. We noted both men and women who are more traditional family-oriented and those who are more equality-oriented. For respondents who held traditional views on family roles, this perspective shaped their perceptions and reasoning behind their attitudes; for example, men are perceived as having a greater capacity for entrepreneurship, as they are often the breadwinners, and children may be a barrier to their success [low balance].

Women typically stay on parental leave and prioritise family care. If a woman is considering starting a full-time entrepreneurial venture, she often thinks, 'When will I have

children?' I would not want to start a business soon after school because I would risk losing the money I would need to feed my family. The family influences men, but less so, since men always work and women stay home with the children. So, it is less complicated for men (FG14, woman 1).

I must disagree with this old family model, which I admit is still widespread. Entrepreneurship is a career path where the differences between men and women are not necessarily so apparent, as women can be entrepreneurs during maternal leave. Therefore, this should not be a barrier or negative influence on entrepreneurship. I see no difference in this; it is relatively equal (FG14, woman 2).

Some respondents stated that gender differences are irrelevant, unacceptable, or nonexistent in certain areas. This line of argument was often also referenced in discussions about the number of men and women in entrepreneurship, or by using personal examples to overlook these differences. The argument is that the differences are primarily subjective, not gender-dependent or attributed, or that other factors are more important. Some respondents argued that perceived past changes in society had led to a diminishing of gender-based differences and discrimination. Respondents discussed the formal conditions that shape their life opinions in a way that allows for an unproblematic level of gender equality.

Some people's reasoning amounts to an implicit normative confrontation with a perceived level of traits or skills. Gupta et al. (2009) noted that traits required for entrepreneurship might be considered masculine. Respondents, for example, thought that women tend to be less proactive, more afraid, and more emotional. Men were thought to be competitive, courageous, and risk-taking.

Women are more careful than men. They try to anticipate how things can evolve or go wrong and to prevent this from happening. Sometimes, they overthink, considering every alternative to avoid every risk. I always think of something, but then I tell myself that some aspects are foolish and the project will probably fail. I would need a more direct approach (FG10, woman).

This issue may reflect the potential role of mindfulness and a simple orientation to results (see Van Gelderen et al., 2019). Some respondents

speculated that women are less interested or motivated to enter the business [low challenge]. The entrepreneurship environment is challenging and competitive, which may be more difficult and exhausting for women. Some respondents argued that women start businesses in different fields and for different reasons than men. Their preferences are more related to visions of a meaningful life.

Women look for stability and security. They would, instead, take a nine-to-five job that allows them to drop off their children at kindergarten and school, and then go to work. After work, they care for their children, husband, and the household. They do not have to consider paying employees' wages and similar things (FG2, man).

According to some women, men have a higher degree of perceived authority, and women experience a lower level of general respect. For women, gaining respect from subordinates or securing good entrepreneurial positions in male-dominated fields is more challenging. One woman noted that women's position is also dependent on society's general stance on acceptable roles. Women can be less successful due to stereotypes and discrimination, which lead to low customer trust, or they must work harder to overcome these obstacles. Students discussed the concept of gender fit and gender-specific communication among women, which may offer advantages in certain fields. One of the respondents noted that there are fewer inspiring examples of businesswomen as role models.

Women are raised to be more empathetic and make more compromises. Moreover, they may step aside in the question of the family and prioritise it, even if they would like to work more or climb to the top of their career. However, it is still uncommon to see women in top positions in our society (FG12, woman).

Such opinions may influence women's stances on the value of entrepreneurship. Braches and Elliot (2017) commented on potential gender bias in entrepreneurial discourse and the associated risks of subordination or of being perceived as subordinate (see *ibid.*, p. 538).

Elley-Brown et al. (2018) argued that the context-dependent family model was highly relevant to a concrete family strategy. Family was something mostly hoped for, natural, preferred, or acceptable. Both men and women saw combining entrepreneurship and family as demanding and influenced by unpredictable changes. Entrepreneurship and pregnancy

(small children) do not go well together [challenge vs. balance]. Others, in contrast, provided positive examples of women who had managed it. Still, this was usually not a preferred strategy. The ability to harmonise work and family life depended on the partner's stance, common work-family strategy, and couples' negotiations of suitable common tactics vis-à-vis partner involvement. Male partners may feel more distressed when they see their entrepreneurial partners' success and the high level of effort they put into it.

Many respondents expected women to be more involved in decision-making regarding children and care. Some women spoke about the situations (especially early motherhood) when they felt they could not or did not want to work or switch roles with their partner [authenticity]. Women must consider family situations and household duties more, face more complex choices, temporarily prioritise children's needs over entrepreneurial responsibilities, and have shorter life spans for entrepreneurial opportunities [a challenge in balance].

Some women felt pressured by their close relatives or even by society [authenticity vs. subjective norm]. They described the society's stance as the discourse of the raven mother, the cuckoo mother, or the cat mother. Women perceived this as symbolic inequality, primarily because the exact behaviour of men and women is assessed differently.

Comments come not only from unfamiliar people but also from relatives: What a mother is, one who chases after her career and does not care for her children; she puts it away as soon as it is possible to be an entrepreneur. I wish society would see it differently. Mothers who raise children and those who lead businesses are not against each other or mutually exclusive; their children should not be pitied (FG10, woman).

Some women respondents disagreed on the problematic relationship between entrepreneurship and motherhood. They perceived entrepreneurship as advantageous due to its flexibility in activities and time, and its ability to delegate business roles [balance]. This flexible approach was related to the aforementioned strategies of starting a business sooner or on a smaller scale, or entrepreneurship as a supplementary income. Some respondents stated that women can avoid discrimination in entrepreneurship.

Some younger people argued that the gender differences were based on the perceived division of gender roles. The position of women can be changed and made easier when society culturally accepts women more as

working or entrepreneurs. Other students claimed that women could be entrepreneurs with men's partial involvement in childcare and dividing family obligations, or that women and men could flexibly swap their roles.

Conclusion

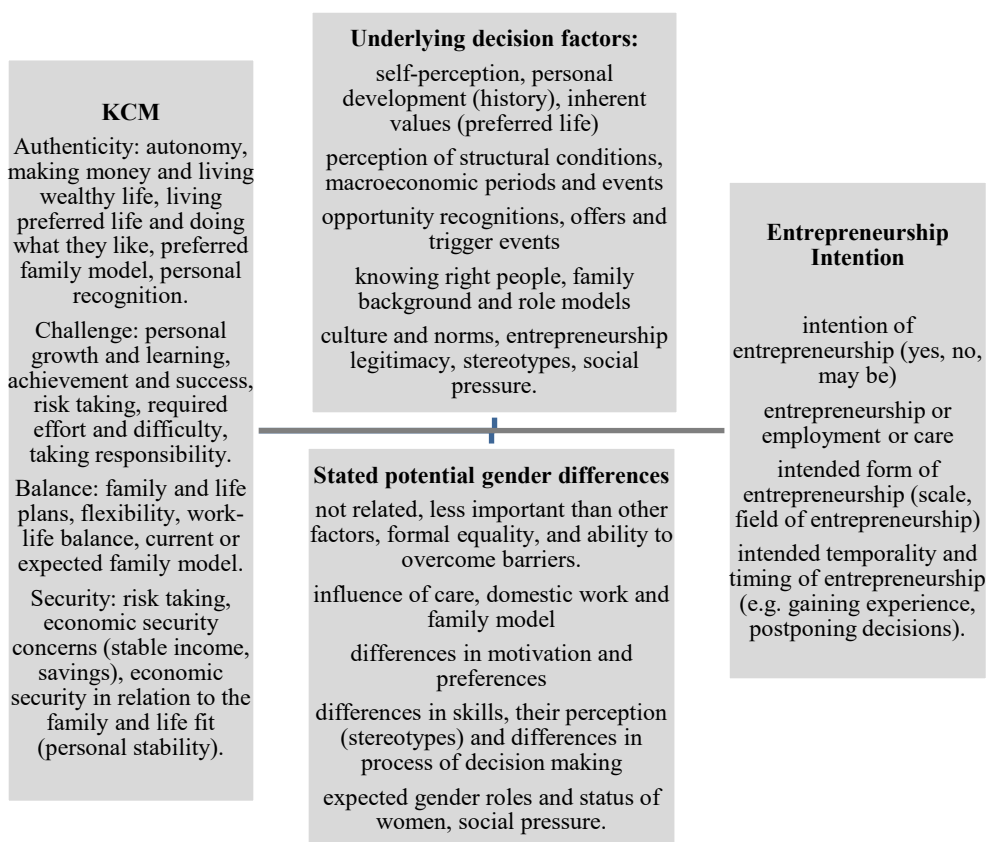
This article focuses on the factors that university students consider when contemplating entrepreneurship. The specific scientific contribution lies in linking entrepreneurship decisions to the Kaleidoscope model proposed by Mainiero and Sullivan (2005), as presented in Scheme 1. Authenticity, balance, challenge, and security are interrelated in decisions across the domains of employment, entrepreneurship, and personal and family life. KCM aspects were relevant at both the normative and day-to-day practice levels, as well as at contemporary and projective levels. In some cases, they were clearly in conflict, leading to dilemmas that necessitated, e.g., choosing an alternative approach or postponing entrepreneurship decisions.

Almost all discussed entrepreneurship was driven by opportunity and intrinsic positive forces (see also Dhar et al. 2022). Respondents were more willing to try entrepreneurship when they had a good business idea and a supportive environment, when entrepreneurship aligned with their interests or career plans, when they perceived it as not too demanding, and when they believed it was the right time to start. Youth also considered their career aspirations, the fields they chose to study, investment preferences, and economic factors. When directly asked about gender differences, students noted that formal conditions for entrepreneurship are the same. However, they saw the differences in personal motives and culturally determined expectations. Some women identified the responsibilities embedded in the web of relationships as a primary driver of their perceptions. The practical fit with their current or proposed life, including expected family and care situations, leads women to prefer entrepreneurship or employment. It may also explain the characteristics of planned business ventures.

The article explains, in the context of the Czech Republic, how perceptions of social norms regarding family can both encourage and discourage entrepreneurial intentions. We conclude that, for our respondents (specifically women), this factor was most pronounced in both their reflections on gender differences and their personal career plans, compared to other factors such as field of study, entrepreneurial training, and legal

conditions. The role of social norms can be context-dependent and may not function similarly across countries (Rahman et al., 2022). The findings of our study can be beneficial for entrepreneurship training. The potential for an invention lies in developing mindfulness skills, an entrepreneurial focus, and a simple goal orientation among students, which can support entrepreneurial intention (Van Gelderen et al., 2019; Prakash et al., 2023). Additionally, the discussion of entrepreneurship and work-life balance can enhance reflexivity and entrepreneurial intention among future entrepreneurs.

Scheme 1: Key research categories derived from analysis.



Source: Authors' work

Acknowledgments

We thank the Czech Science Foundation for the financial support of our research. We thank Mariia Svyrydova for her technical help in organising focus groups.

References

- [1] **Acs, Z., Åstebro, T., Audretsch, D., & Robinson, D.** (2016). Public policy to promote entrepreneurship: A call to arms. *Small Business Economics*, 47, 35-51. <https://doi.org/10.1007/s11187-016-9712-2>
- [2] **Ajzen, I.** (1985). From intentions to actions: A theory of planned behaviour. In Kuhl, J. & Beckman, J. (Eds.). *Action-control: From cognition to behaviour* (pp. 11-39). Springer.
- [3] **Ajzen, I.** (1991). The Theory of Planned Behaviour. *Organisational Behaviour and Human Decision Processes*, 50(2), 179–211.
- [4] **Bañ, M., Sieger, P., Eddleston, K. & Chirico, F.** (2016). Fail but Try Again? The Effects of Age, Gender, and Multiple-Owner Experience on Failed Entrepreneurs' Reentry. *Entrepreneurship Theory and Practice*, 41(6), 909-941. <https://doi.org/10.1111/etap.12233>
- [5] **Bosma, N., Hessels, J., Schutjens, V., Van Praag, M. & Verheul, I.** (2012). Entrepreneurship and role models. *Journal of Economic Psychology*, 33(2), 410-424. <https://doi.org/10.1016/j.joep.2011.03.004>
- [6] **Bowen, D. & Hisrich, R.** (1986). The female Entrepreneur: A career development perspective. *The Academy of Management Review*, 11(2), 393-407. <https://doi.org/10.2307/258468>
- [7] **Braches, B. & Elliott, C.** (2017). Articulating the entrepreneurship career: A study of German women entrepreneurs. *International Small Business Journal: Researching Entrepreneurship*, 35(5), 535-557. <https://doi.org/10.1177/0266242616651921>
- [8] **Brück, T., Llussá, F., & Tavares, J.** (2011). Entrepreneurship: The role of extreme events. *European Journal of Political Economy*, 27(supplement 1), 78-88. <https://doi.org/10.1016/j.ejpoleco.2011.08.002>
- [9] **Burton, M., Sørensen, J. & Dobrev, S.** (2016). A Careers Perspective on Entrepreneurship. *Entrepreneurship Theory and Practice*, 40(2), 237-247. <https://doi.org/10.1111/etap.12230>
- [10] **Bussi, M., Hora, O., Ławrynowicz, M. & Schoyen, M.** (2023). Learning from precarious trajectories: portraits of young adults in four European countries. In Buttler, D., Ławrynowicz, M., & Michoń, P. (eds.), *School-to-Work Transition in Comparative Perspective* (pp. 64-87). Edward Elgar Publishing. <https://doi.org/10.4337/9781800370111.00011>

- [11] **Dhar, S., Farzana, T. & Abedin, S.** (2022). Pushed or Pulled into Entrepreneurship? Motivations behind Entrepreneurial Entry for Women with Disabilities in Bangladesh. *Journal of Women's Entrepreneurship and Education*, (3-4), 103-125. <https://doi.org/10.28934/jwee22.34.pp103-125>
- [12] **Cho, J., & Lee, E.** (2014). Reducing Confusion about Grounded Theory and Qualitative Content Analysis: Similarities and Differences. *The Qualitative Report*, 19(32), 1-20. <https://doi.org/10.46743/2160-3715/2014.1028>
- [13] **Christophe, Y., Javadian, G., Mathis, Ch. & Ramani, R.** (2024). When Work doesn't Work. An Alternative Framework to Examine Cognitive Factors in Employment-Entrepreneurship Transitions. *Group and Organisation Management*, 49(2), 429-470. <https://doi.org/10.1177/10596011241229765>
- [14] **De Klerk, S., Scheepers, R. & McCormack, M.** (2024). Career transitions from work-to-entrepreneurship. *Journal of Small Business & Entrepreneurship*, 1-29. <https://doi.org/10.1080/08276331.2024.2412967>
- [15] **De Villiers Scheepers, M., Boshoff, C. & Oostenbrink, M.** (2017). Entrepreneurial Women's cognitive ambidexterity: Career and cultural influences. *South African Journal of Business Management*, 48(4), 21-33. <https://doi.org/10.4102/sajbm.v48i4.40>
- [16] **Elley-Brown, M., Pringle, J. & Harris, C.** (2018). Women opting in?: New perspectives on the Kaleidoscope Career Model. *Australian Journal of Career Development*, 27(3): 172-180. <https://doi.org/10.1177/10384162177057>
- [17] **Dvouletý, O., Mühlböck, M., Warmuth, J. & Kittel, B.** (2018). Scarred young entrepreneurs: Exploring young adults' transitions from former unemployment to self-employment. *Journal of Youth Studies*, 21(9), 1159-1181. <https://doi.org/10.1080/13676261.2018.1450971>
- [18] **Fischer, E., Reuber, A. R. & Dyke, L.** (1993). A theoretical overview and extension of research on sex, gender, and entrepreneurship. *Journal of Business Venturing*, 8(2), 151-168. [https://doi.org/10.1016/0883-9026\(93\)90017-Y](https://doi.org/10.1016/0883-9026(93)90017-Y)
- [19] **Greer, T., Norman, J. & Aiken, L.** (2024). Explicating Women's Career Transitions: Propositions and the Conceptual Model. *New Horizons in Adult Education Human Resource Development*, 36(2), 103-116. <https://doi.org/10.1177/19394225241229823>
- [20] **Gupta, V., Turban, D., Wasti, S. & Sikdar, A.** (2009). The Role of Gender Stereotypes in Perceptions of Entrepreneurs and Intentions to Become an Entrepreneur. *Entrepreneurship Theory and Practice*, 33(2), 397-417. <https://doi.org/10.1111/j.1540-6520.2009.00296.x>
- [21] **Halabisky, D.** (2012). *Entrepreneurial Activities in Europe - Youth Entrepreneurship*. OECD Publishing.

- [22] **Henrekson, M.** (2007). Entrepreneurship and Institutions. *Comp. Labour Law and Policy Journal*, 28(4), 717-742. <https://doi.org/10.2139/ssrn.996807>
- [23] **Holienka, M., Pilková, A. & Jančovičová, Z.** (2016). Youth entrepreneurship in Visegrad countries. *Entrepreneurial Business and Economic Review*, 4(4): 105-121. <https://doi.org/10.15678/EBER.2016.040407>
- [24] **Kirkwood, J., Dwyer, K., & Gray, B.** (2014). Students' reflections on the value of an entrepreneurship education. *The International Journal of Management Education*, 12(3), 307-316. <http://dx.doi.org/10.1016/j.ijme.2014.07.005>
- [25] **Krueger, N., Reilly, M. & Carsrud, A.** (2000). Competing models of Entrepreneurial Intentions. *Journal of Business Venturing*, 15(5-6), 411-432. [http://dx.doi.org/10.1016/S0883-9026\(98\)00033-0](http://dx.doi.org/10.1016/S0883-9026(98)00033-0)
- [26] **Liñán, F. & Chen, Y.** (2009). Development and Cross-Cultural Application of a Specific Instrument to Measure Entrepreneurial Intention. *Entrepreneurship Theory and Practice*, 33(3), 593-617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- [27] **Mainiero, L. & Sullivan, S.** (2005). Kaleidoscope Careers: An Alternate Explanation for the "Opt-Out" Revolution. *The Academy of Management Executive*, 19(1), 106-123.
- [28] **Mainiero, L. & Gibson, D.** (2018). The Kaleidoscope Career Model Revisited: How midcareer Men and Women Diverge on Authenticity, Balance and Challenge. *Journal of Career Development*, 45(4), 361-377. <https://doi.org/10.1177/0894845317698223>
- [29] **Minnity, M., & Nardone, C.** (2007). Being in Someone Else's Shoes: The Role of Gender in Nascent Entrepreneurship. *Small Business Economics*, 28(2/3), 223-238. <https://doi.org/10.1007/s11187-006-9017-y>
- [30] **OECD/European Union** (2019). *The Missing Entrepreneurs 2019: Policies for Inclusive Entrepreneurship*. OECD Publishing.
- [31] **Paunovic, I., & Musial, J.** (2024). Gender gap in entrepreneurial intention, reasoning, self-efficacy, and education preferences among university students. *Journal of Women's Entrepreneurship and Education*, 17(3/4), 93-111. <https://doi.org/10.28934/jwee24.34.pp93-111>
- [32] **Prakas, D., Bisla, M., & Arora, T.** (2023). Gendered aspect of entrepreneurial orientation: the role of mindfulness. *Journal of Women's Entrepreneurship and Education*, 16, 76-91. <https://doi.org/10.28934/jwee23.pp76-91>
- [33] **Rahman, M. M., Salamzadeh, A., & Tabash, M. I.** (2022). Antecedents of entrepreneurial intentions of female undergraduate students in Bangladesh. *Journal of Women's Entrepreneurship and Education*, 15(1-2), 137-153. <https://doi.org/10.28934/jwee22.12.pp137-153>

- [34] **Santana Vega, L., González-Morales, O., & Feliciano García, L.** (2016). Entrepreneurship and Adolescents. *New Approaches in Educational Research*, 5(2), 123-129. <https://doi.org/10.7821/naer.2016.7.165>
- [35] **Schamber, L.** (2000). Time-Line Interviews and Inductive Content Analysis: Their Effectiveness for Exploring Cognitive Behaviors. *Journal of the American Society for Information Science*, 51(8): 734-744. [https://doi.org/10.1002/\(SICI\)1097-4571\(2000\)51:8<734::AID-ASI60>3.0.CO;2-3](https://doi.org/10.1002/(SICI)1097-4571(2000)51:8<734::AID-ASI60>3.0.CO;2-3)
- [36] **Schoof, U.** (2006). *Stimulating Youth Entrepreneurship: barriers and incentives to enterprise startups by young people*. ILO.
- [37] **Shane, S., Locke, E. & Collins, C.** (2003). Entrepreneurship motivation. *Human Resource Management Review*, 13(2), 257-279. [https://doi.org/10.1016/S1053-4822\(03\)00017-2](https://doi.org/10.1016/S1053-4822(03)00017-2)
- [38] **Srivastava, S., & Misra, R.** (2017). Exploring antecedents of entrepreneurial intentions of young women in India. *Journal of Entrepreneurship in Emerging Economies*, 9(2), 181-206. <https://doi.org/10.1108/JEEE-04-2016-0012>
- [39] **Stephan, U., Hart, M., Mickiewicz, T. & Drews, C.** (2015). *Understanding Motivations for Entrepreneurship*. Department of Business Innovation & Skills.
- [40] **Steward, D., & Shamdasani, P.** (2015). *Focus Groups: Theory and Practice*. SAGE Publications.
- [41] **Sullivan, S. & Arthur, M.** (2006). The evolution of the boundaryless career concept: Examining physical and psychological mobility. *Journal of Vocational Behaviour*, 69(1), 19-29. <https://doi.org/10.1016/j.jvb.2005.09.001>
- [42] **Vaismoradi, M. & Snelgrove, S.** (2019). Theme in Qualitative Content Analysis and Thematic Analysis. *Forum: Qualitative Social Research*, 20(3), 23. <https://doi.org/10.17169/fqs-20.3.3376>
- [43] **Van Gelderen, M., Kibler, E., Kautosen, T., Munoz, P. & Winzent, J.** (2019). Mindfulness and Taking Action to Start a New Business. *Journal of Small Business Management*, 57(S2), 489–506. <https://doi.org/10.1111/jsbm.12499>
- [44] **Years D. & Gillam, L.** (2022). Inductive content analysis: A guide for beginning qualitative researchers. *Focus on Health Professional Education*, 23(1), 111-127. <https://doi.org/10.11157/fohpe.v23i1.544>

Article history: Received: October 17, 2025

Accepted: March 2, 2026

First Online: March 3, 2026

DOI: 10.28934/jwee26.12.pp96-117

JEL: G4, L26

ORIGINAL SCIENTIFIC PAPER

Do Investment Decisions Mediate the Effect of Cognitive and Emotional Bias on Financial Performance in Women SMEs?




Wida Purwidiанти¹ 


Faculty of Economics and Business, Universitas Muhammadiyah Purwokerto
Bancarkembar, North Purwokerto, Banyumas Regency, Central Java Province,
Indonesia

Retno Dwiyanți² 

Faculty of Psychology, Universitas Muhammadiyah Purwokerto, Sumampir, North
Purwokerto, Banyumas Regency, Central Java Province, Indonesia

Erny Rachmawati³ 

Faculty of Economics and Business, Universitas Muhammadiyah Purwokerto
Karangsoka, Kembaran, Banyumas Regency, Central Java Province, Indonesia

Rita Kusumawati⁴ 

Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta
Tamantirto, Kasihan, Bantul Regency, Special Region of Yogyakarta Province,
Indonesia

ABSTRACT

Small and medium-sized enterprises (SMEs) can continue to grow due to the contribution of women entrepreneurs. The performance of SMEs and investment decisions made by women entrepreneurs have been proven to have a crucial role in a country, especially in economic growth. This research highlights the role of

¹ Corresponding author, e-mail: widapurwidiанти@ump.ac.id

² E-mail: retnodwiyanți@ump.ac.id

³ E-mail: ernyrachmawati67@gmail.com

⁴ E-mail: kusumawatirita@umy.ac.id

cognitive and emotional biases in investment decisions and the financial performance of female SMEs. Cognitive bias is proxied by overconfidence, representativeness, and herding biases. Emotional bias is proxied by loss aversion bias. The novelty of this study lies in treating investment decisions as an intervening variable. The study population comprised women-owned SMEs in two large provinces in Indonesia: Central Java and the Special Region of Yogyakarta. The sample used in this study was 130 SMEs. The results provide empirical evidence on the role of herding bias and loss aversion in improving investment decisions. The variables of overconfidence and representativeness bias were associated with improved company financial performance. The role of investment decisions as a mediating variable was not proven for all tested variables. This study provides theoretical contributions and practical implications for female SME owners and the government.

KEYWORDS: *overconfidence bias, representativeness bias, herding bias, loss aversion bias, investment decision, performance, women SMEs*

Introduction

Women make a vital contribution to the growth of SMEs. Women also bring unique perspectives, have skills, and contribute to the business world, so that it has an impact on the country's economic growth (Adam et al., 2024). In the world, women entrepreneurs play a role in expanding employment opportunities, reducing poverty, increasing product innovation, and driving the community economy (Popoola, 2025).

In Indonesia, SMEs play a strategic role. Data from the Ministry of Micro, Small, and Medium Enterprises (MSMEs) shows that as of December 2024, there were 30.18 million MSMEs in Indonesia. Of these, 64.5 percent, or 37.5 million, were managed by women (Tubastuvi & Purwidiyanti, 2023). The contribution of female entrepreneurs in Indonesia is driven by government policies that prioritize women's economic empowerment. Women in SMEs are able to overcome economic disparities, improve their living standards, and achieve empowerment (Prasetyani et al., 2025).

The performance of SMEs and investment decisions made by women entrepreneurs have been proven to have a crucial role in a country, especially in economic growth (Iram et al., 2023). However, many women entrepreneurs exhibit irrational behavior, which influences their investment

decisions. This irrational behavior often leads to hasty investment decisions that fail to consider the risks involved.

Many factors influence investment decisions and SME performance, including cognitive and emotional biases (Dominic & Gupta, 2020; Lestari et al., 2021; Purwidiyanti et al., 2023; Sukma Ardini et al., 2023). Cognitive bias occurs when there is a systematic deviation from rational judgment. Cognitive biases in this study will be proxied by overconfidence, herding, and representativeness biases. Emotional biases generally occur spontaneously, driven by an individual's personal feelings, when making decisions. In this study, emotional bias is proxied by loss aversion bias.

Overconfidence bias is characterized by an individual's overestimation of the accuracy of investment assessments. demonstrate that overconfidence bias is an important factor in the development of entrepreneurship among women; however, studies on overconfidence bias in relation to investment in entrepreneurship are inconsistent. Changes in investment decisions can be driven by business owners' overconfidence bias. This phenomenon has been captured by numerous studies. (Ahmad & Shah, 2020; Almansour et al., 2023; Elhussein & Abdelgadir, 2020; Iram et al., 2023; Novandalina et al., 2022; Purwidiyanti et al., 2023, 2024; Rahman & Gan, 2020; S. Z. A. Shah et al., 2018; Zafar et al., 2024). Az-zahara et al. (2024) found results that contradict the majority of research, indicating that investment decisions do not depend on overconfidence.

Improved company financial performance can stem from owner overconfidence. Aljughaiman and Chebbi (2022), Bouteska and Regaieg (2020), and Chang et al. (2022) found an interesting phenomenon: overconfidence bias among company owners can further enhance business performance. This overconfidence leads owners to make financial decisions with greater confidence, thereby improving company financial performance. However, empirical evidence still exists that finds contradictory results regarding overconfidence bias, which actually causes a company's financial performance to decline further (Ahmad & Shah, 2020; Chang et al., 2022).

Representativeness is the tendency of an individual to assess an idea or object based on how well it represents something. Other research on representativeness bias also shows the impact of *representativeness* on investment decisions (Kartini & Nahda, 2021; S. Z. A. Shah et al., 2018).

SME owners often exhibit follow-the-track behavior by following the investments made by other SMEs. In financial management, this follow-the-track behavior is known as herding bias. This behavior stems more from

SME owners' tendency to avoid investing in areas that differ from those of their peers. This is shown by the results of research (Adielyani & Mawardi, 2020; Almansour et al., 2023; Keswani et al., 2019; Naomi et al., 2018; Purwidiyanti et al., 2023; Zafar et al., 2024). Some studies (Rahman & Gan, 2020; Sukma Ardini et al., 2023) reported different results, finding that herding bias does not affect changes in investment decisions. *Herding bias* can affect a company's performance. Research by S. S. H. Shah et al. (2024) provides empirical evidence that herding bias can affect a company's financial performance.

Loss aversion bias states that, in general, humans tend to have a stronger drive to avoid losses than to gain profits. Changes in a company's investment decisions can also be caused by loss aversion bias (Az-zahara et al., 2024; Elhussein & Abdelgadir, 2020; Sapkota, 2023). Research by Sukma Ardini et al. (2023) yields conflicting results regarding the impact of loss aversion bias on investment decision-making. The relationship between *loss aversion* bias and performance has been shown by several studies. Company performance can decline further due to loss aversion bias (Aljughaiman & Chebbi, 2022; Bouteska & Regaieg, 2020).

The results of the aforementioned study show that there is a research inconsistency regarding cognitive and emotional biases in investment decisions and performance. This research will overcome the research gap by placing investment decisions as a mediating variable. This is based on the idea that the impact of investment decisions on performance has been established by previous research (Nguyen et al., 2023; Quddus et al., 2022).

Literature Review

Overconfidence and Investment Decision

An entrepreneur will have the courage to take risks in environments with high uncertainty. They will dare to allocate the resources they have, even though the level of success of their business is still uncertain (Gochhait & Korter, 2025). Overconfidence is a tendency to overestimate one's abilities and knowledge. An overconfident individual tends to make risky investment decisions because they are confident in the ideas guiding their business (Aljughaiman & Chebbi, 2022). Previous studies have reinforced the finding that overconfidence affects overinvestment decision-making.

Research by Purwidiyanti et al. (2023) shows that overconfidence among SME owners increases their willingness to invest. The same results are reported in studies by Aeni et al. (2024), Almansour et al. (2023), Syarkani and Alghifari (2022), and Zafar et al. (2024), which highlight the positive impact of overconfidence on investment decisions.

H1: Overconfidence behavior can improve investment decision-making

Representativeness and Investment Decision

Representativeness is the tendency for an individual to make decisions based on limited observations and to perceive those decisions as representing his or her interests. This representative bias can cause investors or individuals to overreact to information. This representative can lead to wrong decision-making because it does not consider future investment results (Kartini & Nahda, 2021).

Research on representativeness bias shows the results of an increase in investment decisions due to *representativeness* (Elhussein & Abdelgadir, 2020; Kartini & Nahda, 2021; S. Z. A. Shah et al., 2018). Investors have an optimistic tendency towards their investment decisions because they have been optimistic about profits in the past (Lazuarni & Asri, 2020).

H2: Representativeness bias is able to improve investment decision-making

Herding Bias and Investment Decision

Herding bias describes behavior that always follows investment decisions that have been made by other investors without any prior analysis (Armansyah, 2022). This behavior will lead individuals to make investment decisions simply because many others are doing so. This behavior is encouraged because individuals want to minimize risk by following the behavior of their group (Almansour et al., 2023).

Research on herding bias in investment decision-making provides clues to increased investment decisions driven by herding. Several studies provide evidence supporting this (Almansour et al., 2023; Purwidiyanti et al., 2023; Zafar et al., 2024).

H3: Herding bias can improve investment decision-making

Loss Aversion and Investment Decision

Loss aversion is the tendency to avoid losses because individuals do not evaluate gains and losses equally. They will evaluate investments based on expected profits, without considering potential losses due to fear of risk (Aljughaiman & Chebbi, 2022).

Research on the influence of *loss aversion* bias in investment decision-making is shown by Az-zahara et al. (2024), Elhussein & Abdelgadir (2020), and Sapkota. In general, individuals are more stressed about losses than about gains of the same amount (Hossain & Siddiqua, 2022).

H4: Loss aversion bias leads to an increase in investment decisions.

Overconfidence and Financial Performance

Overconfidence arises because individuals feel that they have an advantage over others in terms of knowledge and skills (Ahmad & Shah, 2020). A study by Aljughaiman and Chebbi (2022) explores the relationship between overconfidence and company performance. The results provide evidence that overconfidence can support improvements in company performance. An individual who is overconfident can improve the company's performance due to their willingness to undertake riskier business strategies (Aljughaiman & Chebbi, 2022). Overconfident leaders will engage in strategic business risk-taking through cognitive, motivational, and social mechanisms (Burkhard et al., 2023).

The overconfidence bias in the belief that performance can be improved has been shown by Aljughaiman & Chebbi (2022), Bouteska & Regaieg (2020), and Chang et al. (2022). The higher the *overconfidence* bias, the higher the performance will increase.

H5: Overconfidence bias leads to an increase in the 'company's financial performance

Representativeness and Financial Performance

Research on the relationship between representative bias and financial performance remains very limited. One study illustrating this relationship was conducted by Alex and Koske (2020). The study shows that SME owners' representativeness bias can improve financial performance. SME

owners who tend to trust past events can predict the future; they will invest in products or in the company's reputation based on past experience.

H6: Representativeness bias leads to an increase in the company's financial performance

Herding Bias and Financial Performance

Several reasons for herding behavior among company owners have been identified in previous research (S. S. H. Shah et al., 2024). First, the fear of the 'company's risk will fall if it takes actions that are contrary to those of its competitors. Second, the company's owner deduces information from his personal interactions with competitors. Third, the company owner can access the same information as his competitors.

Several studies have proven that investment strategies based on herding behavior can improve company performance. Herding behavior also has a role in changes in the company's performance. Research by Alabass et al. (2019) and S. S. H. Shah et al. (2019, 2024) provides empirical evidence that herding bias can improve company performance.

H7: Herding bias leads to an increase in the 'company's financial performance

Loss Aversion and Financial Performance

SME owners with a loss-aversion bias will be unwilling to accept the same losses based on the 'company's past performance. Therefore, SME owners are reluctant to develop their businesses for fear of losing money. Aljughaiman and Chebbi (2022) examined how loss aversion behavior affects company performance. The results show that loss aversion behavior leads to a decline in company performance.

Several studies have shown the relationship between loss aversion bias and performance. The loss aversion bias will negatively affect performance, as demonstrated by Aljughaiman and Chebbi (2022) and Bouteska and Regaieg (2020).

H8: Loss aversion bias causes a decline in the 'company's financial performance

Investment Decision and Financial Performance

Investment decisions are crucial for companies. This decision will involve the use of the company's capital. This decision will also affect the company's survival. Several studies have provided evidence of the tangible contribution of investment decisions to a company's financial performance. Bokhari et al. (2023), Nguyen et al. (2023), and Quddus et al. (2022) provide guidance in their research on improving investment decisions, which can enhance a company's financial performance.

H9: Investment decisions improve the 'company's financial performance

Investment Decision Mediation

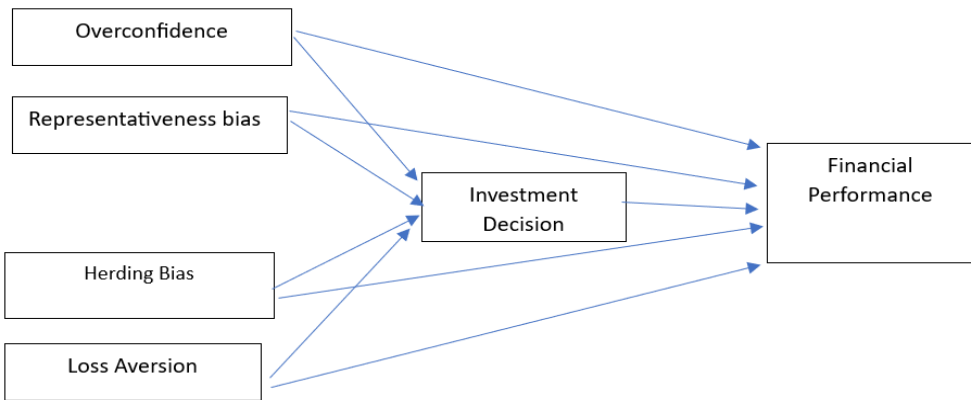
Rior research has provided a general overview of the close relationships among overconfidence bias, herding bias, representativeness bias, and loss aversion bias in investment decisions and company financial performance. However, existing studies have not explored the relationship between these variables. A mediation test is needed for further verification. This research treats investment decisions as a mediator because they determine changes in company financial performance.

H10: The intervening role of investment decisions can improve financial performance due to overconfidence bias.

H11: The intervening role of investment decisions can improve financial performance due to representativeness bias.

H12: The intervening role of investment decisions can improve financial performance due to herding bias.

H13: The intervening role of investment decisions can decrease financial performance due to loss aversion bias

Figure 1: Research framework

Source: processed by researchers, 2025

Method

Female SME owners in Central Java Province and the Special Region of Yogyakarta were selected as the population for this research. The sampling technique used was convenience sampling due to the large study area and the inability to obtain the names of all operating SMEs. The use of convenience sampling will introduce bias in respondents' answers; the researcher conducted a common bias test to ensure the accuracy of the responses. The sample criteria used are SMEs whose owners or managers are women, non-financial SMEs, and SMEs that were still producing in the research year.

The minimum number of samples to be used is five observations of each parameter (Hair et al., 2014). This study has four independent variables, one mediation variable, one dependent variable, and 20 question indicators. The minimum sample size used is 130 female SME owners from Central Java Province and the Special Region of Yogyakarta.

All of these research items were measured using a Likert scale of 1 to 5. The variables of overconfidence and representativeness were measured by the statements used in the study (Iram et al., 2023). Overconfidence bias is characterized by an individual's excessive confidence in their ability to accurately assess investments. The variable of overconfidence comprises five statements about confidence in investment experience, belief in the knowledge possessed, feeling wiser than others, greater confidence in one's

knowledge than analysts' or experts' results, and deciding to invest because of confidence in oneself (Iram et al., 2023).

Representativeness refers to an individual's tendency to consider an idea or object as representative of themselves. The representativeness variable was measured using four statements: avoiding underperforming transactions, using trend analysis to predict investment returns, investing according to the desired quality, and investing based on selective sources of information (Iram et al., 2023).

Herding bias is reflected in the tendency to follow the investment decisions of other investors. . Indicators of herding bias include choosing the most popular investments, choosing investments based on the best price, following other investors due to a reluctance to act differently, and choosing investments that consider market conditions (Metawa et al., 2019).

Loss aversion bias refers to the tendency of individuals to be more motivated to avoid losses than to achieve gains. The loss aversion variable was measured using statements based on previous studies (Hossain & Siddiqua, 2022; Kumar et al., 2020). Four statements were used: large losses are more significant than equivalent gains; experiencing nervousness due to declining turnover; avoiding additional investments when the market is falling; and refraining from sales during volatile market conditions. Several items are used to measure investment decisions (Gveroski & Jankuloska, 2017; Purwidiанти et al., 2024). The first item addresses the type of investment planned for the future. The second item addresses the use of intuition in investment planning. The third item addresses the relationship between investment planning and the market conditions the company faces. The fourth item addresses the role of consumer needs orientation in investment planning. The fifth item addresses environmental factors and their influence on investment plans. The final item addresses the need for an investment feasibility study before undertaking an investment plan.

This research used five items to measure SMEs' financial performance (Nabeel-rehman & Nazri, 2019; Purwidiанти et al., 2022). The first and second items indicate an increase in return on assets and return on equity from the previous year. The third item relates to the 'company's profit margin. The fourth item addresses the 'company's ability to gain market share in the industry. The final item relates to sales growth from the previous year.

Results

Statistics Descriptive

The respondents in this research are the owners of female SMEs in two major provinces in Indonesia, namely Central Java and the Special Region of Yogyakarta, for a total of 130 respondents. The results of the respondent statistics are shown in Table 1 below.

Table 1: Descriptive Statistics

	N	%
Age		
a. Less than 20 years	7	5,38
b. 20-30 years	35	26,92
c. 31-40 years	30	23,08
d. More than 40 years	58	44,62
Education		
a. High school graduate or less	13	10
b. High school graduate	66	50,77
c. Diploma graduate	13	10
d. 'Bachelor's degree or above	38	29,23
Type of Business		
a. Trade	85	65,39
b. Service	30	23,07
c. Manufacturing	15	11,54
Length of Business		
a. Less than 1 year	19	14,62
b. 1-5 years	62	47,69
c. 6-10 years	31	23,85
d. 11-15 years	6	4,61
More than 15 years	12	9,23

Source: processed by researchers, 2025

Statistical Testing

Statistical testing begins with a common biased test using Harman's Single Factor. The test result showed a statistical figure of 29.039%, less than 50%, indicating that the respondents' responses showed no bias (Tehseen et al., 2017).

This research uses SEM-PLS for statistical testing, comprising outer and inner model testing.

Evaluation of the Outer Model

Several tests required to test the outer model are shown in Table 2. A value of 0.7 is the standard for outer loading factors.

Table 2: Outer Model Results

Variable	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Overconfidence/ OD (X1)	X1.2	0,792	0,645	0,808	0,585
	X1.3	0,765			
	X1.5	0,736			
Representativeness Bias/ RPV (X2)	X2.1	0,736	0,626	0,799	0,570
	X2.3	0,795			
	X2.4	0,733			
Herding Bias/ HB (X3)	X3.2	0,860	0,643	0,849	0,737
	X3.4	0,857			
Loss Aversion/ LA (X4)	X4.2	0,811	0,622	0,839	0,723
	X4.3	0,888			
Investment Decision/ ID (Z)	Z1	0,787	0,763	0,849	0,585
	Z3	0,735			
	Z5	0,731			
	Z6	0,805			
Financial Performance/FP (Y)	Y1	0,853	0,913	0,933	0,700
	Y2	0,899			
	Y3	0,833			
	Y4	0,876			
	Y5	0,793			
	Y6	0,758			

Source: processed by researchers, 2025

Table 3 below presents the results of discriminant testing using the Fornell-Larcker Criterion.

Table 3: Discriminant Analysis Results

Variable	FP	HB	ID	LA	OD	RPV
FP	0,837					
HB	0,409	0,859				
ID	0,491	0,548	0,765			
LA	0,130	0,255	0,350	0,850		
OD	0,467	0,651	0,520	0,325	0,765	
RPV	0,471	0,555	0,491	0,361	0,613	0,755

Source: processed by researchers, 2025

Inner Model Evaluation

The inner model test was carried out in two stages, evaluating the test results for the determination coefficient and the regression path coefficient. This research uses two regression equations that show the existence of direct and indirect influences. The results of the direct influence test showed R-squared values of 0.318 and 0.371 for the indirect test. The results of the test of the two equations are presented in Table 4 as follows.

Table 4: Path coefficient and hypothesis result

Hyphotesess	Path Coefficient	t Statistic	p-value	Result
H1: OD -> ID	0,171	1,328	0,185	Not supported
H2: RPV -> ID	0,158	1,468	0,143	Not supported
H3: HB -> ID	0,308	3,476	0,001	Supported
H4: LA -> ID	0,159	2,159	0,031	Supported
H5: OD -> FP	0,245	2,083	0,038	Supported
H6: RPV -> FP	0,290	3,265	0,001	Supported
H7: HB -> FP	0,109	0,979	0,328	Not supported
H8: LA -> FP	-0,082	0,948	0,343	Not supported
H9: ID -> FP	0,312	1,999	0,046	Supported
H10: OD -> ID -> FP	0,053	0,895	0,371	Not supported
H11: RPV -> ID -> FP	0,049	1,007	0,314	Not supported
H12: HB -> ID -> FP	0,096	1,728	0,085	Not supported
H13: LA -> ID -> FP	0,050	1,469	0,142	Not supported

Source: processed by researchers, 2025

Table 3 presents the results of hypothesis testing for 13 hypotheses developed in this research. The findings do not provide sufficient evidence to reject six hypotheses: H3, H4, H5, H6, H9, and H12. Only one hypothesis shows the intervening role of investment decisions on the influence of herding bias on financial performance.

Discussion

The test results in this study show overconfidence among women entrepreneurs. These results differ from the majority of studies produced in the previous period. In theory, a high level of trust will increase investment by individuals (Aeni et al., 2024; Almansour et al., 2023; Syarkani & Alghifari, 2022; Zafar et al., 2024). The different results of this study compared to previous studies are possible because the sample of female SME owners does not have excessive confidence. The results are in line with the opinion (Amirkhanyan et al., 2021) that women have low confidence in investment decision-making. Syarkani and Alghifari (2022) also stated that men have greater confidence than women because they have a greater ability to process information and make investment decisions. (2023) stated that one obstacle to entrepreneurship for women is a lack of self-confidence, so an entrepreneurship education for women is needed that focuses more on developing self-confidence.

Representativeness bias does not appear to impact investment decisions. These results do not support previous research (Elhussein & Abdelgadir, 2020; Kartini & Nahda, 2021; S. Z. A. Shah et al., 2018), which provides evidence that higher levels of representativeness bias can influence investment decisions. Indicators of representativeness bias include making investment decisions based on financial analysis and relying on selective or trusted sources of information. The responses to the indicator suggest that respondents are more likely to be neutral toward the statement. Indicators of representativeness bias include basing investment decisions on financial analysis and depending on selective or trusted sources of information.

Herding biased behavior can improve investment decisions. Investors with this bias will always follow market trends. These results are in line with previous studies conducted (Almansour et al., 2023; Purwidiyanti et al., 2023; Zafar et al., 2024). Investment decisions made by female SME owners are based on those of other SME owners and are driven by market information.

Loss aversion bias has proven to be a driving factor for the increase in investment decisions of female SMEs. Loss aversion bias signifies an individual's aversion to loss. Among women SME owners in the two provinces studied, the answer score for this loss aversion bias was low, suggesting that female SME owners are willing to bear the risk of losing their businesses. This is what drives investment decisions. These results are in line with previous studies by Az-zahara et al. (2024), Elhussain and Abdelgadir (2020), and Sapkota (2023).

Overconfidence bias is a factor contributing to higher financial performance. Aljughaiman and Chebbi (2022) emphasized that excessive confidence can drive companies to outperform their competitors, thereby improving performance. This study reinforces prior research findings (Aljughaiman & Chebbi, 2022; Bouteska & Regaieg, 2020; Chang et al., 2022). One effort to increase women entrepreneurs' confidence is to expand women's empowerment programs to enable them to offer high-quality, diverse products (Prasetyani et al., 2025).

Representativeness bias also affects the company's improvement in financial performance. Alex and Koske (2020) reveal that representativeness bias can improve company performance. By choosing high-quality products and avoiding transactions that have performed poorly in the past, women SME owners can improve their businesses' financial performance.

This study could not prove the effect of herding bias behavior on financial performance. The trailing behavior shown by female SME owners has not improved business financial performance. These results are not in line with research (Alabass et al., 2019; S. S. H. Shah et al., 2019, 2024).

Financial performance is statistically not affected by loss aversion bias. These results differ from previous research by Aljughaiman and Chebbi (2022) and Bouteska and Regaieg (2020). Female SME owners continue to try to maintain product sales volume in uncertain market conditions, even though it does not have a significant impact on financial performance.

Investment decisions affect the improvement of financial performance. Several studies have provided evidence of the tangible contribution of investment decisions to a company's financial performance. Bokhari et al. (2023), Nguyen et al. (2023), and Quddus et al. (2022) provide guidance on improving investment decisions, which can enhance a company's financial performance.

The role of investment decisions as a mediating variable was not confirmed for all tested variables. This study did not find evidence that

investment decisions mediate the effects of overconfidence bias, representativeness bias, herding bias, or loss aversion bias on financial performance. The direct influence of overconfidence bias and representativeness bias was more pronounced on the financial performance of women-owned SMEs. Respondents' answers to the overconfidence variable indicated that women entrepreneurs make investment decisions based on their beliefs, which can affect performance. The representativeness variable reflects women entrepreneurs' behavior in conducting transactions based on desired quality, with the aim of enhancing the company's financial performance.

Conclusion

A significant issue in the field of financial management concerns the role of cognitive and emotional biases in investment decision-making. This study examines how these two biases contribute to investment decision-making and improve the financial performance of women-managed SMEs. The results provide clues to the role of overconfidence bias and representative bias in improving SME performance. The roles of herding and loss aversion biases are clearly evident in their influence on investment decision-making.

This research has implications for women entrepreneurs. First, investment decision-making must consider herding bias and loss aversion, as well as the tendency to always follow market trends and the attitude of prudence in making investment decisions, which are key determinants of investment success. Second, a company's financial performance can improve with higher levels of overconfidence bias, representativeness bias, and effective investment decision-making. Therefore, women entrepreneurs should demonstrate a bold entrepreneurial attitude, utilize trend analysis to anticipate future business opportunities, and consistently engage in business planning.

This research has several limitations that can be addressed in future studies. The use of convenience sampling could be improved by adopting more rigorous sampling methods. Additionally, the relatively low R^2 value suggests that future research could incorporate other cognitive and emotional bias variables, such as mental accounting bias, recency bias, confirmation bias, and endowment bias, to better explain financial performance.

References

- [1] **Adam, A., Abdullah, W. R. W., Maruhun, E. N. S., Anwar, I. S. K., & Salin, A. S. A. P.** (2024). Determinants of business sustainability of women entrepreneurs. *International Journal of Management and Sustainability*, 13(3), 612–624. <https://doi.org/10.18488/11.v13i3.3837>
- [2] **Adielyani, D., & Mawardi, W.** (2020). The Influence of Overconfidence, Herding Behavior, and Risk Tolerance on Stock Investment Decisions: The Empirical Study of Millennial Investors in Semarang City. *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*, 10(1), 89. <https://doi.org/10.30588/jmp.v10i1.691>
- [3] **Aeni, N. N., Tubastuvi, N., Purwidiyanti, W., & Utami, R. F.** (2024). Determinants of Millennial Investment Decision-Making in the Sharia Capital Market: a Comprehensive Review. *Jurnal Ekonomi Dan Bisnis Airlangga*, 34(1), 1–19. <https://doi.org/10.20473/jeba.v34i12024.1-19>
- [4] **Ahmad, M., & Shah, S. Z. A.** (2020). Overconfidence heuristic-driven bias in investment decision-making and performance: mediating effects of risk perception and moderating effects of financial literacy. *Journal of Economic and Administrative Sciences*. <https://doi.org/10.1108/jeas-07-2020-0116>
- [5] **Alabass, H. S. H. H., Harjan, S. A., Tengs, M., & Shah, S. S. H.** (2019). The impact of corporate political connections on corporate financial decisions: Evidence from an emerging market. *Journal of Management Information and Decision Sciences*, 22(2), 13–24.
- [6] **Alex, K., & Koske, N.** (2020). Representativeness Heuristic , Investment Decisions , and Financial Performance of Small and Medium Enterprises in Nairobi . *African Journal of Education, Science and Technology*, 5(4), 72–81.
- [7] **Aljughaiman, A. A., & Chebbi, K. E.** (2022). Do Investor Overconfidence and Loss Aversion Drive Saudi Firm Market Performance? The Moderating Effect of Corporate Governance. *Sustainability (Switzerland)*, 14(16). <https://doi.org/10.3390/su141610072>
- [8] **Almansour, B. Y., Elkrghli, S., & Almansour, A. Y.** (2023). Behavioral finance factors and investment decisions: A mediating role of risk perception. *Cogent Economics and Finance*, 11(2). <https://doi.org/10.1080/23322039.2023.2239032>
- [9] **Amirkhanyan, H., Krawczyk, M. W., & Wilamowski, M.** (2021). Gender inequality and national gender gaps in overconfidence. *PLoS ONE*, 16(4 April), 1–13. <https://doi.org/10.1371/journal.pone.0249459>
- [10] **Armansyah, R. F.** (2022). Herd Instinct Bias, Emotional Biases, and Information Processing Biases in Investment Decisions. *Jurnal Manajemen*

- Dan Kewirausahaan*, 24(2), 105–117.
<https://doi.org/10.9744/jmk.24.2.105-117>
- [11] **Az-zahara, C. T. M., Tubastuvi, N., Purwidiyanti, W., & Bagis, F.** (2024). Analisis Pengaruh Risk Perception , Risk Tolerance , Overconfidence , Dan Loss Aversion Terhadap. *Ecobisma*, 11(1), 62–76.
- [12] **Bokhari, U., Sulehri, F. A., Hassan, N. ul, & Aziz, B.** (2023). Impact of Allied Factors on Investment Performance, Mediating Role of Investment Decision: Evidence from Investors in Lahore. *Journal of Education and Social Studies*, 4(1), 27–46. <https://doi.org/10.52223/jess.20234103>
- [13] **Bouteska, A., & Regaieg, B.** (2020). Loss aversion, overconfidence of investors and their impact on market performance evidence from the US stock markets. *Journal of Economics, Finance and Administrative Science*, 25(50), 451–478. <https://doi.org/10.1108/JEFAS-07-2017-0081>
- [14] **Burkhard, B., Sirén, C., van Essen, M., Grichnik, D., & Shepherd, D. A.** (2023). Nothing Ventured, Nothing Gained: A Meta-Analysis of CEO Overconfidence, Strategic Risk Taking, and Performance. *Journal of Management*, 49(8), 2629–2666. <https://doi.org/10.1177/01492063221110203>
- [15] **Chang, L., Lin, T., & Lin, T.** (2022). The Association among CEO Overconfidence, Ownership Structure and Financial Performance. *European Journal of Business and Management Research*, 7(2), 37–44.
- [16] **Dominic, C., & Gupta, A.** (2020). Psychological Factors Affecting Investors Decision Making. *Journal of Xi'an University of Architecture & Technology*, XII(Iv), 169–181.
- [17] **Elhussein, N. H. A., & Abdelgadir, J. N. A.** (2020). Behavioral Bias in Individual Investment Decisions: Is It a Common Phenomenon in Stock Markets? *International Journal of Financial Research*, 11(6), 25. <https://doi.org/10.5430/ijfr.v11n6p25>
- [18] **Gochhait, S., & Korter, G.** (2025). The Entrepreneurial Quotient (EQ) Among Women Entrepreneurs: Assessing Creativity , Risk-Taking , Resilience , and Sustainability in Modern Enterprises. *Journal of Women's Entrepreneurship and Education*, 3–4, 178–200. <https://doi.org/10.28934/jwee25.34.pp184-206>
- [19] **Gveroski, M., & Jankuloska, A. R.** (2017). Determinants of Investment Decisions in Smes. *Balkan and Near Eastern Journal of Social Sciences Balkan ve Yakın Doğu Sosyal Bilimler Dergisi Gveroski and Jankuloska*, 03(01), 3–1.
- [20] **Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E.** (2014). Multivariate Data Analysis. In *Pearson Education Limited* (Vol. 7). <https://doi.org/10.1111/j.1467-9574.1962.tb01184.x>
- [21] **Hossain, T., & Siddiqua, P.** (2022). Exploring the influence of behavioral aspects on stock investment decision-making: a study on Bangladeshi

- individual investors. *PSU Research Review*. <https://doi.org/10.1108/PRR-10-2021-0054>
- [22] **Iram, T., Bilal, A. R., & Ahmad, Z.** (2023). Investigating The Mediating Role of Financial Literacy on The Relationship Between Women Entrepreneurs' Behavioral Biases and Investment Decision Making. *Gadjah Mada International Journal of Business*, 25(1), 93–118. <https://doi.org/10.22146/gamaijb.65457>
- [23] **Kartini, K., & Nahda, K.** (2021). Behavioral Biases on Investment Decision: A Case Study in Indonesia. *Journal of Asian Finance, Economics and Business*, 8(3), 1231–1240. <https://doi.org/10.13106/jafeb.2021.vol8.no3.1231>
- [24] **Keswani, S., Dhingra, V., & Wadhwa, B.** (2019). Impact of Behavioral Factors in Making Investment Decisions and Performance: Study on Investors of National Stock Exchange. *International Journal of Economics and Finance*, 11(8), 80. <https://doi.org/10.5539/ijef.v11n8p80>
- [25] **Kumar, A., Mohapatra, D., Samal, A., & Das Mohapatra, D. A. K.** (2020). A Study on the Impact of Behavioral Biases on Investment Decisions of Risk Seeking Investors in India. *International Journal of Psychosocial Rehabilitation*, 24(August).
- [26] **Lazuarni, S., & Asri, M.** (2020). Does Heuristic Behavior Leave Anomalies in the Capital Market? *Journal of Indonesian Economy and Business*, 34(3), 217–228. <https://doi.org/10.22146/jieb.45652>
- [27] **Lestari, I. P., Ginanjar, W., & Warokka, A.** (2021). Multidimensional Risk and Religiosity Towards Indonesian Muslims' Sharia Investment Decision. *Journal of Islamic Monetary Economics and Finance*, 7(2), 369–400. <https://doi.org/10.21098/jimf.v7i2.1321>
- [28] **Metawa, N., Hassan, M. K., Metawa, S., & Safa, M. F.** (2019). Impact of behavioral factors on investors' financial decisions: case of the Egyptian stock market. *International Journal of Islamic and Middle Eastern Finance and Management*, 12(1), 30–55. <https://doi.org/10.1108/IMEFM-12-2017-0333>
- [29] **Nabeel-rehman, R., & Nazri, M.** (2019). Information Technology Capabilities and SMEs Performance: A Understanding Of A Multi Mediation Model For The Manufacturing Sector. *Interdisciplinary Journal of Information, Knowledge, and Management*, 14, 253–276.
- [30] **Naomi, C., Kiprop, S., & Tanui, J.** (2018). Influence of Herding Behavior on Investment Decision of SMEs in Bomet County , Kenya. *East African Scholars Journal of Economics, Business and Management*, 4464(2), 34–39.
- [31] **Nguyen, P., Nguyen, T., Wang, C., Vu, M., Nguyen, L. T., Pham, H., Pham, M. T., & Le, H.-Q.** (2023). Linking investment decisions-based on firm performance and open innovation practices in Vietnam's wire and cable

- market using data envelopment analysis models. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 100080. <https://doi.org/10.1016/j.joitmc.2023.100080>
- [32] **Novandalina, A., Ernawati, F. Y., & Adriyanto, A. T.** (2022). Risk Attitudes, Mental Accounting and Overconfidence in Investment Placement Decision During and Post Covid-19. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 6(1), 498. <https://doi.org/10.29040/ijebar.v6i1.4453>
- [33] **Popoola, T.** (2025). Scoping Review of the Impact of Financial Literacy Empowerment on the Growth of Female Entrepreneurship in Nigeria. *Journal of Women's Entrepreneurship and Education*, 1–2, 129–154. <https://doi.org/10.28934/jwee25.12.pp129-154>
- [34] **Prasetyani, D., Ratnadewati, A., Widya, A. N., & Zuryani, H.** (2025). Economic and Demographic Drivers of Women Entrepreneurs in the Indonesian Textile Market. *Journal of Women's Entrepreneurship and Education*, 1–2, 59–82. <https://doi.org/10.28934/jwee25.12.pp59-82>
- [35] **Pruett, M.** (2023). Confidence and Character: The Future of Women's Entrepreneurship Education? *Journal of Women's Entrepreneurship and Education, Special Issue*, 1–15. <https://doi.org/10.28934/jwee23.pp1-15>
- [36] **Purwidiyanti, W., Rahmawati, I. Y., & Dwiyantri, R.** (2023). Overconfidence and Herding Bias on Investment Decisions the Role of Risk Perception as a Mediator. *Asian Journal of Economics, Business and Accounting*, 23(18), 36–45. <https://doi.org/10.9734/ajebe/2023/v23i181056>
- [37] **Purwidiyanti, W., Rahmawati, I. Y., & Purwanto, L. A.** (2022). Information Technology and Religiosity as Moderating Variables of the Relationship between Investment Risk-Taking and Firm Performance. *Jurnal Manajemen Dan Kewirausahaan*, 10(2), 111–118. <https://doi.org/http://dx.doi.org/10.26905/jmdk.v10i2.8241>
- [38] **Purwidiyanti, W., Rahmawati, I. Y., Septin, T., Rahayu, M., & Fakhruddin, I.** (2024). Financial Behavior on Investment and Financing Decisions in Indonesian SME. *Jurnal Analisis Bisnis Ekonomi*, 21(2), 18–33.
- [39] **Purwoto, L., Rahmawati, C. H. T., Rahayu, T., & Abhedananda, E. A. S.** (2025). Digital Financial Literacy and Entrepreneurial Resilience of Women Entrepreneurs: A Moderated Model of Overconfidence. *Journal of Women's Entrepreneurship and Education*, 1–2, 1–25. <https://doi.org/10.28934/jwee25.12.pp1-25>
- [40] **Quddus, A., Hussain, S., Pham, T. P., & Lumpur, K.** (2022). The Impact Of Investment Decisions On Firm Financial Performance Moderated By Economic Policy Uncertainty: Evidence From The Manufacturing Sector. *Asian Economic and Financial Review*, 12(11), 969–981.

- <https://doi.org/10.55493/5002.v12i11.4660>
- [41] **Rahman, M., & Gan, S. S.** (2020). Generation Y investment decision: an analysis using behavioural factors. *Managerial Finance*, 46(8), 1023–1041. <https://doi.org/10.1108/MF-10-2018-0534>
- [42] **Sapkota, M. P.** (2023). Emotional Biases and Equity Investment Decision of Individual Investors. *Journal of Business and Management Review*, 4(1), 036–049. <https://doi.org/10.47153/jbmr41.5682023>
- [43] **Shah, S. S. H., Khan, M. A., Ahmed, M., Meyer, D. F., & Oláh, J.** (2024). A Micro-Level Evidence of how Investor and Manager Herding Behavior Influence the Firm Financial Performance. *SAGE Open*, 14(1), 1–18. <https://doi.org/10.1177/21582440231219358>
- [44] **Shah, S. S. H., Khan, M. A., Meyer, N., Meyer, D. F., & Oláh, J.** (2019). Does herding bias drive the firm value? Evidence from the Chinese equity market. *Sustainability (Switzerland)*, 11(20), 1–20. <https://doi.org/10.3390/su11205583>
- [45] **Shah, S. Z. A., Ahmad, M., & Mahmood, F.** (2018). Heuristic biases in investment decision-making and perceived market efficiency. *Qualitative Research in Financial Markets*, 10(1), 85–110. <https://doi.org/10.1108/qrfm-04-2017-0033>
- [46] **Sukma Ardini, F., Achyani S.E, D. F., & M.Si.** (2023). The Influence of Overconfidence, Regret Aversion, Loss Aversion, and Herding Behavior on Investment Decision in the Capital Market With the Moderating Role of Risk Perception in Generation Z Students. *International Journal of Social Science & Economic Research*, 08(05), 936–950. <https://doi.org/10.46609/ijsser.2023.v08i05.001>
- [47] **Syarkani, Y., & Alghifari, E. S.** (2022). The influence of cognitive biases on investor decision-making: the moderating role of demographic factors. *Jurnal Siasat Bisnis*, 26(2), 183–196. <https://doi.org/10.20885/jsb.vol26.iss2.art5>
- [48] **Tehseen, S., Ramayah, T., & Sajilan, S.** (2017). Testing and Controlling for Common Method Variance: A Review of Available Methods. *Journal of Management Sciences*, 4(2), 142–168. <https://doi.org/10.20547/jms.2014.1704202>
- [49] **Tubastuvi, N., & Purwidianti, W.** (2023). Performance of Women-Led Smes in Indonesia: The Role of Financial Inclusion, Financial Literacy, and Technology adoption. *Journal of Law and Sustainable Development*, 11(12), e1899. <https://doi.org/10.55908/sdgs.v11i12.1899>
- [50] **Zafar, S., Ashraf, S., & Raza, T.** (2024). The Investment Decision-Making: Understanding Overconfidence, Herding and Risk Aversion Among Individual Investors. *Journal Pf Social Sciences Development*, 03(01), 32–44.

Article history: Received: November 3, 2025

Accepted: March 14, 2026

First Online: March 16, 2026


DOI: 10.28934/jwee26.12.pp118-143

JEL: J16, J22, I23


ORIGINAL SCIENTIFIC PAPER

Perceptions of Flexible Work Arrangements Among Women Researchers in Serbia: Evidence from Social and Humanities Science Research Sectors



Marija Lazarević-Moravčević¹ 

Jelena Minović² 

Mihajlo Đukić³ 

Marija Mosurović Ružičić⁴ 

Institute of Economic Sciences, Belgrade, Republic of Serbia

ABSTRACT

The increasing volatility and unpredictability of the business environment are encouraging organizations to implement flexible work arrangements. Starting from the assumption that such arrangements can also be beneficial in the research sector, especially in the humanities and social sciences, this study specifically focuses on gender differences in the perception and experience of flexible working arrangements among male and female researchers. The aim is to examine the relationship between gender and work model preferences, and to identify potential differences in attitudes towards flexible forms of work between women and men, with a special emphasis on the preferences of female researchers. For the purposes of this research, an empirical methodology was employed, involving data collection through a standardized questionnaire, followed by statistical analysis that included descriptive statistics, correlation analysis, the Chi-square test of

¹ Corresponding author, e-mail: marija.lazarevic@ien.bg.ac.rs

² E-mail: jelena.minovic@ien.bg.ac.rs

³ E-mail: mihajlo.djukic@ien.bg.ac.rs

⁴ E-mail: marija.mosurovic@ien.bg.ac.rs

independence, and binary logistic regression. Research findings indicate that gender is not a decisive factor in the choice of the primary place of work, that is, the preferred model, but they reveal certain differences in women's experiences compared to men regarding flexible forms of work.

KEYWORDS: *flexible work arrangements, women, scientific research sector, benefits, challenges, preferences, hybrid work model, remote work*

Introduction

Flexible work arrangements (FWAs) represent a relatively recent phenomenon, whose adoption has been accelerated by technological advancements, shifts in work habits and employee expectations, and global trends that became particularly pronounced after the Covid-19 pandemic. They encompass various work arrangements that allow employees to perform their tasks more flexibly outside traditional working hours or locations (Kurnaz, 2024) and may include remote work (from home or another location), flexible working hours, hybrid work models, shortened workweeks, job sharing, and similar arrangements.

The growing interest in new work practices stems from changes in labor market supply and demand (Kunaz, 2024), as well as from numerous positive effects that flexibility brings to employees, employers and society. Positive employee perceptions of FWA can significantly enhance engagement, including various forms of discretionary and helpful behavior (Fletcher, 2016). FWAs also have the potential to improve productivity (Ferreira, 2012; Fletcher, 2016), support work-life balance (Allen, 2015; Ferdous et al., 2023; Shanker, 2023), optimize time and resources (McKinsey & Company, 2023a), and contribute to lower stress levels and better mental health (Howington, 2023; Shimura et al., 2021). From the employer's perspective, these work models enable the reduction of overhead costs and the employment of experts without geographical restrictions, primarily members of the younger population, for whom flexibility is extremely important (Ciarniene & Vienazindiene, 2018). It is important to consider that flexible work models also have a positive impact on the environment (Roberto et al., 2023; Orzeł & Wolniak, 2022).

Even though FWAs bring numerous advantages, they also imply certain limitations. Challenges typically refer to work organisation, supervision, motivation, communication and coordination, team cohesion

and maintaining a clear boundary between personal and professional responsibilities (Klopotek, 2017; Ferreira, 2021; Yang et al., 2022).

FWAs, including remote work, are becoming increasingly popular in the scientific research sector and are increasingly perceived as a natural part of academic work (Widar et al., 2022). The trend is particularly pronounced in areas of research that rely on data processing. In this context, flexible work approaches provide a higher level of autonomy, enable a better balance between work and private life, and at the same time encourage creativity (Hunter, 2019).

Despite the growing popularity, knowledge of FWA's impact on research work and on employee attitudes, particularly among women researchers, remains very limited. However, analyzing women's preferences regarding FWA has become increasingly relevant, given the steady increase in the number of women in higher education and research institutions in Serbia, particularly in the humanities, social sciences and medical fields (Lazarević-Moravčević et al., 2023). The identified gap in the literature reveals the need for specific research that would shed light on how women in science experience different work models, their preferences, and how these arrangements affect their motivation, focus and balance between work and private life. Moreover, understanding the relationship between FWAs and gender equality is crucial for policymakers and social partners aiming to create an inclusive and equitable work environment (Kurnaz, 2024).

Building on the previously discussed arguments, this study aims to explore the relationship between gender and preferred work models (remote, office-based, hybrid), and to examine the preferences of employees in Serbia's research sector regarding flexible work arrangements, with a particular focus on women's experience and attitudes. Accordingly, the following research questions are proposed:

- Are preferences for specific work arrangements related to gender?
- How do women perceive and adopt FWAs, including associated challenges and limitations?
- Are there differences in attitudes and preferences towards FWAs between women and men?

The structure of the paper is organized as follows. The introductory part is followed by a literature review that provides a theoretical framework for research. Then, the empirical methodology based on the survey questionnaire is presented, followed by the results and discussion. Finally,

concluding remarks are presented explaining the contributions and key limitations of the research.

Literature Review

Gender Aspects of Flexible Work Arrangements

Numerous studies have examined the relationship between gender and employees' preferences for different work models, as well as their perceptions of the benefits of FWAs (Brulin et al., 2023; Chung, 2020; Jeffrey et al., 2008; Giménez-Nadal & Velilla, 2024). Existing research generally indicates that gender differences can influence the choice of preferred work model and expectations regarding flexible work options (Banerjee et al., 2025; Ciarniene & Vienazindiene, 2018; Marcén & Morales 2025; Eurofound and the International Labour Office, 2017). Research also suggests that when choosing a job, women value flexibility more than men, primarily flexible working hours as a form of FWA, while men more often prefer job security and high earnings (Valet et al., 2021).

The relevant literature indicates the existence of certain differences in the perception of the benefits of FWA between women and men. Agnoletto (2024) points to the fact that flexibility positively affects women's satisfaction with work and life, as well as their mental health. For men, the positive effects primarily relate to job satisfaction. According to certain studies, women primarily use flexibility to achieve a balance between personal and work responsibilities. In contrast, men tend to use these work models often to gain greater autonomy and control over work processes and to enhance their commitment to work tasks (Ko & Kim, 2018; Hofäcker & König, 2013), which may lead to a blurring of the boundaries between personal and professional responsibilities (Brulin et al., 2023).

Some authors argue that in societies with pronounced traditional gender roles, FWAs can further contribute to the deepening of gender inequality due to the uneven division of household and family responsibilities (Alfarran, 2021; Eurofound, 2017). In these societies, women are typically expected to use flexibility to meet family obligations, while men are more likely to leverage it to advance their careers. These patterns are less evident in countries with high female labor force participation and policies that support an equitable division of responsibilities between men and women (Hagqvist, 2018).

Due to often discriminatory assumptions that women use flexibility primarily for family responsibilities while men do so for professional reasons, women's requests for greater flexibility are frequently evaluated and interpreted differently by employers compared to similar requests made by men (Chung & Van der Lippe, 2020; Chung, 2020). In addition to these challenges, women's use of flexible work arrangements may also be accompanied by obstacles related to career advancement, earnings, social security and social isolation (Kurnaz, 2024). This is in line with the identified "sticky floor" phenomenon used to explain factors hindering the career path of women, especially in the early stages (Stanišić & Ječmenica, 2025) and the lack of institutional mechanisms for the achievement of gender equality, including position of women in local communities (Brnjas & Đukić, 2018).

The effect of gender on FWA use is particularly noticeable in the context of life stages. According to the findings of Jeffrey et al. (2008), in childfree life stages, men and women are similar in using and valuing flexible work options. However, differences become more pronounced at the stages when children are present and are most prominent throughout the early childhood period. Kim (2020) suggests that parenthood can significantly influence women's and men's attitudes toward FWAs. His study highlights that working from home and reduced working hours facilitate more effective interaction between mothers and their children, while flexible work schedules lead to greater participation of fathers. Augustine et al. (2024) argue that flexible working hours increase mothers' involvement in parenting activities, but that these effects are not significant for fathers.

Some studies further emphasize that access to flexibility and employees' preferences for different work arrangements depend not only on gender but also on the gender structure within the specific occupation. Although the opposite might have been expected, research shows that occupations with a predominantly female workforce are characterized by significantly lower availability of FWAs compared to professions with a higher share of men or gender-balanced occupations (Jacobi et al., 2025; Magda & Lipowska, 2022).

Flexible Working Arrangements from a Women's Perspective: Benefits and Challenges

Despite inconsistent findings regarding gender differences in the use of FWAs, most studies suggest that women use them more. The findings of some studies suggest that the preference for FWA is particularly pronounced among women who have children, those with higher level of education and income, employed in the private sector, having a disability or a health problem, and not holding managerial positions (Marcén & Morales, 2025; Subramaniam et al., 2015; White & Maniam, 2020; Kurnez, 2024). Also, some authors note that women's preference for all types of FWA, especially after parenthood, increases, while men's preferences remain constant (Wang & Cheng, 2025). On the other hand, Pawar and Hipparkar (2025) prove that a positive attitude towards FWA is present among women of all ages, regardless of marital status or parentage.

The increasing use of FWAs among women, especially after the pandemic, raises the question of how they perceive and evaluate these work models. Understanding their preferences provides insight into the motivations, needs, challenges and expectations associated with flexible work patterns. Identifying the factors that shape perceptions and behaviour of specific social groups represents an important focus of contemporary research in the social sciences (Krstić et al., 2019).

Previous research shows that women engaged in FWA recognize numerous advantages, such as better work-life balance, less stress, positive impact on health, and more efficient use of time and money (Ciarniene & Vienazindiene, 2018). Working in a remote work regime, they are more likely to enjoy better overall health compared to those working under standard working patterns. Among women who work in a flexible mode, feelings of nervousness, tension and anxiety are less often present, which indicates the positive impact of FWA on psychological well-being (Kurnaz, 2024). Flexible working conditions have a positive effect on women's work and life satisfaction, including their mental health (Agnoletto, 2024; Kashive & Roy, 2025). This is especially pronounced under high-workload conditions (Jamunarani & Syed, 2025).

Research performed by Alsulami et al. (2022) shows that FWAs have a significant impact on the well-being of female academics and contribute to social sustainability. However, the study also highlights that not all forms of FWA are equally important for women in this field. According to the

findings, women particularly value flexibility in work location, while placing less emphasis on flexibility in scheduling. On the other hand, Rahman (2019) shows that flexible working hours, remote work and job sharing, but not compressed workweeks, positively affect the job satisfaction of women employed in academia. Additionally, the findings suggest that, even within this activity, FWA positively affects job satisfaction and reduces women's intention to leave the job, but do not indicate a significant connection between flexibility and commitment to the organization (Zhang & Chan, 2025).

Flexible work policies, while offering benefits, can also have negative consequences for women, including professional isolation, reduced visibility, limited access to projects, blurred boundaries between work and personal life and the reinforcement of traditional gender roles. Remote work can also entail more interruptions, unpredictable schedules, and longer working hours for women, which can undermine work-life balance (Commonwealth of Australia, 2023). Certain studies indicate that the transition to flexible working regimes among women can lead to overtime work and greater engagement in childcare-related activities (Maraziotis, 2024). Women who handle most household tasks alongside flexible schedules report higher levels of work-life conflict. In contrast, men experience such conflicts mainly when they share household duties equally but work fixed hours (Leshchenko & Strauss, 2025). The need for greater flexibility may lead women to accept insecure and lower-paid jobs. Therefore, FWA options should be supported by social protection, equal pay and opportunities for professional development (Kurnaz, 2024), there were particularly evolving during Covid-19 period (Ognjenović & Đukić, 2023). Also, effective remote work relies on digital competencies, while studies among female entrepreneurs in Serbia indicate a certain gap between assessed and actual skills (Ivanović et al., 2021).

The analysis of the relevant literature indicates that FWAs can represent an adequate mechanism for supporting women in various activities, including the scientific research sector. However, the effectiveness of FWA depends on various factors. It primarily depends on the cultural framework and organizational practices that enable or limit its equitable application (Borqkvist et al., 2021).

Although flexibility is often promoted as a tool to help women balance work and family responsibilities, its availability, without broader systemic support (Ajonbadi et al., 2024) and the removal of gender-based barriers

(Chung & Van der Lippe, 2020), is insufficient. In order for flexible work policies to really increase job satisfaction among women and produce concrete effects, they should be coupled with institutional support and respect for gender specificities (Kashive & Roy, 2025; White & Maniam, 2020).

Methodology

The methodological framework of the paper is designed to enable a reliable examination of the preferences and attitudes of employees in the scientific research sector of Serbia (field of social sciences and humanities) according to FWAs. The collection of primary data was carried out through an anonymous and structured online questionnaire, in the period September - November 2024. The questionnaire covered the sociodemographic characteristics of the respondents, as well as various aspects of their professional engagement, including working conditions, motivation and perception regarding FWAs. The survey questionnaire was distributed to more than 3,000 employees in Serbia's scientific research sector, with a response rate of approximately 12%. The total number of valid responses to the survey questionnaire was 353. The questionnaire consisted of 22 questions, of which 9 were analyzed in detail for the purposes of this research. The questions or answers that were relevant to the research in this paper refer to gender, age, location, time to work, number of household members, choice of primary place of work, job satisfaction, etc. Some of the questions included a 5-point Likert scale, with 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

Table 1: Variable characteristics

Gender	Female (64.3%); Male (35.7%)
Age	25-29 (10.8%); 30-34 (14.7%); 35-39 (18.7%); 40-44 (15.3%); 45-49 (13.3%); 50-54 (13%); 55-59 (8.2%); Over 60 years (5.9%)
Time to Work	Less than 30 minutes (43.3%); Between 30 and 60 minutes (39.7%); Between 60 and 90 minutes (8.2%); Over 90 minutes (8.8%)
Household Size	Live alone (16.1%); Two members (24.9%); Three members (28.3%); Four members (22.7%); Five or more members (7.9%)

Primary Location	Office (32.6%); House (25.2%); Combination – hybrid model (40.2%); Other space (2.0%)
Job Satisfaction (Likert scale)	1 (0.6%); 2 (3.4%); 3 (15.6%); 4 (42.5%); 5 (38.0%)

Source: Authors' calculation

The survey data were analyzed using statistical software PSPP. Descriptive statistics, Chi-square tests of independence, correlation analysis, and binary logistic regression were employed. Table 1 presents a descriptive overview of the sample.

Results and Discussion

Key Factors Shaping Employees' Preferences for Flexible Work

According to the results of this research (Table 2), the gender of employees does not show a statistically significant correlation with the choice of primary workplace. The results of the study indicate that gender is not a determining factor in shaping work preferences and that the choice of work location primarily depends on other circumstances. These findings suggest that flexible work models are not gender-biased, while the possible influence of gender on their outcomes depends on the specific context (Hussain et al., 2014; Ciarniene & Vienazindiene, 2018; Chung & Van der Lippe, 2020). Table 2 presents the Pearson correlation coefficients among the variables: Gender, Age, Primary Location, Household Size, Time to Work, and Job Satisfaction.

To identify additional factors that influence the preferences of employees according to different work models (choice of primary workplace), the influence of age, distance from work and household size was also analyzed.

Table 2: Pearson Correlation

	Gender	Age	Primary Location	Household Size	Time to Work	Job Satisfaction
Gender	1.000					
Age	0.017	1.000				
Primary Location	-0.024	-0.090*	1.000			
Household Size	0.018	0.067	-0.014	1.000		
Time to Work	-0.025	-0.077	0.095*	0.098*	1.000	
Job Satisfaction	0.116**	0.113**	-0.010	0.009	-0.009	1.000

Note: *, ** means that $p < 0.1$, $p < 0.05$, respectively

Source: Authors' estimation

From Table 2, it can be observed that the Pearson correlation coefficient between Age and Primary Location is negative and marginally significant. Although the observed relationship is weak and marginally significant, it suggests that age may influence employees' choice of work location in Serbia's research sector, affecting their preference for office-based, remote, or hybrid work arrangements. These results replicate earlier findings (Pacheco, 2024) and indicate that younger populations (especially members of Generation Y and Z) show stronger preferences for FWA (Commonwealth of Australia, 2023; Future of Work Institute, 2012). Research shows that employees from different age and gender groups may have different expectations and priorities depending on the desired work models (Ciarniene & Vienazindiene, 2018; Valet et al., 2021).

This study confirmed a statistically significant correlation between Household size and Commuting distance with the choice of Primary work location (Table 2). The results suggest that employees from larger households and those living farther from work are more likely to choose certain work arrangements. Previous research also indicates that the possibility of working from home is greater for employees with longer commutes, and that parenthood, particularly for mothers, further shapes preferences for FWAs (Commonwealth of Australia, 2023; Kim, 2020; Augustine et al., 2024).

However, the Pearson correlation coefficient between Job Satisfaction and both Gender and Age is positive and statistically significant, with p-values below 0.05. A Chi-square test of independence, presented in Table 3, was applied to examine the relationship between Gender and the following variables: Positive Job Satisfaction, Less Stress, More Focus and Efficiency, Support from Family, The Impact of Housework, and Hybrid Mode.

Table 3: Chi-square test between Gender and different variables

Variable	χ^2	p-value
Positive Job Satisfaction	12.03**	0.017
Less Stress	9.06*	0.060
More Focus and Efficiency	6.30	0.178
Support from Family	2.25	0.690
The Impact of Housework	14.04***	0.007
Hybrid Mode	9.63**	0.047

Notes: ***, **, * is p-value smaller than 1%, 5%, and 10%, respectively

Source: Authors' calculation

The Chi-square tests between Gender and More Focus and Efficiency ($\chi^2 = 6.30$, $p = 0.178$) and between Gender and Support from Family ($\chi^2 = 2.25$, $p = 0.690$) are not statistically significant. So, between these variables, there are no associations, meaning that we cannot reject the null hypothesis that Gender and More Focus and Efficiency, Gender and Support from Family are independent.

The Chi-square test ($\chi^2 = 12.03$ with $p = 0.017$) indicated a statistically significant ($p < 0.05$) association between Gender and Positive Job Satisfaction, meaning that the observed differences in positive job satisfaction between genders are unlikely to be due to random chance. A low p-value (less than 0.05) leads to rejecting the null hypothesis that gender and positive job satisfaction are independent. Thus, this test indicates that there is a real difference in positive job satisfaction levels between men and women, and this is not just a random fluctuation. This result is also confirmed by the binary logistic regression presented in Table 5.

Experiences and Perspectives of Women on Work Flexibility in Serbia's Scientific Research Sector

The findings of this research did not confirm the existence of a connection between gender and preferred location of work (Table 2). Previous research also shows that the orientation towards flexible work practices is nearly equal across all employees in Serbia's research sector (social sciences and humanities), regardless of gender, with the hybrid work model being the most widespread (Lazarević-Moravčević, 2025).

Table 4: Employee perceptions of the benefits and challenges of remote work: ranking factors by frequency of selection

Key benefits of remote work			
Rank	Women	Rank	Men
1	Flexibility in working hours	1	Flexibility in working hours
2	Efficiency through less commuting	2	Efficiency through less commuting
3	Better focus with fewer office distractions	3	Better focus with fewer office distractions
4	Work-Life balance	4	More autonomy over work
Key challenges of remote work			
Rank	Women	Rank	Men
1	Work-life boundary challenges	1	Work-life boundary challenges
2	Reduced colleague interaction	2	Reduced colleague interaction
3	Focus and motivation issues	3	Focus and motivation issues
4	Loneliness and isolation	4	Loneliness and isolation

Source: Authors' research

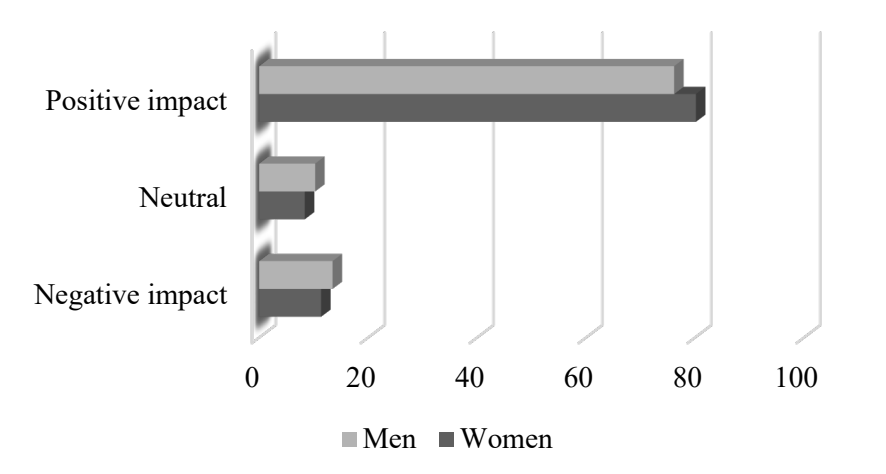
On the other hand, a detailed analysis of respondents' answers reveals differences in the perception of key remote-work benefits between women and men. While both genders recognize the same three main benefits, their focus on specific aspects differs. The benefits of remote work identified in this study by both women and men (flexibility in working hours, more efficient use of time due to the absence of daily commuting and greater focus resulting from fewer office related distractions) have also been confirmed by numerous studies (Ferreira et al., 2021; Hill et al., 2008;

Russell et al., 2009; Kurnaz, 2024; Lazarević-Moravčević, 2024). On the other hand, compared to women, men more often highlight the benefits of control and autonomy in scheduling work activities as a benefit of remote work, while women emphasize achieving a work-life balance (Table 4). This finding suggests the existence of gender-differentiated perspectives in experiencing the benefits of flexible forms of work and has been confirmed in other studies (Ko & Kim, 2018).

Although achieving a work-life balance is recognized as a key benefit of remote work (especially by women), both genders identify maintaining clear boundaries between work and personal responsibilities as a major challenge (Table 4). This contrast between the perceived benefits and challenges of remote work has also been recognized in previous research. FWAs facilitate work-life balance but also blur the boundaries between them (Aczel et al., 2021; Russell et al., 2009). Other difficulties reported by respondents include reduced colleague interaction and communication challenges, problems with focus and motivation and feelings of loneliness and isolation (Lazarević-Moravčević, 2024).

Consistent with previous research (Agnoletto, 2024; Ko & Kim, 2018; Alsulami et al., 2022; Zhang & Chan, 2025; Rahman, 2019), the findings of this study also confirm that FWAs have a positive effect on employee satisfaction.

Figure 1: Impact of Working from Home on Overall Job Satisfaction



Source: Authors' research

In the context of gender differences, satisfaction with remote work is more pronounced among women (Table 5). About 80.2% of women fully or partially agree with the view that the possibility of working from home has a positive effect on general job satisfaction. Only 11.4% of women recognize a negative influence. Similar findings can be observed in the male population (Figure 1). This finding is also demonstrated by the results shown in Tables 3 and 5.

Table 5 presents the binary logistic regression, with Gender as the dependent variable. Table 5 shows that the estimated coefficient for Job Satisfaction is positive and statistically significant at the 0.05 level. However, the odds ratio (Exp(B)) of 1.35 indicates that job satisfaction is more important to women than to men (35%).

Table 5: Binary Logistic Regression: dependent variable is Gender

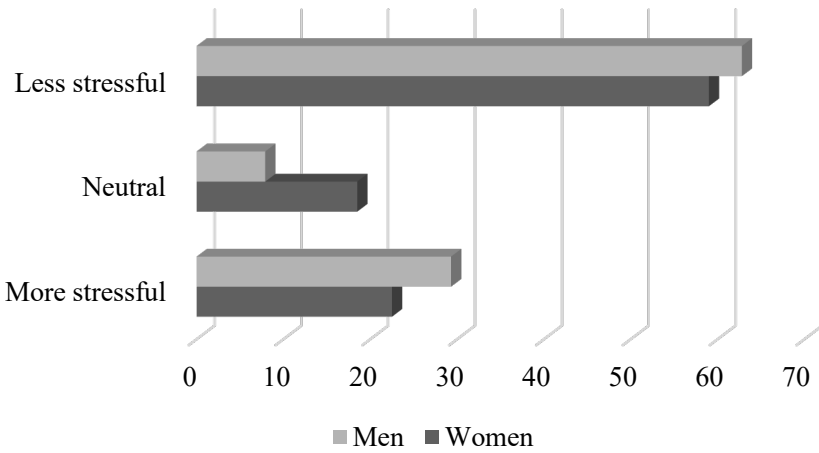
Variables	Coefficient	S.E.	Wald	Sig.	Exp(B)
Household Size	0.03	0.09	0.12	0.730	1.03
Time to Work	-0.06	0.12	0.21	0.648	0.94
Primary Location	-0.05	0.13	0.14	0.711	0.95
Job Satisfaction	0.30**	0.14	4.67	0.031	1.35
Constant	-1.74**	0.73	5.73	0.017	0.18

Notes: ** means that $p < 0.05$.

Source: Authors' calculation

Based on the data analysis, both women and men perceive remote work as less stressful (Table 3). However, the Chi-square test for Gender and Less Stress is marginally significant, indicating that the degree of this reduction in stress differs between the two groups (Table 3 and Figure 2). Compared to men, women in the scientific research sector have a more balanced, cautious attitude toward this factor. About 18.5% have no clear opinion on the relationship between stress and working from home, while around 22.5% of women believe that the relationship is significant and negative (Figure 2). A more cautious stance may be explained by the fact that women, due to carrying a greater share of professional and family responsibilities, may experience higher levels of stress when working remotely (Weinreich et al., 2023).

Figure 2: Perceived Stress of Employees Working from Home

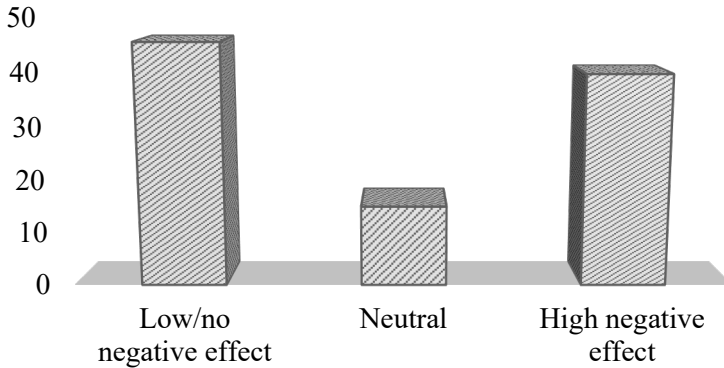


Source: Authors' research

Based on the reported experiences of women researchers in the sample, which indicate the presence of stress related to remote work and difficulties in balancing private and professional obligations, perceptions of the impact of housework on productivity and family support while working from home were additionally examined (Figure 3). Furthermore, the Chi-square test between Gender and the Impact of Housework ($\chi^2 = 14.04$; $p = 0.007$) indicates a statistically significant difference between women and men in their perceptions of this impact (Table 3). This Chi-square test was highly statistically significant, and the low p-value (less than 0.05) leads to the rejection of the null hypothesis that Gender and the Impact of Housework are independent. The analysis shows that about 45.4% of women believe that household responsibilities do not negatively affect their research work when working remotely. However, a considerable proportion holds a different or uncertain view: 39.6% disagree with this statement, while 15% remain neutral.

The findings indicate heterogeneity in women's experiences and perceptions regarding the impact of family obligations on their research work. This suggests that a significant number of women in the sample struggle to effectively balance family and work responsibilities, with housework posing a potential obstacle to productive research.

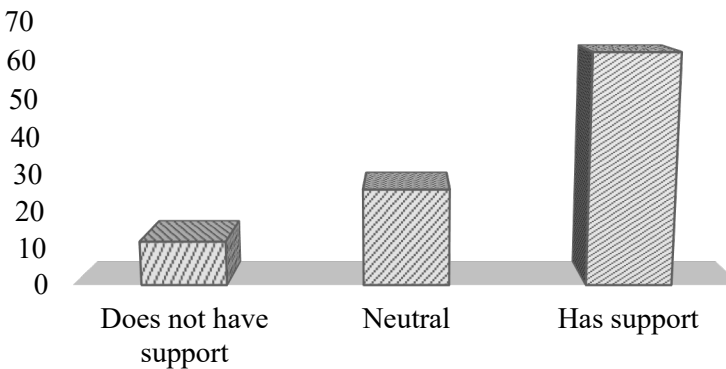
Figure 3: Women's Assessment of the Effect of Household Tasks on Remote Work Productivity



Source: Authors' research

Research results indicate a complex interaction between working from home and the distribution of household responsibilities, confirming that gender norms and housework can limit the benefits of working from home and negatively affect women, especially when the social context is not considered (Zvavahera & Chirima, 2023).

Figure 4: Women's Perceived Family Support While Working from Home

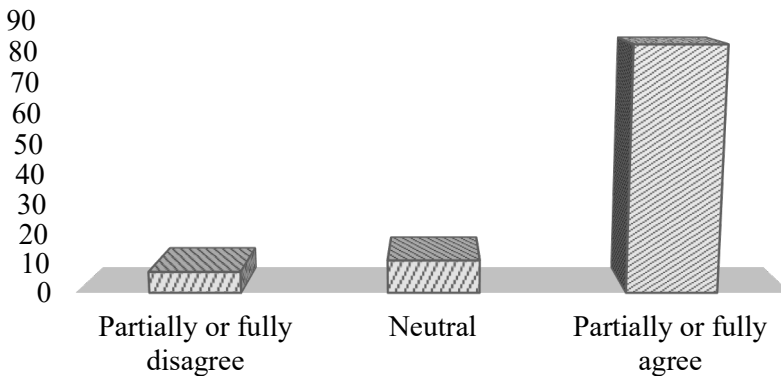


Source: Authors' research

In fact, the results indicate that family support, although present for most of the respondents (Figure 4), is insufficient to fully offset the obstacles posed by women's personal responsibilities. In other words,

support from other family members can reduce the burden on female researchers, but cannot eliminate it. Taking into account all the analyzed factors, i.e. the benefits and threats that women face when working from home, including the burden of housework, the division of responsibilities in the family, the support of family members, it is not surprising that women in the scientific research sector perceive the hybrid work model as the most suitable solution for scientific research work (Figure 5). This observation is consistent with the Chi-square test between Gender and Hybrid Mode ($\chi^2 = 9.63$ with $p = 0.047$). This test is statistically significant, indicating a real difference in practice Hybrid Mode between men and women (Table 3).

Figure 5: Distribution of Responses among Women: The Hybrid Work Model is Most Suitable for Research Work



Source: Authors' research

A hybrid work model can be particularly beneficial for women because it provides a higher level of flexibility while also neutralizing certain challenges of remote work. With this work model, it is possible to harmonize professional and family obligations more efficiently, use time more effectively, and maintain professional visibility and involvement. Additionally, hybrid work arrangements have a positive impact on stress, motivation, and overall job satisfaction, thereby further enhancing employee engagement and productivity. Due to these benefits, hybrid work is becoming an increasingly common practice in many organizations (McKinsey & Company, 2023b; Wigert et al., 2023; Lazarević - Moravčević, 2025).

Conclusion

The study examined the existence of a relationship between gender and the choice of preferred work model (working from home or another location, working from office and hybrid work), as well as differences in employees' perceptions of FWA between women and men. A standardized questionnaire was used for this study. Descriptive statistics, correlation analysis, the Chi-square test of independence, and binary logistic regression are all components of our empirical approach. The results show that gender is not a statistically significant factor in the choice of primary work location, indicating that employees' preferences in Serbia's scientific research sector (social sciences and humanities) are largely independent of gender. At the same time, factors shaping the choice of work model to a greater extent were identified, including age, the distance of the office from the place of residence, and household size.

A detailed analysis of employees' attitudes towards FWAs shows that both genders generally report high job satisfaction and recognize a better work-life balance as a key advantage of remote work. This is particularly pronounced among women, who simultaneously perceive balancing work and private life as a significant advantage, but also as the main challenge of working remotely. Also, men, before emphasizing life balance, generally cite greater autonomy over their work schedule and environment as a key advantage of remote work. The analysis shows that women and men perceive the impact of household duties on their work engagement differently. Most women report that they have significant family support when working remotely; however, this support is not sufficient to fully alleviate the pressures arising from daily private responsibilities. Overall, despite family support, women still face significant challenges in balancing work and private life while working remotely.

The findings indicate that women in the research sector prefer flexible work arrangements, which are perceived as less stressful and as having a positive effect on job satisfaction, with the hybrid work model being particularly favored. Nevertheless, the experience of flexible work appears to be influenced by household responsibilities, while family support may partially mitigate related challenges.

These findings highlight the importance of considering flexible work models in a broader context, which is crucial for improving organizational policies in the scientific research sector. Considering the challenges that the

sector is experiencing due to the changed relationship between supply and demand in a dynamic environment, as well as intense competition (Mosurović-Ružičić et al., 2023; Marjanović et al., 2023), there is a need for changes that will adapt the sector to modern market requirements (Marković et al., 2015). The changes are largely related to improving work policies to create a stimulating work environment. Overall, the findings underscore the need for work policies in the research sector to better accommodate individual preferences, family obligations, distance from the workplace, and age, while maintaining alignment with organizational priorities. Developing such balanced and flexible policies is essential for fostering a supportive and effective research environment.

The results provide a significant contribution to the shaping of human resource management strategies in the scientific research sector. The identified attitudes of employees, especially perceptions among women, can provide relevant guidelines for harmonizing the work environment with employees' needs and demands regarding the desired level of flexibility at work.

In addition to its significant contribution, this paper also faces certain limitations. The analysis primarily focuses on the analysis of employee preferences, without a detailed consideration of all the factors that shape them. The analysis takes into account gender, age, household size and distance from work, but does not include the effects of other significant determinants, such as infrastructural support, leadership style and organizational culture. One of the limitations of this study refers to the relatively small sample size, which may affect the reliability of the results. Additionally, the findings cannot be fully generalized or used as a universal basis for human resource management policies across all sectors. The identified limitations raise additional questions while also providing valuable guidance for future research efforts.

Acknowledgments

The research presented in this paper was funded by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia under contract number 451-03-136/2025-03.

References

- [1] **Aczel, B., Kovacs, M., Van Der Lippe, T., & Szaszi, B.** (2021). Researchers working from home: Benefits and challenges. *PloS one*, 16(3), e0249127. <https://doi.org/10.1371/journal.pone.0249127>
- [2] **Agnoletto, M.** (2024). Flexible working and well-being: evidence from the UK. *Journal of Demographic Economics*, 90(4), 589-625.
- [3] **Ajonbadi, H. A., Owolewa, M. A., Adekoya, O. D., & Mordi, C.** (2024). Gender Equality and Flexible Working for Women Entrepreneurs in Egypt: A Critical Analysis. In *Exploring Entrepreneurship: Unpacking the Mosaic of Entrepreneurship across Africa* (pp. 129-150). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-56343-0_6
- [4] **Allen, T. D., Golden, T. D., & Shockley, K. M.** (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological science in the public interest*, 16(2), 40-68. <https://doi.org/10.1177/1529100615593273>
- [5] **Alfarran, A.** (2021). The impact of remote work on women's work-life balance and gender-role attitudes in Saudi Arabia. *International Journal of Gender and Women's Studies*, 9(2), 11-22. <https://doi.org/10.15640/ijgws.v9n2p2>
- [6] **Alsulami, A., Mabrouk, F., & Bousrih, J.** (2022). Flexible working arrangements and social sustainability: study on women academics post-COVID-19. *Sustainability*, 15(1), 544. <https://doi.org/10.3390/su15010544>
- [7] **Augustine, J. M., Kim, J., & Lee, M.** (2024). Parents' access to flexible work arrangements and time in active caregiving activities. *Journal of Family Issues*, 45(4), 992-1018. <https://doi.org/10.1177/0192513X231169653>
- [8] **Banerjee, R., Bharati, T., Fakir, A. M., Qian, Y., & Sunder, N.** (2025). Gender differences in preferences for flexible work hours: Experimental evidence from an online freelancing platform. *Labour Economics*, 102813. <https://doi.org/10.1016/j.labeco.2025.102813>
- [9] **Borqkvist, A., Moore, V., Crabb, S., & Elliott, J.** (2021). Critical considerations of workplace flexibility "for all" and gendered outcomes: Men being flexible about their flexibility. *Gender, Work & Organization*, 28(6), 2076-2090. <https://doi.org/10.1111/gwao.12680>
- [10] **Brnjas, Z., & Đukić, M.** (2018). Gender Responsive Budgeting in the Local Self-Government in the Republic of Serbia. *Journal of Women's Entrepreneurship and Education*, (3/4), 45-59. <https://doi.org/10.28934/jwee18.34.pp45-59>
- [11] **Brulin, E., Bjärntoft, S., Bergström, G., & Hallman, D. M.** (2023). Gendered associations of flexible work arrangement and perceived flexibility with work-life interference: A cross-sectional mediation analysis

- on office workers in Sweden. *Social Indicators Research*, 167(1), 571-588. <https://doi.org/10.1007/s11205-023-03113-w>
- [12] **Chung, H., & Van der Lippe, T.** (2020). Flexible working, work–life balance, and gender equality: Introduction. *Social indicators research*, 151(2), 365-381. <https://doi.org/10.1007/s11205-018-2025-x>
- [13] **Chung, H.** (2020). Gender, flexibility stigma and the perceived negative consequences of flexible working in the UK. *Social indicators research*, 151(2), 521-545. <https://doi.org/10.1007/s11205-018-2036-7>
- [14] **Ciarniene, R., & Vienazindiene, M.** (2018). Flexible work arrangements from generation and gender perspectives: Evidence from Lithuania. *Engineering Economics*, 29(1), 84-92. <http://dx.doi.org/10.5755/j01.ee.29.1.19247>
- [15] **Commonwealth of Australia, Department of Infrastructure, Transport, Regional Development, Communications and the Arts.** (2023). *The role of socio-demographic and spatial characteristics in Work from Home in Australia*. <https://www.infrastructure.gov.au/sites/default/files/documents/role-socio-demographic-spatial-characteristics-work-from-home-australia.pdf>
- [16] **Eurofound and the International Labour Office** (2017). Working anytime, anywhere: The effects on the world of work, Publications Office of the European Union, Luxembourg, and the International Labour Office, Geneva. <https://www.eurofound.europa.eu/en/publications/all/working-anytime-anywhere-effects-world-work>
- [17] **Eurofound.** (2017). *Work-life balance and flexible working arrangements in the European Union*. Publications Office of the EU. <https://doi.org/10.2806/35012>
- [18] **Ferreira, R., Pereira, R., Bianchi, I. S., & da Silva, M. M.** (2021). Decision factors for remote work adoption: advantages, disadvantages, driving forces and challenges. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 70.
- [19] **Ferdous, T., Ali, M., & French, E.** (2023). Use of flexible work practices and employee outcomes: the role of work–life balance and employee age. *Journal of Management & Organization*, 29(5), 833-853. <https://doi.org/10.1017/jmo.2020.44>
- [20] **Fletcher, L.** (2016). *Can flexible work arrangements boost engagement and desirable employee behavior?* In CIPD Applied Research Conference (pp. 1–8). Chartered Institute for Personnel and Development. https://cris.brighton.ac.uk/ws/portalfiles/portal/397696/LFletcher_CIPD_paper.pdf
- [21] **Future of Work Institute** (2012). *The Benefits of Flexible Working Arrangements - A Future of Work Report*.

- <https://www.dewr.gov.au/download/11788/benefits-flexible-working-arrangements/22405/benefits-flexible-working-arrangements/pdf>
- [22] **Giménez-Nadal, J. I., & Velilla, J.** (2024). Home-based work, time allocations, and subjective well-being: gender differences in the United Kingdom. *Empirica*, 51(1), 1-33. <https://doi.org/10.1007/s10663-023-09590-Z>
- [23] **Hagqvist, E.** (2018). Toward gender equality in practice? Cross-national patterns of change in the gendered division of housework over two decades. *Journal of Comparative Family Studies*, 49(3), 355–377. <https://doi.org/10.3138/jcfs.49.3.355>
- [24] **Howington, J.** (2023). Exploring the Impact of Remote Work on Mental Health and the Workplace. <https://www.flexjobs.com/blog/post/exploring-the-impact-of-remote-work-on-mental-health-and-the-workplace>
- [25] **Hofäcker, D., & König, S.** (2013). Flexibility and work–life conflict in times of crisis: A gender perspective. *International Journal of Sociology and Social Policy*, 33(9/10), 613–635. <https://doi.org/10.1108/IJSSP-04-2013-0042>
- [26] **Hussain, N., Zehou, S., Haq, M. A., & Anjum, Z. Z.** (2014). Are flexible workings highly gendered with more women availing benefits than men. *European Journal of Business and Management*, 6(9), 109-117.
- [27] **Hunter, P.** (2019). Remote working in research: An increasing usage of flexible work arrangements can improve productivity and creativity. *EMBO reports*, 20(1), e47435.
- [28] **Ivanović, Đ., Simović, V., Domazet, I., & Antonijević, M.** (2021). Average matching levels for two DigComp competence areas of the female entrepreneurs in Serbia. *Journal of Women's Entrepreneurship and Education*, (3-4), 42-60. <https://doi.org/10.28934/jwee21.34.pp42-60>
- [29] **Jacobi, A., Hamjediers, M., & Naujoks, T.** (2025). Tailored to Women, Provided to Men? Gendered Occupational Inequality in Access to Flexible Working-Time Arrangements. *Social Indicators Research*, 176(3), 1179-1205. <https://doi.org/10.1007/s11205-024-03483-9>
- [30] **Jamunarani, H. S., & Syed, R.** (2025). Flexible work arrangements and their impact on women's job satisfaction and quality of life: The mediating role of work-life balance. *Problems and Perspectives in Management*, 23(3), 130. [http://dx.doi.org/10.21511/ppm.23\(3\).2025.10](http://dx.doi.org/10.21511/ppm.23(3).2025.10)
- [31] **Jeffrey Hill, E., Jacob, J. I., Shannon, L. L., Brennan, R. T., Blanchard, V. L., & Martinengo, G.** (2008). Exploring the relationship of workplace flexibility, gender, and life stage to family-to-work conflict, and stress and burnout. *Community, Work and Family*, 11(2), 165-181. <https://doi.org/10.1080/13668800802027564>
- [32] **Kashive, C., & Roy, D.** (2025). Exploring the benefits and challenges of flexible work policies on women's job satisfaction. *International Journal of*

- Science and Research Archive*, 14(2), 177-186. <https://doi.org/10.30574/ijrsra.2025.14.2.0317>
- [33] **Kim, J.** (2020). Workplace flexibility and parent–child interactions among working parents in the US. *Social indicators research*, 151(2), 427-469. <https://doi.org/10.1007/s11205-018-2032-y>
- [34] **Klopotek, M.** (2017). The advantages and disadvantages of remote working from the perspective of young employees. *Organizacija i Zarządzanie: kwartalnik naukowy*, 4, 39-49.
- [35] **Ko, E. J., & Kim, S. S.** (2018). Intention to use flexible work arrangements: The case of workers in Korea and gender differences in motivation. *Journal of Organizational Change Management*, 31(7), 1438-1460. <https://doi.org/10.1108/JOCM-01-2018-0001>
- [36] **Krstić, J., Reljić, M., & Filipović, S.** (2019). Factors influencing electricity consumption: a review of research methods. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, 24(2), 13–22. <https://doi.org/10.7595/management.fon.2018.0021>
- [37] **Kurnaz, I.** (2024). *Analysis of the effect of flexible working styles on women's employment and decent work*. Geneva: International Labour Organization. <https://www.ilo.org/sites/default/files/2024-12/FINAL%20-%20v3%20-%20ENG-ILO-Esnek%20Cal%C4%B1sma%20Bicimleri%20ile%20Kad%C4%B1n%20I%CC%87stihdam.pdf>
- [38] **Lazarević-Moravčević, M., Mosurović Ružičić M., & Minović, J.** (2023). Gender Inequality in Education and Science. *Journal of Women's Entrepreneurship and Education*, (3/4), 143-166. <https://doi.org/10.28934/jwee23.34.pp143-166>
- [39] **Lazarević-Moravčević, M.** (2024). *Izazovi savremenog menadžmenta: fleksibilnost, rodna ravnopravnost i inovativna komunikacija*. Beograd: Institut ekonomskih nauka. <http://ebooks.ien.bg.ac.rs/2152/1/1960-Article%20Text-9505-1-10-20241217.pdf>
- [40] **Lazarević-Moravčević, M.** (2025). Flexible Work Arrangements and the Hybrid Work Model: Attitudes of Employees in the Scientific Research Sector in Serbia. *Economic Analysis*, 58(1), 92-106. <https://doi.org/10.28934/ea.2014>
- [41] **Leshchenko, O., & Strauss, S.** (2025). Flexible working time arrangements and work-life conflict: The role of gender and housework. *Journal of Family Research*, 37, 205-226. <https://doi.org/10.20377/jfr-1186>
- [42] **Magda, I., & Lipowska, K.** (2022). Flexibility of working time arrangements and female labor market outcome. In *Mothers in the Labor Market* (pp. 137-157). Cham: Springer International Publishing. <https://www.econstor.eu/bitstream/10419/250473/1/dp14812.pdf>

- [43] **Maraziotis, F.** (2024). Flexibility for equality: Examining the impact of flexible working time arrangements on women's convergence in working hours. *British Journal of Industrial Relations*, 62(2), 410-445. <https://doi.org/10.1111/bjir.12787>
- [44] **Marjanović, J., Domazet, I., & Miljković, J.** (2023). Higher education branding through instrumental values. *Journal of Women's Entrepreneurship and Education*, (3/4), 75-94. <https://doi.org/10.28934/jwec23.34.pp75-94>
- [45] **Marković, D., Radović-Markovic, M., & Minović, J.** (2015). A new virtual team competence defining model. *Economic research-Ekonomska istraživanja*, 28(1), 1034-1045. <http://dx.doi.org/10.1080/1331677X.2015.1100840>
- [46] **Marcén, M., & Morales, M.** (2025). The gender gap in working from home after the onset of COVID-19. *Review of Economics of the Household*, 1-28. <https://doi.org/10.1007/s11150-025-09809-x>
- [47] **Mosurović Ružičić, M., Ignjatović, M., Obradović, V., & Lazarević-Moravčević, M.** (2023). What creates the innovative organizational design in science and research organizations (SROs) in Serbia? The influence of strategic project management factors. *Ekonomika preduzeća*, 71(7-8), 412-427.
- [48] **McKinsey & Company** (2023a). How hybrid work has changed the way people work, and shop. <https://www.mckinsey.com/mgi/ourresearch/empty-spaces-and-hybrid-places-chapter-1/#/>
- [49] **McKinsey & Company** (2023b). Women in the Workplace 2023. <https://www.mckinsey.com/featured-insights/diversity-andinclusion/women-in-the-workplace>
- [50] **Ognjenović, K., & Đukić, M.** (2023). Response of the Economic System to COVID-19: A Review of Evaluation Methods Applied in Assessing Economic Policies' Effects in Serbia. Reimagining Systems Thinking in a Post-Pandemic World, 121-142. <https://doi.org/10.4018/978-1-6684-7285-9.ch006>
- [51] **Orzeł, B., & Wolniak, R.** (2022). Digitization in the design and construction industry remote work in the context of sustainability: a study from Poland. *Sustainability*, 14(3), 1332. <https://doi.org/10.3390/su14031332>
- [52] **Pawar, PS., & Hipparkar, SV.** (2025). Women's Perception of Flexibility: Autonomy, Balance, Productivity. *International Journal of Innovative Research in Engineering and Management*, 12 (4), 21-25. <https://doi.org/10.55524/ijirem.2025.12.4.4>
- [53] **Pacheco, E.** (2024). Experiences and attitudes toward working remotely from home in a time of pandemic: A snapshot from a New Zealand-based online survey. *New Zealand Journal of Employment Relations*, 48(1), 1-20.

- [54] **Rahman, M. F.** (2019). Impact of flexible work arrangements on job satisfaction among the female teachers in the higher education sector. *European Journal of Business and Management*, 11. <https://doi.org/10.7176/EJBM>
- [55] **Roberto, R., Zini, A., Felici, B., Rao, M., & Noussan, M.** (2023). Potential benefits of remote working on urban mobility and related environmental impacts: Results from a case study in Italy. *Applied Sciences*, 13(1), 607. <https://doi.org/10.3390/app13010607>
- [56] **Shanker, A.** (2023). Flexible work arrangements and its impact on Work-Life Balance. *Journal of Emerging Technologies and Business Management*, 10(3). 10-15.
- [57] **Shimura, A., Yokoi, K., Ishibashi, Y., Akatsuka, Y., & Inoue, T.** (2021). Remote work decreases psychological and physical stress responses, but full-remote work increases presenteeism. *Frontiers in psychology*, 12, 730969. <https://doi.org/10.3389/fpsyg.2021.730969>
- [58] **Stanišić, N., & Ječmenica, D.** (2025). Restricted Ambitions: Analyzing Barriers to Women's Advancement in Serbia's Public Sector. *Journal of Women's Entrepreneurship and Education*, (3-4), 107-127. <https://doi.org/10.28934/jwee25.34.pp-113-133>
- [59] **Subramaniam, A. G., Overton, B. J., & Maniam, C. B.** (2015). Flexible working arrangements, work life balance and women in Malaysia. *International Journal of Social Science and Humanity*, 5(1), 34.
- [60] **Valet, P., Sauer, C., & Tolsma, J.** (2021). Preferences for work arrangements: A discrete choice experiment. *PLOS ONE*, 16(7), e0254483. <https://doi.org/10.1371/journal.pone.0254483>
- [61] **Wang, S., & Cheng, C.** (2025). Who is using flexible work arrangements among couples? A longitudinal analysis of the disparities between gender, parenthood, and occupations. *Social Science Research*, 127, 1. <https://doi.org/10.1016/j.ssresearch.2025.103144>
- [62] **Weinreich, H. M., Kotini-Shah, P., Man, B., Pobe, R., Hirsh, L. E., Risman, B. J., & Buhimschi, I. A.** (2023). Work–Life Balance and Academic Productivity Among College of Medicine Faculty During the Evolution of the COVID-19 Pandemic: The New Normal. *Women's Health Reports*, 4(1), 367-380. <https://doi.org/10.1089/whr.2023.0007>
- [63] **White, C., & Maniam, B.** (2020). Flexible working arrangements, work life balance, and working women. *Journal of Business and Accounting*, 13(1), 59-73. https://asbbs.org/files/2020/JBA_Vol_13.1_Fall_2020.pdf#page=59
- [64] **Wiger, B., Harter, J., & Agrawal, S.** (2023). The Future of the Office Has Arrived: It's Hybrid. Gallup. <https://www.gallup.com/workplace/511994/future-office-arrived-hybrid.aspx>

- [65] **Widar, L., Heiden, M., Boman, E., & Wiitavaara, B.** (2022). How is telework experienced in academia? *Sustainability*, 14(10),5745. <https://doi.org/10.3390/su14105745>
- [66] **Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., & Teevan, J.** (2022). The effects of remote work on collaboration among information workers. *Nature human behavior*, 6(1), 43-54.
- [67] **Zhang, S., & Chan, S. L.** (2025). A Study on the Impact of Flexible Working Arrangements on Turnover Intention of Chinese Working Women: From the Perspective of SDG 8 (Decent Work). *Journal of Lifestyle and SDGs Review*, 5(2), e04211-e04211. <https://doi.org/10.47172/2965-730X.SDGsReview.v5.n02.pe04211>
- [68] **Zvavahera, P., & Chirima, N. E.** (2023). Flexible work arrangements and gender differences in research during the COVID-19 period in Zimbabwean higher learning institutions. *Perspectives in Education*, 41(1), 88-102. <https://doi.org/10.38140/pie.v41i1.6300>

Article history: Received: December 30, 2025

Accepted: March 16, 2026

First Online: March 18, 2026

DOI: 10.28934/jwee26.12.pp144-168

JEL: G23, G53, J16, L26

ORIGINAL SCIENTIFIC PAPER

Beyond Access: Entrepreneurial Capabilities and Business Context in Shaping P2P Lending Usage among Women-Led MSMEs in an Emerging Economy



Linda Ariany Mahastanti¹ 

Maria Rio Rita² 

Satya Wacana Christian University, Faculty of Economics and Business,
Department for Management, Salatiga, Indonesia

Destri Sambara Sitorus³ 

Satya Wacana Christian University, Faculty of Teacher Training and Education,
Department for Economics Education, Salatiga, Indonesia

Apriani Dorkas R Atahau⁴ 

Satya Wacana Christian University, Faculty of Economics and Business,
Department for Management, Salatiga, Indonesia

ABSTRACT

While fintech expansion has reduced formal credit barriers for women entrepreneurs, increased access does not uniformly translate into opportunity-oriented growth. Challenging access-centric assumptions, this study conceptualizes peer-to-peer (P2P) lending usage as a capability- and context-dependent learning process rather than a universal enabler. Drawing on the Resource-Based View and

¹ Corresponding author, e-mail: linda.mahastanti@uksw.edu

² E-mail: maria.rita@uksw.edu

³ E-mail: destri.sambara@uksw.edu

⁴ E-mail: apriani.rambu@uksw.edu

Contingency Theory, the study examines how individual capabilities, financial literacy, entrepreneurial orientation, and digital finance experience and business characteristics jointly shape P2P lending usage and financial performance among women-led MSMEs. Survey data from 185 women entrepreneurs in Central Java, Indonesia, were analyzed using partial least squares structural equation modeling (PLS-SEM). The results show that financial literacy, entrepreneurial orientation, and prior digital finance experience significantly enhance P2P lending usage, while business context complements its use. Urban-based firms exhibit higher usage, whereas culinary enterprises primarily use P2P lending for short-term working capital. Importantly, P2P lending usage positively affects financial performance. The findings highlight that fintech supports women's entrepreneurial upgrading only when individual capabilities align with contextual business conditions, offering implications for capability-based policy and entrepreneurship education.

KEYWORDS: *women entrepreneurship, P2P lending usage, entrepreneurial capabilities, business context, emerging economy*

Introduction

In emerging economies, women's entrepreneurship develops within structurally constrained financial systems characterized by limited collateral, gendered credit asymmetries, and uneven institutional infrastructures. Although often portrayed as necessity-driven and financially marginalized, women are increasingly integrating digital financial tools into their businesses. Yet this expansion in digital access does not consistently translate into opportunity-oriented upgrading or sustained growth (Oliveira et al., 2025). Within this landscape, peer-to-peer (P2P) lending has emerged as a significant financial innovation by reducing traditional credit barriers through unsecured, digitally mediated financing mechanisms.

Cross-country evidence from 49 developing economies confirms that alternative finance mechanisms positively influence female entrepreneurship (Coronel-Pangol et al., 2024). Country-level studies further show that digital financial literacy shapes women's intention to adopt P2P platforms in India (Moray et al., 2024), while digital financial services generate stronger business outcomes for women entrepreneurs in Nigeria (Rizal, 2025). These findings affirm the strategic importance of digital finance in expanding women's entrepreneurial participation across emerging markets. However, they also reveal a persistent paradox: expanded access to digital finance does not automatically generate entrepreneurial upgrading.

Indonesia provides a compelling context to examine this paradox. MSMEs contribute approximately 61% of the national GDP, with 64.5% managed by women, primarily in culinary, service, and creative sectors (Ministry of Women's Empowerment and Child Protection, 2025). Rapid growth in P2P lending has widened credit access (Koomson et al., 2022; Junarsin et al., 2023), and women now account for 55.48% of borrowers (OJK, 2024). Nevertheless, many women-owned MSMEs remain concentrated in survival-oriented activities, and women's financial literacy remains slightly below that of men (Sindhvani & Dhawan, 2021). This mismatch suggests that digital inclusion alone may increase participation without necessarily transforming business trajectories.

Existing research offers partial explanations. The Resource-Based View (RBV) emphasises internal capabilities (Deekshitha et al., 2026) such as financial literacy (Lusardi & Mitchell, 2014; Soekarni et al., 2024), entrepreneurial orientation (Lumpkin & Dess, 1996), and digital experience as key drivers of technology adoption and performance (Alnsour, 2022; Cumming et al., 2022). Conversely, contextual perspectives highlight how industry characteristics, firm age, and geographic ecosystems shape financing needs and opportunities (Warren-Smith & Jackson, 2004; Cowling et al., 2018; Phillipson et al., 2019; Koomson et al., 2022). While both streams provide valuable insights, they are often examined in isolation. This analytical separation limits understanding of how internal capabilities operate within specific business contexts, particularly in emerging economies where institutional constraints and gendered barriers intersect.

Fintech research in women's entrepreneurship, therefore, remains fragmented. Capability-based explanations may overstate individual agency, whereas contextual approaches risk underestimating the strategic role of entrepreneurial competencies. What remains insufficiently explored is how individual capabilities and business characteristics jointly shape strategic P2P lending usage and, ultimately, entrepreneurial upgrading.

To address this gap, this study integrates the Resource-Based View and Contingency Theory within a unified empirical framework. Rather than treating context as a moderating variable, individual capabilities and business characteristics are conceptualized as complementary and mutually reinforcing dimensions that jointly shape the use of P2P lending. Accordingly, the study investigates the extent to which financial literacy, entrepreneurial orientation, and prior fintech experience, alongside firm-specific characteristics, namely industry type, geographic location, and firm

age, influence the strategic utilization of P2P lending among women-led MSMEs in Central Java, Indonesia. By embedding digital finance usage within both capability-based and contextual dimensions, this study advances a more integrated understanding of women's entrepreneurship in emerging economies. It demonstrates that entrepreneurial upgrading depends not solely on expanded financial access but on the alignment between internal capabilities and business-specific conditions. In doing so, the study clarifies the conditional role of digital finance in enabling transformation within structurally constrained environments.

Literature Review

This study employs an integrated Resource-Based View (RBV) and Contingency Theory framework to examine P2P lending usage and financial performance among women-owned MSMEs in Indonesia. RBV Theory (Barney, 1991) emphasizes that competitive advantage derives from valuable, rare, inimitable, and non-substitutable resources; accordingly, financial literacy, entrepreneurial orientation, and P2P lending experience constitute key intangible capabilities that support strategic financial decision-making and access to alternative financing (Bajwa et al., 2025; Fatoki, 2012), particularly within strengthening digital ecosystems in emerging ASEAN economies (Warokka et al., 2025). Complementing RBV, Contingency Theory highlights that performance outcomes depend on the alignment between internal capabilities and external conditions. Accordingly, this shaping process occurs in ways unique to each SME and its specific environment, rather than following an overarching best-practice model (McAdam et al., 2019). Business characteristics such as industry type, geographic location, and firm age act as contingency factors shaping the effectiveness of P2P lending utilization, as variations in ecosystem development influence access to networks and financing (Deakins & Bensemman, 2019; Junarsin et al., 2023). Integrating these perspectives provides a concise yet holistic explanation of how individual capabilities drive fintech usage while contextual conditions complement its impact on financial performance among women-led MSMEs (Ferreira & Ferreira, 2024).

Individual Capabilities and the Usage of P2P Lending

The use of digital financial services such as P2P lending by women MSME entrepreneurs is influenced by key individual characteristics, particularly financial literacy, entrepreneurial orientation, and prior experience with fintech. These attributes shape personal capabilities that affect how entrepreneurs assess the risks and benefits of alternative financing and their ability to effectively access and utilize digital technologies in business activities. From a Resource-Based View (RBV) perspective (Barney, 1991), financial literacy, entrepreneurial orientation, and fintech experience can be considered intangible resources with strategic value in financial decision-making. When these resources meet the VRIN criteria, valuable, rare, inimitable, and non-substitutable, they provide women entrepreneurs with a competitive advantage in leveraging digital finance to enhance business sustainability and performance.

Extensive empirical evidence supports this relationship. Financial literacy plays a significant role in shaping financial decision-making (Lusardi & Mitchell, 2014) and encourages the usage of digital financial services (Gonzalez, 2023; Lestari et al., 2025; Mahastanti et al., 2025a; Oh & Rosenkranz, 2020; Popoola, 2025), while also contributing to business growth among female entrepreneurs (Popoola, 2025). Entrepreneurial orientation, encompassing innovation, proactivity, and risk-taking, has been shown to positively influence technology usage, financing choices, and entrepreneurial performance (Fatoki, 2012; Muindi & Masurel, 2022) with MSMEs exhibiting higher entrepreneurial orientation being more inclined to utilize P2P lending platforms (Cumming et al., 2022). Additionally, prior experience with digital financial services enhances trust and confidence in fintech usage, as it reduces uncertainty and increases user efficacy, thereby encouraging more intensive usage of digital finance (Zaimovic et al., 2025).

Based on the theories and empirical findings, the following hypotheses are put forward:

- H1:** Financial literacy has a positive influence on the use of P2P lending among women MSME entrepreneurs.
- H2:** Entrepreneurial orientation has a positive influence on the use of P2P lending among women MSME entrepreneurs.

H3: Experience in using digital finance platforms has a positive influence on the use of P2P lending among women MSME entrepreneurs.

Business Characteristics and the P2P Lending Usage

The usage of P2P lending by MSMEs is influenced not only by individual capabilities but also by structural and contextual business characteristics, including industry type, geographic location, and firm age, which shape financing needs, risk perceptions, information access, and the feasibility of digital financial services. Contingency Theory provides a relevant framework, emphasizing that organizational decisions are context-dependent rather than universally optimal (Tosi & Slocum, 1984). Accordingly, business type, such as the food and beverage sector (Najib et al., 2021), location (Deakins & Bensemman, 2019; Phillipson et al., 2019; Tiwasing, 2021), and firm age (Supardianto et al., 2019; Xiang et al., 2018) function as key contingencies shaping fintech-based financing strategies. For example, MSMEs in urban areas are generally more likely to adopt fintech due to greater exposure to technology and information.

This perspective can be complemented by the Resource-Based View (RBV), which suggests that certain business characteristics may function as competitive advantages when they meet VRIN criteria. Longer business experience, for example, reflects accumulated capabilities and reputational capital that enhance credibility with P2P platforms and investors, while specific industries, such as culinary businesses, often exhibit stable cash flows that align well with installment-based P2P lending schemes. Empirical evidence supports these arguments: Wu and Peng (2024) show that urban enterprises use fintech more rapidly due to superior digital infrastructure; Xiang et al. (2018) find that business age positively affects access to digital financing; and Najib et al. (2021) demonstrate that culinary MSMEs display distinct financing patterns driven by recurring short-term capital needs. Similarly, Novianti et al. (2025) confirm that industry characteristics significantly influence fintech usage, as differences in capital intensity, cash cycles, and business models determine the suitability of P2P lending, particularly for sectors with short cash cycles such as trade and culinary businesses.

Based on the theoretical arguments and empirical support, the hypotheses proposed are as follows:

H4: The type of industries (culinary/non-culinary) influences the use of P2P lending among women MSME entrepreneurs.

H5: The business location (urban/rural) influences the use of P2P lending among women MSME entrepreneurs.

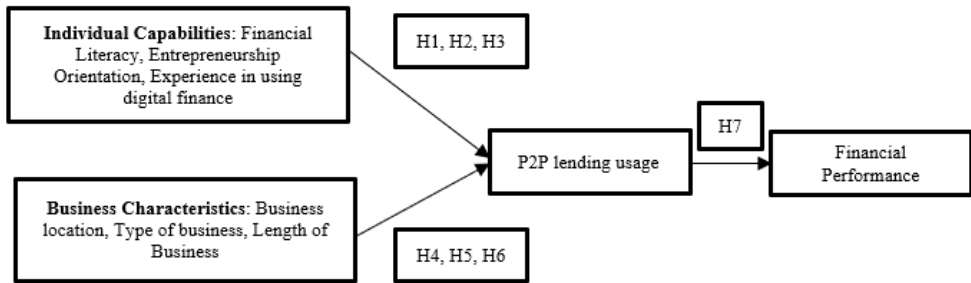
H6: The length of the business has a positive influence on the use of P2P lending among women MSME entrepreneurs.

The Influence of P2P Lending Usage on the Financial Performance of Women-Owned MSMEs

Small business financial management theory highlights access to financing as a critical driver of productivity and sustainability, as broader funding enables MSMEs to strengthen working capital, expand production capacity, and support business growth. Peer-to-peer (P2P) lending, as a digital financial innovation, addresses financing constraints faced by MSMEs lacking collateral (Coakley & Huang, 2020), particularly women-managed enterprises that often experience limited asset ownership and gender bias in formal financial systems. Consequently, P2P lending offers a more inclusive, rapid, and flexible financing alternative for women entrepreneurs (Dhiman et al., 2025; Rita et al., 2021). Prior studies consistently demonstrate that P2P lending positively affects MSME financial performance (Mahastanti et al., 2025b) by improving working capital, production capacity, and market expansion (Abbasi et al., 2021; Coakley & Huang, 2020). However, empirical evidence focusing specifically on women-managed MSMEs remains limited, despite their distinctive characteristics, such as more cautious risk-taking, varying levels of financial literacy, and strong entrepreneurial motivation. These features highlight the relevance of examining how effectively P2P lending can enhance financial performance, thereby providing a basis for the proposed hypothesis.

H7: The use of P2P lending has a positive impact on the financial performance of MSMEs managed by women.

Figure 1: Research Model



Source: Authors

Figure 1 illustrates the conceptual framework integrating the Resource-Based View and Contingency Theory. Internal capabilities and contextual business characteristics are posited as key determinants of P2P lending usage, which in turn is hypothesized to influence financial performance among women-led MSMEs.

Methodology

Sample and Data Collection

The study was conducted in Salatiga, Surakarta, and Semarang Regency, Central Java, Indonesia, regions with substantial access to P2P lending. The rural–urban classification is based on administrative status and infrastructural development. Surakarta, currently positioned as an emerging metropolitan hub under Indonesia’s 2025–2029 national development plan, is categorised as urban, while Salatiga and Semarang Regency are classified as non-metropolitan (rural) areas due to comparatively lower levels of financial and digital infrastructure integration. Using the Slovin formula with a 10% margin of error, a sample of 185 MSME respondents was determined, comprising 76 respondents (41%) from rural areas and 109 (59%) from urban areas. This sample size met the minimum requirement for structural equation modeling with five or fewer constructs (≥ 100 samples) as recommended by Hair (2021). Primary data were collected through a one-month on-site survey involving eight enumerators. Eligible respondents were MSME owners who had previously accessed P2P loans and had operated their businesses for at least two years to enable assessment of financial performance growth.

Variable Measurements

The research model includes multiple exogenous variables and two endogenous variables. Financial literacy was conceptually adapted from Susan (2020) and operationalised as perceived financial capability, measured using Likert-scale items that capture women entrepreneurs' self-assessed understanding and application of financial concepts in business contexts. The initial measurement items and results of the pilot test are presented in Appendix Table A1. P2P lending usage was defined as the strategic behavioural utilisation of P2P platforms, encompassing perceived convenience and security, frequency of platform access for information searching, escalation of loan amounts, and the use of funds for business capital (Mahastanti et al., 2025a). Digital experience was conceptualised as accumulated exposure to multiple fintech services (e.g., digital payments and alternative funding), reflecting prior learning rather than mere frequency of P2P use. Financial performance was measured using four indicators from Rita and Nastiti (2024), and entrepreneurial orientation was adopted from Covin and Wales (2012). Business characteristics, location (1 = urban; 0 = rural), industry type (1 = culinary; 0 = non-culinary) (Karadag, 2017), and business age were treated as exogenous variables. All reflective constructs were measured on a 10-point Likert scale ranging from 1 ("strongly disagree") to 10 ("strongly agree").

Estimation Model

Based on the formulation of the hypotheses that have been proposed, two estimation models are presented as follows:

$$\text{P2P usage} = \beta_1\text{FL} + \beta_2\text{EO} + \beta_3\text{E} + \beta_4\text{TI} + \beta_5\text{BC} + \beta_6\text{LB} + \delta_1 \quad (1)$$

$$\text{FP} = \beta_7 \text{P2P Usage} + \delta_2 \quad (2)$$

In this study, FL denotes Financial Literacy, and EO represents Entrepreneurial Orientation. In addition, Experience (E), Type of Industry (TI), Business City of Origin (BC), and Length of Business (LB). The dependent variable, Financial Performance (FP), captures the overall financial condition and performance of the MSMEs. Structural equation modelling was conducted using partial least squares structural equation

modelling (PLS-SEM), incorporating both measurement (outer) and structural (inner) model assessments. The analysis was performed using a one-tailed test with a 5% significance level ($\alpha = 0.05$), based on theoretical directional hypotheses, and employed a basic bootstrapping procedure with 500 subsamples to estimate path coefficients and their statistical significance. The measurement model was evaluated through convergent validity, discriminant validity, and reliability assessments. Convergent validity was confirmed using outer loadings, composite reliability, and average variance extracted (AVE), while discriminant validity was assessed using the heterotrait–monotrait ratio (HTMT), with results reported in Appendix Table A2. Discriminant validity was further confirmed using the Fornell–Larcker criterion (see Appendix Table A4). To assess potential common method bias, the inner VIF approach proposed by Kock & Lynn (2012) was applied. This procedure estimates VIF values by modelling each latent construct as an endogenous variable. All VIF values were below the recommended threshold of 3.3, indicating that common method bias was unlikely to threaten the validity of the findings in Appendix Table A3.

Results

Table 1 provides an overview of the respondents' demographic and business profiles, offering contextual insight into the characteristics of women-led MSMEs included in the sample.

Table 1: Profile of the Respondents' Descriptive Statistics

Category	Total	Percentage
Age		
18 - 25	79	43%
26 - 45	86	46%
46 - 70	20	11%
Total	185	100%
Length of Business		
2-<3 years	64	35%
3-<6 years	74	40%
6-<10 years	32	17%
≥10 years	15	8%
Total	185	100%
Type of Industry		
Culinary	111	60%

Non-culinary	74	40%
Total	185	100%
City of Origin		
Rural	76	41%
Urban	109	59%
Total	185	100%
Frequency of Online Borrowing in 1 Year		
1 - 3 times	170	92%
4 - 8 times	13	7%
More than 8 times	2	1%
Total	185	100%
Loan Amount		
Up until IDR 1 million	54	29%
IDR 1 million – <IDR 5 million	88	48%
IDR 5 million – <IDR 10 million	37	20%
≥ IDR 10 million	6	3%
Total	185	100%
Education Level		
Elementary School	2	1%
Middle School	19	10%
High School	110	59%
Diploma	54	29%
Total	185	100%

Source: Authors' calculations

This data illustrates that the majority of women MSME entrepreneurs in Indonesia are still concentrated in the informal sector, particularly in the culinary sector (60%). This suggests that women tend to start businesses based on the domestic skills they have mastered, such as cooking, which require relatively little initial capital and can be run from home. This characteristic is further reinforced by education data, which show that the majority of entrepreneurs have a high school education (59%), reflecting their limited access to formal entrepreneurship training or broader job opportunities. The dominant age of businesses, in the range of 3–6 years, indicates that most are still in their early stages of growth, with potential but also vulnerability to market uncertainty and limited access to financing.

Geographically, women in urban areas are more likely to start informal businesses (59%), indicating that the urban context provides more opportunities, market access, and the courage to start a business than rural areas. However, their financing patterns remain very limited: online loans

are borrowed only once or up to 3 times a year (92%), and loan amounts are mostly between IDR 1 and 5 million (48%). This profile indicates that women entrepreneurs in the informal sector represent a potential segment but still require education-based interventions and the facilitation of safe and productive digital financial access.

Table 2: Descriptive Statistics of the Research Variables

Variable	Average
Financial Literacy	7.20
Use of P2P Lending	6.22
Financial Performance	7.13
Entrepreneurial Orientation	7.06

Source: Authors' calculations

Table 2 presents the descriptive statistics of the main research variables used in the analysis. As presented in Table 2, women-owned MSMEs exhibit relatively strong financial literacy (7.20), yet this knowledge has not been fully translated into systematic financial practices. The moderate use of P2P lending (6.22) suggests that fintech is mainly employed as a short-term coping mechanism rather than a strategic growth tool, particularly in necessity-driven sectors such as culinary businesses with recurrent working capital needs. Nevertheless, women entrepreneurs report sound financial performance (7.13), indicating that P2P lending supports business survival and operational continuity. At the same time, women-owned MSMEs demonstrate a relatively high entrepreneurial orientation (7.06), especially in innovation and autonomy, largely due to their concentration in the culinary sector, where accumulated tacit knowledge from domestic food preparation and household management enhances their capacity to innovate and exercise autonomous business decision-making, suggesting latent potential for opportunity-oriented development if supported by more strategic financial practices.

Table 3 presents the results of the reliability and validity tests for the measurement model.

Table 3: Reliability and Validity Tests

Item	Loading	Cronbach's Alpha	Average Variance Extracted (AVE)	Composite Reliability Coefficient (CR)	Outer VIF
Financial Performance					
FP 1	0.921				3.473
FP 3	0.925	0.881	0.809	0.927	3.818
FP 4	0.849				1.861
Financial Literacy					
FL 1	0.776				1.606
FL 5	0.738	0.793	0.618	0.866	1.350
FL 6	0.818				1.886
FL 7	0.809				1.909
Entrepreneurial Orientation					
EO 1	0.776				2.768
EO 2	0.795				2.801
EO 3	0.796				3.166
EO 6	0.874				4.034
EO 7	0.825	0.936	0.637	0.946	2.766
EO 8	0.862				3.637
EO 9	0.801				3.097
EO 10	0.802				2.957
EO 12	0.737				4.212
EO 13	0.696				3.810
P2P Lending Usage					
L1	0.722				1.676
L2	0.785				1.892
L3	0.757	0.813	0.573	0.870	2.070
L4	0.817				2.176
L5	0.699				1.338

Source: Authors' calculation

Table 4 reports the goodness-of-fit indices of the structural model.

Table 4: Goodness-of-Fit Model

Criterion	Parameter	Practical Rule
Standard Root Mean Square Residual	0.067	SRMR < 0.1
R- Square P2P Lending Usage	0.408	R ² > 0.1
R- Square P2P Financial Performance	0.189	R ² > 0,1

Source: Authors' calculation

The measurement model assessment confirms that all constructs meet the validity and reliability criteria recommended in PLS-SEM. All indicator loadings exceed 0.70, except for one entrepreneurial orientation item (EO13 = 0.696) and one P2P lending item (L5 = 0.699), which remain acceptable for exploratory research (Hair et al., 2021). All constructs demonstrate adequate convergent validity, with AVE values above 0.50, and strong internal consistency, as reflected by composite reliability values exceeding 0.87 and Cronbach's alpha values above 0.79. In addition, full collinearity VIF values for all constructs are below the threshold of 5, indicating no multicollinearity concerns. The structural model also exhibits an acceptable level of fit, with an SRMR value of 0.070, suggesting good overall model fit (Hu & Bentler, 1999). The R² value for P2P lending usage is 0.408, indicating that the model explains 40.8% of the variance in this endogenous construct, which can be considered moderate and acceptable in behavioral research. Similarly, the R² value for financial performance is 0.189, suggesting that the model explains 18.9% of the variance in financial performance. These results demonstrate that both the measurement and structural models are robust and suitable for hypothesis testing.

Table 5 presents the results of the statistical tests conducted to examine the proposed hypotheses.

Table 5: Statistical Test Results

Criterion	Initial Regression Model			Robustness Test		
	Parameter	T-Statistic	P-value	Parameter	T-Statistic	P-value
Individual Characteristic and P2P Lending Usage						
Financial Literacy (H1)	0.422	5.223	0.000***	0.422	5.356	0.000***
Entrepreneurial Orientation (H2)	0.200	2.332	0.010***	0.200	2.195	0.014***
Experience (H3)	0.160	2.507	0.006***	0.160	2.483	0.007***
Business Characteristics and P2P Lending Usage						
Type of Industry (H4)	(-0.171)	3.269	0.001***	(-0.171)	3.320	0.000***
Business City of Origin (H5)	0.103	1.686	0.046**	0.103	1.780	0.038**
Length of Business (H6)	-0.009	0.168	0.433	-0.009	0.173	0.431
P2P Lending Usage, Control Variable and Performance						
P2P Lending Usage (H7)	0.423	6.007	0.000***	0.420	5.650	0.000***
Owner Education	-	-	-	0.102	1.528	0.064*
Loan Amount	-	-	-	-0.009	0.131	0.448

Source: Processed data from 2026

*Note: *(sig. 10%), ** (sig. 5%), *** (sig. 1%). The data were analysed using SmartPLS with a one-tailed test at a 5% significance level ($\alpha = 0.05$) and a basic bootstrapping procedure.*

Discussion

The findings (Table 5) demonstrate that financial literacy (H1) and entrepreneurial orientation (H2) significantly promote the use of P2P lending among women-led MSMEs in Central Java, particularly in the food and beverage sector. The sample is dominated by young women entrepreneurs aged 18–45 who have operated their businesses for less than five years, indicating an emerging cohort that is increasingly open to digital financing solutions. Despite limited formal education, most respondents exhibit adequate managerial capability by leveraging practical skills, especially in culinary businesses that align closely with their everyday experiences. The strong performance of the knowledge dimension of financial literacy (score 7.5) reflects solid conceptual understanding (Gonzalez, 2023; Oh & Rosenkranz, 2020). Entrepreneurial orientation is likewise pronounced, particularly in innovation and autonomy, reinforcing prior evidence that women’s entrepreneurial capacity is often shaped by experiential learning rather than formal credentials (Cumming et al., 2022; Fatoki, 2012). In this context, experience with financial technology (H3) positively influences P2P lending usage, as familiarity with digital platforms reduces uncertainty and increases confidence. P2P lending thus functions as an inclusive financing mechanism that aligns with the needs of women micro-entrepreneurs, supporting earlier findings on gender-responsive financial innovation (Burga et al., 2021).

Importantly, the intensity of P2P lending varies across business characteristics. The negative association between the food and beverage sector and P2P lending usage (H4) indicates that women entrepreneurs in culinary businesses tend to use smaller loan amounts than those in non-culinary sectors. This reflects the structural nature of culinary enterprises, where working capital requirements are predominantly short-term and recurrent rather than investment-oriented. As such, P2P lending is utilized selectively to address immediate liquidity needs rather than as a source of long-term financing (Mahastanti et al., 2025a; Novianti et al., 2025). Geographic differences further reinforce this pattern (H5), as MSMEs located in urban areas exhibit higher usage rates due to a more supportive entrepreneurial ecosystem, consistent with prior evidence on the role of local context in fintech diffusion (Tiwasong, 2021).

Finally, the findings suggest an important motivational transition among women MSME owners. While many initially engage in

entrepreneurship out of necessity, over time, this motivation can shift toward an opportunity-driven approach when accompanied by adequate personal capabilities and a clear understanding of business characteristics. The positive and significant impact of P2P lending usage on financial performance (H7) confirms that digital financing can enhance revenue stability and business growth when appropriately aligned with industry needs (Abbasi et al., 2021; Coakley & Huang, 2020; Mahastanti et al., 2025a; Mishra & Sahoo, 2025). Overall, the discussion underscores that women's effective use of P2P lending is shaped by the complementation between individual capabilities, sectoral dynamics, and local ecosystems, offering important insights for policies aimed at strengthening women's entrepreneurship through inclusive digital finance.

Conclusion

This study shows that P2P lending usage among women-owned MSMEs in Central Java reflects resource mobilisation dynamics typical of emerging economies characterised by institutional constraints and uneven financial access. In line with the Resource-Based View, financial literacy, entrepreneurial orientation, and fintech experience function as intangible capabilities that enable strategic digital finance utilisation. Integrating Contingency Theory, these capabilities are most effective when aligned with business characteristics such as industry type and location. Culinary enterprises exhibit more cautious engagement, whereas MSMEs operating within stronger entrepreneurial ecosystems demonstrate higher uptake. P2P lending usage is positively associated with financial performance, indicating that entrepreneurial upgrading depends on the alignment between internal capabilities and structural conditions rather than financial access alone. These findings underscore the importance of capability development, experiential fintech learning, and context-sensitive policy interventions.

However, as the study relies on cross-sectional, self-reported data, the observed relationships, particularly between P2P usage and financial performance, should be interpreted as associative rather than causal. Reverse causality and omitted-variable bias, including firm size and baseline profitability, cannot be fully excluded. Future research should incorporate theoretically grounded structural controls, such as firm size, initial assets, prior entrepreneurial experience, and access to alternative financing, to

reduce endogeneity and strengthen causal interpretation in emerging-economy contexts.

Acknowledgement

This study was financially supported by the Directorate of Research, Technology, and Community Service, Directorate General of Higher Education, Research, and Technology, Ministry of Education, Culture, Research, and Technology, under Grant No. 108/E5/PG.02.00.PL/2024.

References

- [1] **Abbasi, K., Alam, A., Brohi, N. A., Brohi, I. A., & Nasim, S.** (2021). P2P lending Fintechs and SMEs' access to finance. *Economics Letters*, 204. <https://doi.org/10.1016/j.econlet.2021.109890>
- [2] **Alnsour, I. R.** (2022). Impact of fintech over consumer experience and loyalty intentions: an empirical study on Jordanian Islamic Banks. *Cogent Business and Management*, 9(1). <https://doi.org/10.1080/23311975.2022.2141098>
- [3] **Bajwa, F. A., Fu, J., Bajwa, I. A., & Alsuhaibany, Y. M.** (2025). Financing the future: The role of fintech, leadership, and financial competencies in driving sustainable firm performance. *Acta Psychologica*, 260. <https://doi.org/10.1016/j.actpsy.2025.105449>
- [4] **Barney, J.** (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17, 99–120.
- [5] **Burga, L., Gimelli, N., Muradyan, S., Robakowski, A., Miller, M., Rawlins, M., & Snyder, G.** (2021). *Using Digital Solutions to Address Barriers to Female Entrepreneurship: A Toolkit*. www.worldbank.org
- [6] **Coakley, J., & Huang, W.** (2020). P2P lending and outside entrepreneurial finance. *European Journal of Finance*, 29(13), 1520–1537. <https://doi.org/10.1080/1351847X.2020.1842223>
- [7] **Coronel-Pangol, K., Paule-Vianez, J., & Orden-Cruz, C.** (2024). Conventional or alternative financing to promote entrepreneurship? An analysis of female and male entrepreneurship in developed and developing countries. *International Entrepreneurship and Management Journal*, 20(1), 163–187. <https://doi.org/10.1007/s11365-023-00906-w>
- [8] **Covin, J. G., & Wales, W. J.** (2012). The Measurement of Entrepreneurial Orientation. *Entrepreneurship: Theory and Practice*, 36(4), 677–702. <https://doi.org/10.1111/j.1540-6520.2010.00432.x>
- [9] **Cowling, M., Liu, W., & Zhang, N.** (2018). Did firm age, experience, and access to finance count? SME performance after the global financial crisis.

- Journal of Evolutionary Economics*, 28(1), 77–100. <https://doi.org/10.1007/s00191-017-0502-z>
- [10] **Cumming, D., Farag, H., Johan, S., & McGowan, D.** (2022). The Digital Credit Divide: Marketplace Lending and Entrepreneurship. *Journal of Financial and Quantitative Analysis*, 57(7), 2659–2692. <https://doi.org/10.1017/S0022109022000357>
- [11] **Deakins, D., & Bensemann, J.** (2019). Does a rural location matter for innovative small firms? How rural and urban environmental contexts shape strategies of agri-business innovative small firms. *Management Decision*, 57(7), 1567–1588. <https://doi.org/10.1108/MD-07-2017-0658>
- [12] **Deekshitha, Gil, M. T., & Oduro Owusu, S.** (2026). Strategic orientations and marketing performance among women entrepreneurs: a resource-based view from micro and small enterprises in regional India. *Cogent Business and Management*, 13(1). <https://doi.org/10.1080/23311975.2026.2616551>
- [13] **Dhiman, A., Vasishta, P., & Singla, A.** (2025). Women entrepreneurs in the Fintech age: does educational gender equality matter? *Journal of Entrepreneurship in Emerging Economies*, 1–25. <https://doi.org/10.1108/JEEE-03-2025-0131>
- [14] **Fatoki, O.** (2012). The impact of entrepreneurial orientation on access to debt finance and performance of small and medium enterprises in South Africa. *Journal of Social Sciences*, 32, 121–131.
- [15] **Ferreira, N. C. M. Q. F., & Ferreira, J. J. M.** (2024). The field of resource-based view research: mapping past, present and future trends. *Management Decision*, 63(4), 1124–1153. <https://doi.org/10.1108/MD-10-2023-1908>
- [16] **Gonzalez, L.** (2023). Financial literacy in for-profit vs pro-social peer-to-peer lending. *Managerial Finance*, 49(2), 315–337. <https://doi.org/10.1108/MF-07-2021-0329>
- [17] **Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, Marko., Danks, N. P., & Ray, S.** (2021). *Classroom Companion: Business Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R AAWorkbook*. <https://doi.org/10.1007/978-3-030-80519-7>
- [18] **Hu, L. T., & Bentler, P. M.** (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- [19] **Junarsin, E., Hanafi, M. M., Iman, N., Arief, U., Naufa, A. M., Mahastanti, L., & Kristanto, J.** (2023). Can technological innovation spur economic development? The case of Indonesia. *Journal of Science and Technology Policy Management*, 14(1), 25–52. <https://doi.org/10.1108/JSTPM-12-2020-0169>

-
- [20] **Karadag, H.** (2017). The impact of industry, firm age and education level on financial management performance in small and medium-sized enterprises (SMEs): Evidence from Turkey. *Journal of Entrepreneurship in Emerging Economies*, 9(3), 300–314. <https://doi.org/10.1108/JEEE-09-2016-0037>
- [21] **Kock, N., & Lynn, G. S.** (2012). Lateral Collinearity and Misleading Results in Variance-Based SEM: An Illustration and Recommendations. *Journal of the Association for Information Systems*, 13(7). <http://ssrn.com/abstract=2152644Electroniccopyavailableat:https://ssrn.com/abstract=2152644Electroniccopyavailableat:http://ssrn.com/abstract=2152644>
- [22] **Koomson, I., Martey, E., & Etwire, P. M.** (2022). *Mobile money and entrepreneurship in East Africa: The mediating roles of digital savings and access to digital credit*. SSRN. <https://ssrn.com/abstract=4098028>
- [23] **Lestari, E. D., Kurniasari, F., Pratiwi, P. Y., Thilaga, S., & Ooi, B. W.** (2025). Empowering women entrepreneurs: the role of financial literacy, inclusion, and access in enhancing MSE's performance and sustainability via women development program in Indonesia. *Cogent Business & Management*, 12(1). <https://doi.org/10.1080/23311975.2025.2593078>
- [24] **Lumpkin, G. T., & Dess, G. G.** (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *The Academy of Management Review*, 21(1), 135–172. <https://doi.org/10.2307/258632>
- [25] **Lusardi, A., & Mitchell, O. S.** (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- [26] **Mahastanti, L. A., Rita, M. R., & Sitorus, D. S.** (2025a). Bridging the Gender Gap in P2P Lending: How Financial and Digital Literacy with Entrepreneurial Orientation Drive MSME Success. *Jurnal Manajemen Bisnis*, 16(2), 578–602. <https://doi.org/10.18196/mb.v16i2.26210>
- [27] **Mahastanti, L. A., Rita, M. R., & Sitorus, D. S.** (2025b). *Strategi Cerdas UMKM dalam Mengakses P2P Lending*. NEM.
- [28] **McAdam, R., Miller, K., & McSorley, C.** (2019). Towards a contingency theory perspective of quality management in enabling strategic alignment. *International Journal of Production Economics*, 207, 195–209. <https://doi.org/10.1016/j.ijpe.2016.07.003>
- [29] **Ministry of Women's Empowerment and Child Protection.** (2025, May). The Minister of Women's Empowerment and Child Protection (PPPA) Encourages Women's Economic Independence Through Capital Assistance for MSMEs. <https://www.kemenpppa.go.id/siaran-pers/menteri-pppa-dorong-kemandirian-ekonomi-perempuan-lewat-bantuan-modal-umkm>

- [30] **Mishra, S., & Sahoo, C. K.** (2025). Does mobile Fintech utilization mediate the relationship between access to finance and sustainable entrepreneurial performance of women entrepreneurs in India? *Journal of Enterprising Communities: People and Places in the Global Economy*, 1–25. <https://doi.org/10.1108/JEC-03-2025-0064>
- [31] **Moray, R., Jain, S., & Kamble, S.** (2024). Navigating the Nexus: Women Entrepreneurs Digital Financial Literacy, Perceived Risks and the Technology Acceptance in P2P Lending Platforms. *2024 2nd International Conference on Advances in Computation, Communication and Information Technology (ICAICCIT)*, 1, 41–46. <https://doi.org/10.1109/ICAICCIT64383.2024.10912344>
- [32] **Muindi, K., & Masurel, E.** (2022). Entrepreneurial Orientation and Entrepreneurial Performance among Female Entrepreneurs: Empirical Evidence from Kenya. *Journal Women's Entrepreneurship and Education*, (3–4), 7–26. <https://doi.org/10.28934/jwec22.34.pp1-26>
- [33] **Najib, M., Ermawati, W. J., Fahma, F., Endri, E., & Suhartanto, D.** (2021). Fintech in the small food business and its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1). <https://doi.org/10.3390/joitmc7010088>
- [34] **Novianti, N., Ilona, D., Darmayanti, Y., & Zaitul, Z.** (2025). Exploring Fintech Adoption Drivers Among Tourism-Supported Culinary SMEs. *Investment Management and Financial Innovations*, 22(1), 405–415. [https://doi.org/10.21511/imfi.22\(1\).2025.30](https://doi.org/10.21511/imfi.22(1).2025.30)
- [35] **Oh, E. Y., & Rosenkranz, P.** (2020). Determinants of Peer-to-Peer Lending Expansion: The Roles of Financial Development and Financial Literacy. *The Journal of FinTech*, 2(01n02), 2250001. <https://doi.org/10.22617/WPS200107-2>
- [36] **OJK.** (2024). *Statistik Layanan Pendanaan Bersama Berbasis Teknologi Informasi*.
- [37] **Oliveira, R. T. S., Veloso, Y. I. F., Freitas, V., & Freitas de Paula, V. A.** (2025). Women Entrepreneurs in the Informal Economy: Challenges and Motivations for Entering the Informal Market. *Gender, Work and Organization*. <https://doi.org/10.1111/gwao.70070>
- [38] **Phillipson, J., Tiwasing, P., Gorton, M., Maioli, S., Newbery, R., & Turner, R.** (2019). Shining a spotlight on small rural businesses: How does their performance compare with urban? *Journal of Rural Studies*, 68, 230–239. <https://doi.org/10.1016/j.jrurstud.2018.09.017>
- [39] **Popoola, T.** (2025). Scoping Review of the Impact of Financial Literacy Empowerment on the Growth of Female Entrepreneurship in Nigeria. *Journal of Women's Entrepreneurship and Education*, (1–2), 129–154. <https://doi.org/10.28934/jwec25.12.pp129-154>

- [40] **Rita, M. R., & Nastiti, P. K. Y.** (2024). The influence of financial bootstrapping and digital transformation on financial performance: evidence from MSMEs in the culinary sector in Indonesia. *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2363415>
- [41] **Rita, M. R., Nugrahanti, Y. W., & Kristanto, A. B.** (2021). Peer-To-Peer Lending, Financial Bootstrapping And Government Support: The Role Of Innovation Mediation On Msme Performance. *Economic Horizons*, 23(3), 247–261. <https://doi.org/10.5937/ekonhor2103259R>
- [42] **Rizal, N. A.** (2025). Digital Finance and Women Entrepreneurship in Emerging Countries. In G. Anggadwita, L.-P. Dana, V. Ramadani, A. Fayolle, J. Shiroka-Pula, & A. Prasetyo (Eds.), *Gender in Digital Entrepreneurship : Recent Issues in Emerging Countries* (pp. 291–307). Springer Nature Singapore. https://doi.org/10.1007/978-981-95-1148-8_19
- [43] **Sindhvani, S., & Dhawan, A.** (2021). Are Opportunity and Necessity Based Women Entrepreneurs any Different? *Multidisciplinary Business Review*, 14(1), 108–119. <https://doi.org/10.35692/07183992.14.1.10>
- [44] **Soekarni, M., Adam, L., Thoha, M., Sarana, J., Ermawati, T., Saptia, Y., Adityawati, S., Sujianto, & Wibowo, M.** (2024). Strengthening financial literacy of smallholder farmers through agricultural fintech peer-to-peer lending: evidence and practical implications. *Cogent Social Sciences*, 10(1). <https://doi.org/10.1080/23311886.2024.2359011>
- [45] **Supardianto, Ferdiana, R., & Sulisty, S.** (2019). The role of information technology usage on startup financial management and taxation. *Procedia Computer Science*, 161, 1308–1315. <https://doi.org/10.1016/j.procs.2019.11.246>
- [46] **Susan, M.** (2020). Financial literacy and growth of micro, small, and medium enterprises in West Java, Indonesia. In *International Symposia in Economic Theory and Econometrics* (Vol. 27, pp. 39–48). Emerald Group Publishing Ltd. <https://doi.org/10.1108/S1571-038620200000027004>
- [47] **Tiwasing, P.** (2021). Social media business networks and SME performance: A rural–urban comparative analysis. *Growth and Change*, 52(3), 1892–1913. <https://doi.org/10.1111/grow.12501>
- [48] **Tosi, H. L., & Slocum, J. W.** (1984). Contingency Theory: Some Suggested Directions. *Journal of Management*, 10(1), 9–26. <https://doi.org/10.1177/014920638401000103>
- [49] **Warokka, A., Setiawan, A., & Aqmar, A. Z.** (2025). Key Factors Influencing Fintech Development in ASEAN-4 Countries: A Mediation Analysis. *FinTech*, 4(2). <https://doi.org/10.3390/fintech4020017>
- [50] **Warren-Smith, I., & Jackson, C.** (2004). Women creating wealth through rural enterprise. *International Journal of Entrepreneurial Behaviour & Research*, 10(6), 369–383. <https://doi.org/10.1108/13552550410564707>

- [51] **Wu, G., & Peng, Q.** (2024). Bridging the Digital Divide: Unraveling the Determinants of FinTech Adoption in Rural Communities. *SAGE Open*, 14(1). <https://doi.org/10.1177/21582440241227770>
- [52] **Xiang, D., Zhang, Y., & Worthington, A. C.** (2018). Determinants of the use of fintech finance among Chinese small and medium-sized enterprises. In *2018 IEEE international symposium on innovation and entrepreneurship (TEMS-ISIE)* (pp. 1-10). IEEE.
- [53] **Zaimovic, A., Omanovic, A., Dedovic, L., & Zaimovic, T.** (2025). The effect of business experience on fintech behavioural adoption among MSME managers: the mediating role of digital financial literacy and its components. *Future Business Journal*, 11(1). <https://doi.org/10.1186/s43093-025-00432-x>

Article history: Received: January 22, 2026

Accepted: April 2, 2026

First Online: April 3, 2026

Appendix

Table A1: Pilot Test Financial Literacy Measurement

Dimension	Item Code	Measurement Item	Outer Loading
Behaviour	FL1	I regularly evaluate my business's financial performance (e.g., revenue, profit, and outstanding debt).	0.745
	FL2	I am able to repay my business debts on time.	0.586 (deleted)
	FL3	I have insurance coverage to protect my business assets (e.g., vehicle insurance, property/fire insurance).	0.439 (deleted)
Attitude	FL4	I consider debt to be an important instrument for business expansion.	0.566 (deleted)
	FL5	I recognise that borrowing involves substantial risk, even when it is necessary to increase business capital.	0.680
Skills	FL6	I am able to accurately calculate loan interest.	0.773
	FL7	I can accurately estimate my future business capital requirements.	0.804
Knowledge	FL8	I make consistent efforts to allocate funds regularly for debt repayment.	0.575 (deleted)
	FL9	I have a good understanding of basic accounting record-keeping.	0.557 (deleted)

Source: Authors' calculations

Table A2: Heterotrait-Monotrait Ratio of Correlations

	EO	E	FL	FP	LB	BC	P2P Lending Usage	TI
EO								
E	0.043							
FL	0.844	0.166						
FP	0.842	0.098	0.799					
LB	0.055	0.132	0.106	0.036				
BL	0.154	0.084	0.064	0.119	0.073			

	EO	E	FL	FP	LB	BC	P2P Lending Usage	TI
P2P Lending Usage	0.591	0.147	0.683	0.487	0.076	0.060		
TI	0.159	0.044	0.144	0.096	0.068	0.099	0.302	

Source: Authors' calculations

Table A3: Inner VIF Values

	FP	P2P Lending Usage
EO		2.209
E		1.079
FL		2.225
FP		
LB		1.036
BL		1.051
P2P Lending Usage	1.000	
TI		1.049

Source: Authors' calculations

Table A4: Fornell-Larcker

	FP	LB	BL	P2P Lending Usage	TI
EO					
E					
FL					
FP	0.899				
LB	-0.015	1.000			
BL	-0.113	-0.073	1.000		
P2P lending Usage	0.423	-0.029	0.054	0.757	
TI	-0.090	-0.068	-0.099	-0.270	1.000

Source: Authors' calculations





DOI: 10.28934/jwee26.12.pp169-194

JEL: L26

ORIGINAL SCIENTIFIC PAPER

Does Content Creation Strengthen the Personality-Entrepreneurial Intention Relationship? Evidence from Female University Students



Vehap Kola¹ 
Gentjan Ulaj² 
Dorian Aliu³ 
Irisi Kasapi⁴ 

University of New York Tirana, Faculty of Economy and Business, Department
of Business Administration, Tirana, Albania

Elvisa Drishti⁵ 

University of Shkodra “Luigj Gurakuqi”, Faculty of Economy, Department
of Business Administration, Shkoder, Albania

ABSTRACT

This study examines how personality traits and digital practices relate to entrepreneurial intention among female university students in an emerging economy. Specifically, it investigates the effects of extraversion and openness to experience on entrepreneurial intention and the moderating role of content creation. Using survey data from 261 female students enrolled in public and private universities in Albania, the study applies Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that both extraversion and

¹, E-mail: vehapkola@unyt.edu.al

² Corresponding author, e-mail: gentjanulaj@unyt.edu.al

³ E-mail: dorianaliu@unyt.edu.al

⁴ E-mail: irisikasapi@unyt.edu.al

⁵ E-mail: elvisa.drishti@unishk.edu.al

openness positively predict entrepreneurial intention. In addition, content creation significantly strengthens the relationship between extraversion and entrepreneurial intention, whereas openness shows no moderating effect. These findings indicate that personality traits exert direct effects on entrepreneurial intention, while digitally mediated practices selectively amplify the influence of socially oriented dispositions. The study contributes to the literature by clarifying the role of content creation as a boundary condition in women's entrepreneurial intention formation.

KEYWORDS: *female university students, entrepreneurial intention, content creation, personality traits, digital entrepreneurship, Albania*

Introduction

Entrepreneurial intention (EI) is widely recognized as the most proximal predictor of venture creation, particularly in contexts where business formation requires deliberate planning under uncertainty (Krueger Jr et al., 2000). Contemporary research continues to confirm the robustness of intention-based models across gendered and institutional contexts, especially in emerging economies (Israr & Saleem, 2018; Liñán et al., 2013; Olarewaju et al., 2023). Rooted in the Theory of Planned Behavior (Ajzen, 1991), EI reflects individuals' evaluation of entrepreneurship as desirable and feasible, shaped by attitudes, perceived behavioral control, and social norms. Research further indicates that personality traits remain central predictors of entrepreneurial intention, but their effects are increasingly examined within digitally mediated environments (Karim et al., 2023; Murad et al., 2024). However, much remains unknown about how those traits manifest in today's digital world, particularly among female university students who often face structural and cultural barriers when pursuing entrepreneurial careers (Karim et al., 2023; Mehtap et al., 2016).

Digital technologies have rapidly reshaped how people become entrepreneurs, creating new ways to get involved, get noticed, and gain credibility. Recent studies show that digital platforms, social media ecosystems, and online entrepreneurial communities increasingly shape opportunity recognition, legitimacy building, and resource mobilization processes (Mumi, 2020; Zaremohzzabieh et al., 2019). For female students, these digital spaces can help them express themselves, build networks, and grow their reputations without relying on traditional, formal channels. However, engaging online is not always straightforward; it requires technical know-how, confidence to be visible, and the ability to handle

criticism or social pressure. To better understand entrepreneurship today, it is essential to examine how personality traits and digital content creation (CC) interact to shape entrepreneurial intentions. Among the Big Five personality traits framework (John, 1999), extraversion and openness to experience have been most consistently associated with entrepreneurial intention and venture-related outcomes in prior research (Şahin et al., 2019). Extraversion, being outgoing, energetic, and assertive, can boost entrepreneurial intention by making it easier to connect with others and feel confident in uncertain situations (Ahmed et al., 2020). In societies where women may struggle for legitimacy, extraverts might find it easier to gather support, seek advice, and navigate social circles despite the challenges (Boudreaux et al., 2019). Openness to experience, on the other hand, means being curious, creative, and open to new ideas. This trait helps people spot new opportunities, think in fresh ways, and see uncertainty as a chance rather than a problem, which can also fuel entrepreneurial intention (Liu et al., 2022; Zaman et al., 2021). However, whether these traits lead to entrepreneurial intention may depend on whether people have the chance to put their personalities into practice. Creating and sharing digital content is one way people can put their personalities into action. By creating online content, individuals can share their ideas, experiment with different messages, receive feedback, and become more visible in the digital world (Helsper et al., 2021). For female students, content creation can help bypass traditional gatekeepers, opening new ways to gain respect and showcase entrepreneurial abilities (Boudreaux et al., 2019).

Despite its growing relevance, empirical research has yet to systematically examine how content creation moderates the relationship between personality traits and entrepreneurial intention among female students. Some studies highlight the importance of digital engagement in shaping entrepreneurial exposure and validation (Murad et al., 2024; Zaremohzzabieh et al., 2019), but they have not examined content creation as a factor that could limit or amplify the effect of personality. This question is particularly critical in countries such as Albania, where women's entrepreneurial participation continues to be shaped by institutional constraints, gendered norms, and limited access to entrepreneurial resources (Karim et al., 2023; Ramadani et al., 2015), and digital platforms may offer new ways for them to get involved in entrepreneurship.

Albania represents a meaningful context for examining entrepreneurial intention due to its post-communist transition and prolonged historical

isolation, which have shaped institutional development and societal norms (Kume et al., 2013). Empirical studies confirm the applicability of intention-based models among Albanian students, highlighting the role of attitudes and subjective norms in shaping entrepreneurial intention (Alimehmeti & Shaqiri, 2015). More recent evidence suggests that entrepreneurial intention in Albania remains gendered, influenced by patriarchal values and structural barriers (Makarova et al., 2024). These contextual characteristics reflect broader institutional and cultural constraints that continue to shape entrepreneurial behavior in the country (Drishti et al., 2016; Ulaj et al., 2025).

In this context, focusing exclusively on female university students enables a more precise examination of how personality traits and digital engagement interact in shaping entrepreneurial intention within a gendered environment. Building on this foundation, the study advances academic discourse by integrating personality theory with digital entrepreneurship research. It examines the direct effects of extraversion and openness to experience on entrepreneurial intention and investigates the moderating role of content creation. Situated within Albania's ongoing institutional transition, the study deepens understanding of how individual dispositions and digital agency jointly shape entrepreneurial pathways. By emphasizing the contingent nature of personality effects in digitally mediated environments, the study offers new insights into the intersection of personality, gender, and digital entrepreneurship.

Literature Review and Hypothesis Development

Theoretical Perspective

Recent advancements in artificial intelligence have enabled innovative methods for studying and understanding human personality (Hinds & Joinson, 2024; Kola, 2023). These technological developments provide access to diverse data sources suitable for personality assessment. For example, existing studies manifest that personality traits can be inferred from *smartphone usage logs* (Stachl et al., 2020), *financial transaction records* (Gladstone et al., 2019), *patterns of preference for music* (Anderson et al., 2021), and *social media engagement* (Park et al., 2015). Such data captures individuals' real-time opinions, sentiments, and behavioral

patterns, offering valuable insights into personality (Hinds & Joinson, 2024).

Entrepreneurial intention is defined as the commitment to venture creation (Krueger, 1993) and serves as a major influencing factor of entrepreneurial behaviour. When exploring literature on entrepreneurial intention, two major streams of research emerge. The first stream emerges from social psychology, which analyzes general behavior and reveals the mental processes underlying attitudes and beliefs that influence effective action (Bhandari et al., 2024). Two major contributions in this field are especially relevant to the body of research on entrepreneurial intention: Ajzen's (1991) and Bandura and Wessels's (1997) theoretical insights. Subsequently, Ajzen's Theory of Planned Behavior (TPB) has found wide application in general social psychology. The second stream of research focuses particularly on entrepreneurship (Erikson, 2001; Shapero, 1985). The psychological literature maintains that intentions reliably predict individuals' planned behaviour, particularly in contexts where such behavior is sparse, difficult to observe, or characterized by unpredictable time horizons. The emergence of new businesses typically requires extensive planning over time. Therefore, planned behaviour embedded in entrepreneurship provides fertile ground for intention-based models, which have proven to be effective tools for describing and explaining how and why the decision to establish a business is often formed well before the initial screening of business opportunities (Krueger Jr et al., 2000).

In entrepreneurship literature, multiple frameworks of entrepreneurial intention have been advanced (Bird, 1988; Chattopadhyay & Ghosh, 2008; Krueger Jr et al., 2000). In these models, intentions assume a primary role in predicting venture activity and mediating the impact of demographic factors, personal features, and personality traits, as well as context factors on entrepreneurial behaviour and activity (Fragoso et al., 2020). In this study, extraversion and openness to experience are examined as key predictors of entrepreneurial intention among female students, with content creation acting as a moderating factor.

Big Five Personality Traits and Female Students' Entrepreneurial Intention

Research on female students' EI has consistently emphasized individual psychological characteristics, educational exposure, and contextual conditions as key explanatory domains. However, the literature

remains unclear on how content creation moderates the relationship between personality traits and entrepreneurial intention.

Entrepreneurial Intention and Individual Differences Among Female Students

Entrepreneurial intention is treated as a motivational outcome shaped by individual cognitive and psychological characteristics rather than by entrepreneurial behavior itself (Ahmed et al., 2020; Karim et al., 2023). Research consistently shows that female students' EI depends on internal dispositions that shape perceptions of whether entrepreneurship is desirable and feasible, particularly in settings where gendered barriers limit action (Boudreaux et al., 2019; Murad et al., 2024). Within this stream, personality-related traits are often mentioned as important predictors but are rarely theorized with enough precision. Many studies assume stable dispositions influence social interaction, opportunity perception, and confidence under uncertainty (Farrukh et al., 2018; Zaman et al., 2021). However, these studies stop short of explaining how these traits translate into intention under digital conditions that now structure entrepreneurial expression and validation.

Extroversion and Female Students' Entrepreneurial Intention

EX taps sociability, assertiveness, and energy in interpersonal interaction. Among female students, it is consistently linked to higher entrepreneurial intention, particularly in settings where social interaction, networking, and visibility are critical for opportunity recognition and support mobilization (Ahmed et al., 2020).

This trait is particularly important in gendered contexts where women often face legitimacy deficits. Extraverted individuals may, therefore, be better able to engage external audiences, seek feedback, and build informal support despite normative constraints (Boudreaux et al., 2019). As a result, EX is likely to enhance the perceived feasibility and desirability of entrepreneurship by lowering social barriers and enhancing confidence in interaction.

Accordingly, the following hypothesis is proposed:

H1: Extraversion positively predicts entrepreneurial intention among female students.

Openness to Experience and Female Students' Entrepreneurial Intention

Openness to experience taps curiosity, creativity, tolerance for ambiguity, and receptiveness to novel ideas. Research on female students' EI links openness to opportunity recognition, creativity, and innovative thinking, all of which support intention formation (Liu et al., 2022; Zaman et al., 2021). For women students, entrepreneurial intention is not only shaped by confidence or social assertiveness but also by the capacity to envision alternative futures beyond traditional career paths, particularly in gendered or constrained labor markets (Ahmed et al., 2020; Karim et al., 2023). By reframing uncertainty as opportunity, openness makes entrepreneurship appear both viable and attractive rather than a risky departure from expected career trajectories. Thus, consistent with this literature, the following hypothesis is formulated:

H2: Openness positively predicts entrepreneurial intention among female students.

Digital Engagement and Content Creation as a Boundary Condition

Although individual traits are important, the literature increasingly acknowledges that entrepreneurial intention develops within social and digital contexts, rather than in isolation (Murad et al., 2024). Prior studies do not explicitly label as "content creation". However, research on digital engagement, online entrepreneurial interaction, and alternative legitimacy pathways among female students provides a strong empirical basis for conceptualizing CC as a digitally embedded form of entrepreneurial agency.

CC, understood as the active production and sharing of entrepreneurial, professional, or creative content, represents a digitally embedded form of agency (Zaremohzzabieh et al., 2019). It allows students to articulate ideas (Ahmed et al., 2020), test narratives, receive feedback (Al-Jubari et al., 2019; Zaremohzzabieh et al., 2019), and build visibility beyond formal institutional channels. For female students, such mechanisms enable traits to be enacted and reinforced (Ahmed et al., 2020), offering alternative pathways for legitimacy construction and social validation. For female students, such mechanisms enable traits to be enacted and reinforced, underscoring the conditional nature of dispositional effects (Al-Jubari et al., 2019; Karim et al., 2023).

Content Creation as a Moderator of Extraversion

EX is basically relational and its effect on entrepreneurial intention depends on opportunities for interaction, expression, and feedback (Karim et al., 2023). Meanwhile, content creation amplifies these opportunities by extending social interaction into digital spaces (Zaremohzzabieh et al., 2019), allowing extroverted female students to expose their sociability, assertiveness, and visibility at scale (Boudreaux et al., 2019).

In gendered contexts where norms and gatekeeping can limit women's entrepreneurial engagement (Islam & Alharthi, 2024; Karim et al., 2023), digital platforms can offer alternative spaces for action. Platform-based environments can enable students to enact entrepreneurial practices (Chang et al., 2022), while social media-based business pursuits are relevant ways alongside persistent network barriers (Sarhan & Ab. Aziz, 2023). Building on these premises, we theorize that CC strengthens the translation of socially oriented dispositions into entrepreneurial intention. Accordingly, the following hypothesis is formulated:

H3: Content creation moderates the relationship between extroversion and entrepreneurial intention, such that the effect is stronger under high content creation.

Content Creation and the Limits of Openness as a Moderated Effect

Prior research in this corpus links female students' entrepreneurial intention to cognitive resources and cognitive appraisals, including creativity and opportunity-related orientations (Dey et al., 2024). Unlike extroversion, openness does not inherently translate into external engagement or social visibility (Liu et al., 2022). In the current literature on Big Five, openness to experience is not directly operationalized as a determinant of such cognitive resources, nor is it theorized in relation to public engagement or visibility, leaving the cognitive-versus-expressive implications of openness to be specified in the present study.

Content creation requires not only idea generation but also the willingness to expose ideas to public scrutiny, which may be shaped more strongly by social confidence and assertiveness than by cognitive openness alone. In gendered environments, women students high in openness may still refrain from public expression due to anticipated judgment, lack of confidence, or normative expectations, even when digital platforms are

available (Boudreaux et al., 2019). Therefore, while content creation may coexist with openness, literature does not provide strong theoretical grounds to expect it to systematically strengthen the openness-EI relationship.

Nevertheless, given the exploratory nature of digital engagement in this literature, the following hypothesis is formulated:

H4: Content creation moderates the relationship between openness and entrepreneurial intention, such that the effect is stronger under high content creation.

Methodology

Using a quantitative, cross-sectional design, this study examines how extraversion and openness predict entrepreneurial intention among female university students, and how content creation moderates these relationships in Albania. Data were collected using a structured questionnaire and analyzed using PLS-SEM, a method suitable for prediction-oriented models with moderation effects. The model tests both direct effects of personality traits on entrepreneurial intention and interaction effects involving content creation. The target population comprised female university students enrolled in public and private higher education institutions in Albania.

Data were collected through a structured online questionnaire administered via Google Forms. The survey link was distributed using two complementary approaches. In several universities, faculty members assisted the research team by sharing the questionnaire link or QR code directly with eligible female students during classroom sessions. In other institutions, the survey link was disseminated through official university email systems and sent to students' institutional email addresses. This dual distribution strategy facilitated access across both public and private higher education institutions in Albania. Participation was voluntary and anonymous, and respondents were informed of the study's academic purpose before completing the questionnaire. Only female students currently enrolled in Albanian universities were eligible to participate. A convenience sampling approach was employed due to accessibility considerations. Data collection took place between October 2024 and March 2025, resulting in 261 valid responses after screening for completeness and consistency.

The measurement instruments used in this study were adapted from established and widely validated scales in the literature. All constructs were operationalized using multi-item measures to ensure reliable and consistent

measurement. Responses were collected using Likert-type scales, as specified for each construct. Extraversion and Openness to Experience were measured using items adapted from the Big Five personality framework developed by John and Srivastava (1999). Extraversion was operationalized through eight items capturing key characteristics such as sociability, assertiveness, and energy, while Openness to Experience was assessed using ten items reflecting creativity, imagination, intellectual curiosity, and openness to new ideas. For both constructs, several items were reverse-coded to enhance measurement accuracy and reduce potential response bias. Content Creation and Production was measured using six items adapted from the Youth Digital Skills Indicator questionnaire developed by Helsper et al. (2021). The items assess respondents' perceived ability to create, edit, adapt, and manage digital content in online environments. Entrepreneurial Intention was measured using six items adapted from the scale developed by Liñán et al. (2013). The scale captures respondents' readiness, determination, and career aspirations related to entrepreneurship. Reverse-coded items were included to improve scale robustness.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM was selected as it is well-suited for analyzing complex research models, particularly those involving latent constructs measured with multiple indicators and moderation effects, and is widely applied in entrepreneurship research (Chahal et al., 2024; Manley et al., 2021; Martins et al., 2023). A two-step analytical procedure was followed. First, the measurement model was assessed for reliability and validity, including internal consistency, convergent validity, and discriminant validity, in line with established PLS-SEM guidelines (Hair Jr et al., 2021). Second, the structural model was evaluated to test the hypothesized relationships, including the direct effects of extraversion and openness on entrepreneurial intention and the moderating effects of content creation. Model evaluation was based on path coefficients, t-values, p-values, and R^2 (Hair et al., 2013; Manley et al., 2021). To assess the statistical significance of the estimated relationships, a bootstrapping procedure with 10,000 resamples was applied, following recommended practices for robust inference in PLS-SEM (Hair et al., 2019).

Results

The final sample consists of 261 female university students enrolled in public and private higher education institutions in Albania. The descriptive statistics provide an overview of respondents' academic characteristics, institutional affiliation, and age profile, offering contextual background for the subsequent multivariate analyses.

With respect to academic orientation, the sample is predominantly composed of students enrolled in Business and Management-related fields, followed by those studying Finance, Accounting, and Economics. A notable proportion of respondents are drawn from Computer Science and Informatics, reflecting the growing relevance of digital and technology-oriented disciplines. Smaller but meaningful shares of the sample are represented by Social Sciences and by Design, Engineering, and other fields, indicating a multidisciplinary composition that extends beyond traditional business programs. In terms of degree level, most respondents are enrolled in Bachelor's programs, while a substantial proportion are pursuing Master's degrees, ensuring representation across undergraduate and postgraduate levels. Regarding year of study, most participants are in the early stages of their academic programs, although students in more advanced stages are also included, allowing for variation in academic maturity and exposure. Regarding institutional affiliation, respondents are drawn from a diverse set of universities in Albania, specifically 19 public and private universities. The largest share attends a major private university, followed by students from public universities. This distribution reflects heterogeneity in educational environments and institutional contexts. Finally, the age distribution indicates that the sample is largely composed of young adults, with most respondents aged 19-24, while a smaller yet non-negligible proportion consists of older students.

Measurement Model Assessment

The measurement model was assessed using the confirmatory composite analysis approach appropriate for reflective constructs. During the initial assessment, a limited number of indicators exhibited low outer loadings and were therefore excluded to improve indicator reliability and strengthen internal consistency. After this refinement process, all retained indicators demonstrated satisfactory properties. Indicator reliability was evaluated by examining the outer loadings of the retained indicators. As

shown in Table 1, all indicator loadings range from 0.700 to 0.901, exceeding the recommended minimum thresholds. These results indicate that the indicators share substantial variance with their respective latent constructs, supporting indicator reliability and convergent validity (Hair et al., 2025). Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability (CR). As reported in Table 1, all constructs show strong reliability, with Cronbach's alpha values above 0.80 and composite reliability values exceeding the recommended threshold of 0.70. Convergent validity was assessed through indicator loadings and the average variance extracted (AVE). All retained indicators load strongly on their respective constructs, with loadings of 0.70 or higher. In addition, all AVE values exceed the minimum recommended value of 0.50, indicating that the constructs explain a substantial proportion of variance in their indicators (Hair Jr et al., 2021; Manley et al., 2021).

Table 1: Measurement Model Assessment

Construct	Indicator	Loading	Cronbach's alpha	CR	AVE
Content Creation (CC)	content1	0.851	0.912	0.931	0.693
	content2	0.826			
	content3	0.817			
	content4	0.833			
	content5	0.818			
	content6	0.848			
Entrepreneurial Intention (EI)	ei1	0.901	0.907	0.935	0.782
	ei2	0.886			
	ei4	0.898			
	ei5	0.852			
Extroversion (EXTRA)	extra3	0.842	0.821	0.881	0.649
	extra4	0.831			
	extra6	0.779			
	extra8	0.768			
Openness To Experience (OPEN)	open1	0.737	0.841	0.882	0.554
	open2	0.753			
	open4	0.739			
	open5	0.773			
	open6	0.700			
	open8	0.764			

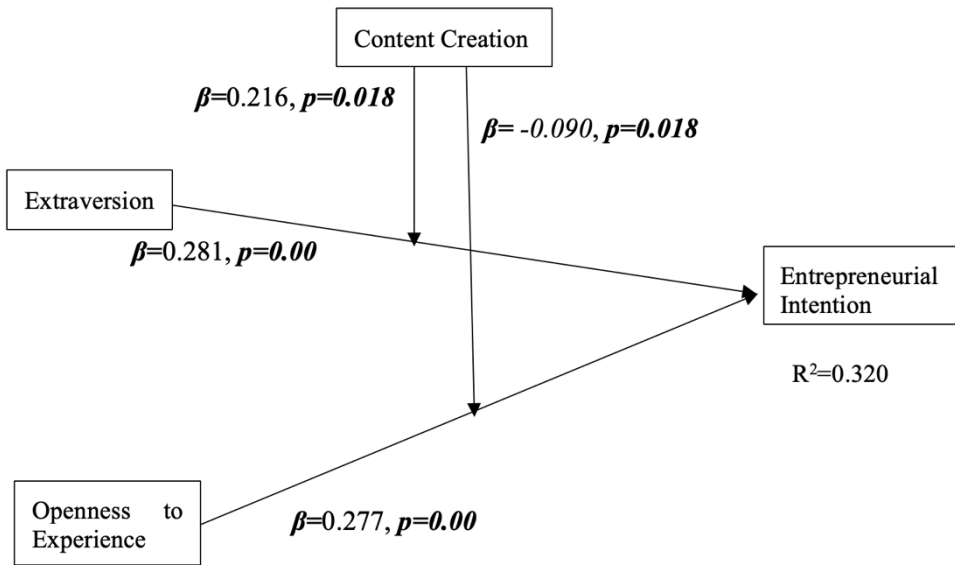
Source: Authors' calculations

The measurement model satisfies established reliability and validity criteria and is suitable for subsequent structural and moderation analyses (Henseler et al., 2015).

Structural Model Assessment

The structural model was evaluated by examining the path coefficients (β) and their statistical significance using a bootstrapping procedure with 10,000 resamples, following established PLS-SEM guidelines in the entrepreneurship field (Manley et al., 2021). Table 2 summarizes the direct and interaction effects hypothesized in the model.

Figure 1: Structural model results with moderating effects



Source: Authors' calculations

The results indicate that Extraversion has a positive and statistically significant effect on entrepreneurial intention ($\beta = 0.281, p < 0.001$), providing support for H1. Similarly, Openness to Experience is positively and significantly related to entrepreneurial intention ($\beta = 0.277, p < 0.001$), supporting H2. Regarding the moderation hypotheses, the interaction between Content Creation and Extraversion is positive and statistically significant ($\beta = 0.216, p = 0.018$), indicating that higher levels of content

creation strengthen the relationship between extraversion and entrepreneurial intention. Therefore, H3 is supported. In contrast, the interaction between Content Creation and Openness to Experience is not statistically significant ($\beta = -0.090$, $p = 0.230$), leading to the rejection of H4.

Table 2: Structural Model Assessment

Hypothesis	Path	β	t	p	Decision
H1	Extraversion Entrepreneurial Intention	0.281	3.852	0.000	Supported
H2	Openness → Entrepreneurial Intention	0.277	3.642	0.000	Supported
H3	Content Creation × Extraversion → Entrepreneurial Intention	0.216	2.376	0.018	Supported
H4	Content Creation × Openness → Entrepreneurial Intention	-0.090	1.202	0.230	Not supported

Source: Authors' calculations

The explanatory power of the structural model was assessed using the coefficient of determination (R^2) as recommended in PLS-SEM research (Hair & Sabol, 2025). As shown in Table 3, the model explains a moderate proportion of variance in entrepreneurial intention, with an R^2 value of 0.320 and an adjusted R^2 of 0.306. According to Hair et al. (2019), R^2 values around 0.25, 0.50, and 0.75 are commonly interpreted as indicating weak, moderate, and substantial explanatory power, respectively. Within this context, the observed R^2 value reflects a meaningful and satisfactory level of explanatory power for behavioral and entrepreneurship research (Manley et al., 2021; Osmani et al., 2022).

Table 3: Explained Variance of the Structural Model

Endogenous Construct	R ²	Adjusted R ²
Entrepreneurial Intention	0.320	0.306

Source: Authors' calculations

Discussion

The present study explored how two core personality traits, i.e., EX and OE, shape EI among female university students in Albania, and whether engaging in CC impacts these relationships under digital settings. The results support a straightforward finding. Both EX and OE positively predict EI. However, the role of CC is not uniform. Creating and sharing content amplifies the positive effect of EX on EI, but it does not enhance the impact of OE on EI. The results show that EI is not driven by personality alone but by how personality traits are activated through digitally embedded practices.

These findings are aligned with intention-based entrepreneurship models that view intention as the closest antecedent of planned behavior, particularly in contexts when entrepreneurial behavior unfolds over time and requires deliberate planning (Ajzen, 1991; Bird, 1988; Krueger Jr et al., 2000). Meantime, the moderation results push the analysis beyond the familiar claim that personality traits matter. Instead, they show when a given trait is more likely to translate into entrepreneurial intention, highlighting how this process is shaped by digital environments.

Theoretical Implications and Contribution to the Literature

Entrepreneurial intention research commonly argues that intentions mediate the influence of personal characteristics and contextual factors on entrepreneurial behavior (Boyd & Vozikis, 1994; Olarewaju et al., 2023). Within the literature of female-student EI, personality traits are frequently treated as key predictors. However, the process through which these traits are translated into intention remains largely implicit. This gap is particularly evident under digital conditions where exposure, legitimacy, and learning are increasingly structured by platform dynamics (Ahmed et al., 2020; Farrukh et al., 2018; Murad et al., 2024). The present study addresses this blind spot by conceptualizing CC as a *digitally embedded behavioral*

channel that shapes whether, and when, a dispositional trait becomes consequential for entrepreneurial intention.

The evidence supports this claim in a focused way. The significant interaction effect (H3) shows that extroversion becomes more strongly related to EI when CC is higher. This suggests that platform-facing expression and digital exposure amplify the entrepreneurial relevance of socially oriented dispositions. Rather than treating EX as a stable, context-free relationship, the findings show that its effect intensifies when individuals exercise digital agency, particularly when operating in feedback-enhancing and socially interactive environments (Helsper et al., 2021; Zaremohzzabieh et al., 2019). Thus, our study finds not only that “EX predicts EI” but that “EX predicts EI more strongly when digital environments provide a scalable channel for interaction and self-expression,” moving beyond trait-only models (Farrukh et al., 2018; Frago et al., 2020).

The study's second theoretical contribution lies in the asymmetric moderation pattern, with H3 supported and H4 not supported, which clarifies that not all personality traits are amplified by the same digital practice. Extant research shows that EX is fundamentally relational, characterized by sociability, assertiveness, and energy in interpersonal engagement (John & Srivastava, 1999). Our study shows that CC expands and scales these capacities by enabling expression, audience engagement, and iterative feedback in digital spaces (Helsper et al., 2021; Zaremohzzabieh et al., 2019). Accordingly, the strengthening of the EX-EI link at higher levels of CC (H3) aligns with the idea that digital platforms extend social interaction beyond physical constraints and convert social energy into visibility, support mobilization, and perceived feasibility, core ingredients of intention formation in intention frameworks (Ajzen & Fishbein, 2000; Boyd & Vozikis, 1994; Olarewaju et al., 2023).

On the other hand, the direct effect supported in H2 is consistent with prior evidence that OE relates to opportunity imagination, creative cognition, and the ability to reframe uncertainty as opportunity, which can increase the desirability of entrepreneurship as a career path (Liu et al., 2022; Zaman et al., 2021). However, CC did not strengthen the OE-EI relationship. Our findings help specify what openness does, and does not, do in digitally mediated entrepreneurial settings. These findings imply that CC requires not only ideation but also willingness to expose ideas to public scrutiny, persist in audience-facing expression, and manage social

evaluation (Helsper et al., 2021). These conditions align more strongly with EX-linked assertiveness and engagement than with OE-linked curiosity and ideation. In this sense, our findings support a distinction between an expressive-social pathway and a cognitive-ideational pathway.

This finding clarifies and extends a literature that often bundles personality traits together as generic predictors of EI (Ahmed et al., 2020; Farrukh et al., 2018) without specifying the mechanisms that enable them. It also aligns with research emphasizing that women's entrepreneurial pathways are shaped by social judgment, legitimacy constraints, and norms, which may limit public self-presentation even when cognitive resources and creativity are present (Boudreaux et al., 2019; Karim et al., 2023). In norm-heavy environments, an open and creative student may still refrain from public platform engagement due to anticipated sanctions or perceived reputational risk. This makes it plausible that CC does not systematically intensify the effect of OE on EI (Boudreaux et al., 2019; Islam & Alharthi, 2024).

Research on women's entrepreneurship shows that gendered norms shape whether entrepreneurship is viewed as feasible and legitimate, influencing intention formation even among students (Boudreaux et al., 2019; Liñán et al., 2013). This study shows that CC can conditionally support intention formation for women students but only when aligned with extroversion (H3). In such cases, digital platforms offer a route through which women can build visibility and social proof without relying exclusively on traditional networks and gatekeepers.

At the same time, the non-significant H4 results show that digital routes do not automatically empower all women students equally, and CC does not uniformly enhance the translation of all relevant dispositions into intention. This evidence suggests a more conditional view of digital engagement practices may amplify intention formation primarily when they match the psychological and social demands of sustained public engagement.

Policy Implications

Our findings provide concrete policy implications for governments, universities, and ecosystem actors seeking to increase women's entrepreneurial participation in emerging-economy settings. First, policies that focus on generic digital skills risk delivering poorly. Our study points to a more targeted lever that supports women students' entrepreneurial visibility and feedback infrastructures, because CC empowers intention

formation for extraverted students (H3) and likely functions as a channel for legitimacy building and iterative validation (Helsper et al., 2021; Zaremohzzabieh et al., 2019). Second, digital environments do not erase social norms. Therefore, public-facing interventions must therefore be paired with norm-sensitive design elements, such as psychologically safe cohorts, mentoring structures, and legitimacy signals that reduce perceived social risk (Islam & Alharthi, 2024; Karim et al., 2023).

Managerial and Educational Implications

For universities and entrepreneurship educators, the findings point to practical implications: CC should be treated as entrepreneurial practice, not peripheral marketing, since it strengthens the EX-EI link (H3), and curricula can include structured platform-facing exercises that allow students to develop, test, and refine entrepreneurial narratives. Such repeated cycles of expression and feedback reinforce perceived feasibility and control (Ajzen, 1991; Ajzen & Fishbein, 2000; Boyd & Vozikis, 1994), which are central to intention formation. At the same time, our findings caution against one-size-fits-all approaches. Since CC did not strengthen the OE-EI relationship (H4), creative and open students may benefit from supports that translate ideas into feasibility, such as opportunity recognition and venture design mentoring (Liu et al., 2022; Osmani et al., 2022; Sánchez-Teba et al., 2025). For incubators and ecosystem actors, platform-facing programs should pair visibility with social support since women's entrepreneurial engagement reflects the interaction of resources and norms (Karim et al., 2023).

Limitations

Several limitations delimit the claims. First, our design is cross-sectional, so our findings cover intention formation rather than the transition from intention to action. This aligns with intention models where intention is the key antecedent of planned behavior (Ajzen, 1991; Krueger Jr et al., 2000), but we don't pose causal claims. Second, the sample is a convenience sample of female students in Albania, which constrains statistical generalizability to other populations. Nevertheless, the context is theoretically meaningful given the role played by norms, institutions, and business environments in shaping women's entrepreneurship pathways (Islam & Alharthi, 2024; Karim et al., 2023). Third, CC is measured as

perceived ability, not as observed platform behavior, and does not differentiate capability, frequency, and outcomes of CC.

Future Research

Future research should extend these findings in three directions. First, longitudinal or experimental designs should test whether content creation strengthens the translation of intention into entrepreneurial action (Liu et al., 2022; Maheshwari et al., 2023). Second, future work should explicitly model the psychological antecedents emphasized in TPB, attitudes, norms, and perceived behavioral control, to identify which component content creation most plausibly amplifies, and whether that amplification differs across traits (Ajzen, 1991; Ajzen & Fishbein, 2000). Third, studies should integrate norm pressure and resource constraints as moderators alongside digital engagement, given evidence that norms can blunt the benefits of resources for women's entrepreneurship in emerging economies (Karim et al., 2023) and that business environments can shape women students' entrepreneurial intention (Islam & Alharthi, 2024).

Conclusion

This study advances the literature on entrepreneurial intention among female university students by demonstrating that both extraversion and openness to experience are positively associated with entrepreneurial intention. However, the findings reveal a nuanced dynamic: engagement in digital content creation strengthens the relationship between extraversion and entrepreneurial intention, while no comparable amplification effect emerges for openness to experience. These results suggest that entrepreneurial intention formation is not solely a function of personality traits but also depends on whether digitally mediated practices provide channels through which socially oriented dispositions can be enacted and reinforced. Situated within the Albanian context, characterized by institutional transition and gendered norms, the findings highlight the role of digital agency in shaping how personality translates into entrepreneurial aspirations.

Acknowledgment

This study was funded by the National Agency for Scientific Research and Innovation (NASRI), Albania. NASRI had no involvement in the conduct of the research or in the preparation or submission of the manuscript.

References

- [1] **Ahmed, T., Chandran, V. G. R., Klobas, J. E., Liñán, F., & Kokkalis, P.** (2020). Entrepreneurship education programmes: How learning, inspiration and resources affect intentions for new venture creation in a developing economy. *The International Journal of Management Education*, 18(1), 100327.
- [2] **Ajzen, I.** (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- [3] **Ajzen, I., & Fishbein, M.** (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. *European review of social psychology*, 11(1), 1-33.
- [4] **Alimehmeti, G., & Shaqiri, G.** (2015). Factors determining entrepreneurial intentions: a case study from Albania. *Academic Journal of Interdisciplinary Studies*, 4(3), 233-240.
- [5] **Al-Jubari, I., Hassan, A., & Liñán, F.** (2019). Entrepreneurial intention among University students in Malaysia: Integrating self-determination theory and the theory of planned behavior. *International Entrepreneurship and Management Journal*, 15(4), 1323-1342.
- [6] **Anderson, I., Gil, S., Gibson, C., Wolf, S., Shapiro, W., Semerci, O., & Greenberg, D. M.** (2021). "Just the way you are": Linking music listening on Spotify and personality. *Social Psychological and Personality Science*, 12(4), 561-572.
- [7] **Bandura, A., & Wessels, S.** (1997). *Self-efficacy* (Vol. 10). Cambridge University Press, Cambridge.
- [8] **Bhandari, P., Sigdel, B., Hye, A. M., Bhandari, S., & Bhattarai, A.** (2024). Fostering women entrepreneurs: Psychological capital, psychological empowerment and entrepreneurial spirit. *Journal of Women's Entrepreneurship and Education*, (1-2), 1-18.
- [9] **Bird, B.** (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review*, 13(3), 442-453.
- [10] **Boudreaux, C. J., Nikolaev, B. N., & Klein, P.** (2019). Socio-cognitive traits and entrepreneurship: The moderating role of economic institutions. *Journal of Business Venturing*, 34(1), 178-196.

-
- [11] **Boyd, N. G., & Vozikis, G. S.** (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship theory and practice*, 18(4), 63-77.
- [12] **Chahal, J., Shoukat, M. H., & Ayoubi, R.** (2024). How entrepreneurial environment and education influence university students' entrepreneurial intentions: the mediating role of entrepreneurial motivation. *Higher Education, Skills and Work-Based Learning*, 14(3), 591-609.
- [13] **Chang, A., Chang, D.-F., & Chen, T.-L.** (2022). Detecting female students transforming entrepreneurial competency, mindset, and intention into sustainable entrepreneurship. *Sustainability*, 14(20), 12970.
- [14] **Chattopadhyay, R., & Ghosh, A. K.** (2008). Entrepreneurial intention model-Based Quantitative approach to Estimate Entrepreneurial success. *Journal of Small Business & Entrepreneurship*, 21(1), 1-21.
- [15] **Dey, S. K., Sharma, D., & Dash, S.** (2024). Impact of entrepreneurship education on entrepreneurial intention among Female students of Odisha. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 51(1), 63-72.
- [16] **Drishti, E., Kruja, D., & Curcija, M.** (2016). An evaluation of the impact of entrepreneurship education on the entrepreneurship intentions in the Albanian late transition context. In *Routledge Handbook of Entrepreneurship in Developing Economies* (pp. 463-486). Routledge.
- [17] **Erikson, T.** (2001). Revisiting Shapero: A taxonomy of entrepreneurial typologies. *New England Journal of Entrepreneurship*, 4(1), 9.
- [18] **Farrukh, M., Alzubi, Y., Shahzad, I. A., Waheed, A., & Kanwal, N.** (2018). Entrepreneurial intentions: The role of personality traits in perspective of theory of planned behaviour. *Asia Pacific Journal of Innovation and Entrepreneurship*, 12(3), 399-414.
- [19] **Fragoso, R., Rocha-Junior, W., & Xavier, A.** (2020). Determinant factors of entrepreneurial intention among university students in Brazil and Portugal. *Journal of Small Business & Entrepreneurship*, 32(1), 33-57.
- [20] **Gladstone, J. J., Matz, S. C., & Lemaire, A.** (2019). Can psychological traits be inferred from spending? Evidence from transaction data. *Psychological Science*, 30(7), 1087-1096.
- [21] **Hair, J. F., Babin, B. J., Ringle, C. M., Sarstedt, M., & Becker, J.-M.** (2025). Covariance-based structural equation modeling (CB-SEM): a SmartPLS 4 software tutorial: JF Hair et al. In: Springer.
- [22] **Hair, J. F., Ringle, C. M., & Sarstedt, M.** (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long range planning*, 46(1-2), 1-12.
- [23] **Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M.** (2019). When to use and how to report the results of PLS-SEM. *European business review*, 31(1), 2-24.

- [24] **Hair, J. F., & Sabol, M. A.** (2025). Partial least squares structural equation modeling (PLS-SEM): A rapidly emerging SEM alternative. In *International encyclopedia of statistical science* (pp. 1880-1882). Springer.
- [25] **Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S.** (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer Nature.
- [26] **Helsper, E. J., Schneider, L., van Deursen, A. J., & van Laar, E.** (2021). The Youth Digital Skills Indicator. https://researchonline.lse.ac.uk/id/eprint/108878/1/Helsper_the_youth_digital_skills_indicator_published.pdf
- [27] **Henseler, J., Ringle, C. M., & Sarstedt, M.** (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135.
- [28] **Hinds, J., & Joinson, A. N.** (2024). Digital data and personality: A systematic review and meta-analysis of human perception and computer prediction. *Psychological bulletin*, 150(6), 727.
- [29] **Islam, M. M., & Alharthi, M.** (2024). Business environment's impact on female students' entrepreneurial intentions: Gender analysis. *South African Journal of Business Management*, 55(1), 3962.
- [30] **Israr, M., & Saleem, M.** (2018). Entrepreneurial intentions among university students in Italy. *Journal of Global Entrepreneurship Research*, 8(1), 1-14.
- [31] **John, O.** (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. *Published as*.
- [32] **John, O. P., & Srivastava, S.** (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives.
- [33] **Karim, S., Kwong, C., Shrivastava, M., & Tamvada, J. P.** (2023). My mother-in-law does not like it: resources, social norms, and entrepreneurial intentions of women in an emerging economy. *Small Business Economics*, 60(2), 409-431.
- [34] **Kola, V.** (2023). The Liberating Effect of AI in Organizations. Proceedings of the 1st Bengkulu International Conference on Economics, Management, Business and Accounting (BICEMBA 2023),
- [35] **Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L.** (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5-6), 411-432.
- [36] **Krueger, N.** (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship theory and practice*, 18(1), 5-21.
- [37] **Kume, A., Kume, V., & Shahini, B.** (2013). Entrepreneurial characteristics amongst university students in Albania. *European Scientific Journal*, 9(16).

-
- [38] **Liñán, F., Nabi, G., & Krueger, N.** (2013). British and Spanish entrepreneurial intentions: A comparative study. *Revista de Economía Mundial*, (33), 73-103.
- [39] **Liu, M., Gorgievski, M. J., Qi, J., & Paas, F.** (2022). Perceived university support and entrepreneurial intentions: Do different students benefit differently? *Studies in Educational Evaluation*, 73, 101150.
- [40] **Maheshwari, G., Kha, K. L., & Arokiasamy, A. R. A.** (2023). Factors affecting students' entrepreneurial intentions: a systematic review (2005–2022) for future directions in theory and practice. *Management Review Quarterly*, 73(4), 1903-1970.
- [41] **Makarova, M. A., Depperu, D., Cambrea, D. R., & Sirianni, C.** (2024). Difference in antecedents of entrepreneurial intention between men and women: A study of Albanian university students. *Piccola Impresa/Small Business*(2).
- [42] **Manley, S. C., Hair, J. F., Williams, R. I., & McDowell, W. C.** (2021). Essential new PLS-SEM analysis methods for your entrepreneurship analytical toolbox. *International Entrepreneurship and Management Journal*, 17, 1805-1825.
- [43] **Martins, J. M., Shahzad, M. F., & Xu, S.** (2023). Factors influencing entrepreneurial intention to initiate new ventures: Evidence from university students. *Journal of Innovation and Entrepreneurship*, 12(1), 63.
- [44] **Mehtap, S., Caputo, A., & Pellegrini, M. M.** (2016). Encouraging female entrepreneurship in Jordan: environmental factors, obstacles and challenges. In *Entrepreneurship and management in an Islamic context* (pp. 207-225). Springer.
- [45] **Mumi, A.** (2020). Effectual entrepreneur and the use of social media for opportunity recognition. In *Understanding Social Media and Entrepreneurship: The Business of Hashtags, Likes, Tweets and Stories* (pp. 49-67). Springer.
- [46] **Murad, M., Othman, S. B., & Kamarudin, M. A. I. B.** (2024). The Effect of Science & Technology Park, Market Segregation and Commercialization Support on Female Entrepreneurship in Pakistan: A Moderating Role of Economic Climate. *Journal of Women's Entrepreneurship and Education*, (1-2), 40-65.
- [47] **Olarewaju, A. D., Gonzalez-Tamayo, L. A., Maheshwari, G., & Ortiz-Riaga, M. C.** (2023). Student entrepreneurial intentions in emerging economies: institutional influences and individual motivations. *Journal of Small Business and Enterprise Development*, 30(3), 475-500.
- [48] **Osmani, M., El-Haddadeh, R., Hindi, N. M., & Weerakkody, V.** (2022). The influence of creativity on the entrepreneurial intention of university female graduates: An SEM approach. *Industry and Higher Education*, 36(5), 556-567.

- [49] **Park, G., Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Kosinski, M., Stillwell, D. J., Ungar, L. H., & Seligman, M. E.** (2015). Automatic personality assessment through social media language. *Journal of personality and social psychology*, 108(6), 934.
- [50] **Ramadani, V., Hisrich, R. D., & Gërguri-Rashiti, S.** (2015). Female entrepreneurs in transition economies: insights from Albania, Macedonia and Kosovo. *World Review of Entrepreneurship, Management and Sustainable Development*, 11(4), 391-413.
- [51] **Şahin, F., Karadağ, H., & Tuncer, B.** (2019). Big five personality traits, entrepreneurial self-efficacy and entrepreneurial intention: A configurational approach. *International Journal of Entrepreneurial Behavior & Research*, 25(6), 1188-1211.
- [52] **Sánchez-Teba, E. M., Bermúdez-González, G., & Benítez-Márquez, M.-D.** (2025). The influence of environmental and cognitive factors on the entrepreneurial intentions of female students in the STEM field. *SAGE Open*, 15(2), 21582440251336645.
- [53] **Sarhan, M. L., & Ab. Aziz, K.** (2023). Can inclusive entrepreneurialism be a solution for unemployed female graduates? A study on inclusive entrepreneurial intention. *Social Sciences*, 12(3), 151.
- [54] **Shapero, A.** (1985). Why entrepreneurship? A worldwide perspective. *Journal of Small Business Management (pre-1986)*, 23(000004), 1.
- [55] **Stachl, C., Au, Q., Schoedel, R., Gosling, S. D., Harari, G. M., Buschek, D., Völkel, S. T., Schuwerk, T., Oldemeier, M., & Ullmann, T.** (2020). Predicting personality from patterns of behavior collected with smartphones. *Proceedings of the National Academy of Sciences*, 117(30), 17680-17687.
- [56] **Uljaj, G., Hiziroğlu, M., Hoxhalli, G., Kola, V., & Sejdinaj, E.** (2025). Organizational Research in the Western Balkans: A Comprehensive Bibliometric Review. *Human-Centric, Sustainable, and Resilient Organizations in the Digital Age*, 329-352.
- [57] **Zaman, S., Arshad, M., Sultana, N., & Saleem, S.** (2021). The effect of family business exposure on individuals' entrepreneurial intentions: an institutional theory perspective. *Journal of Family Business Management*, 11(4), 368-385.
- [58] **Zaremohzzabieh, Z., Ahrari, S., Krauss, S. E., Samah, A. A., Meng, L. K., & Ariffin, Z.** (2019). Predicting social entrepreneurial intention: A meta-analytic path analysis based on the theory of planned behavior. *Journal of Business Research*, 96, 264-276.

Article history: Received: December 25, 2025

Accepted: May 4, 2026

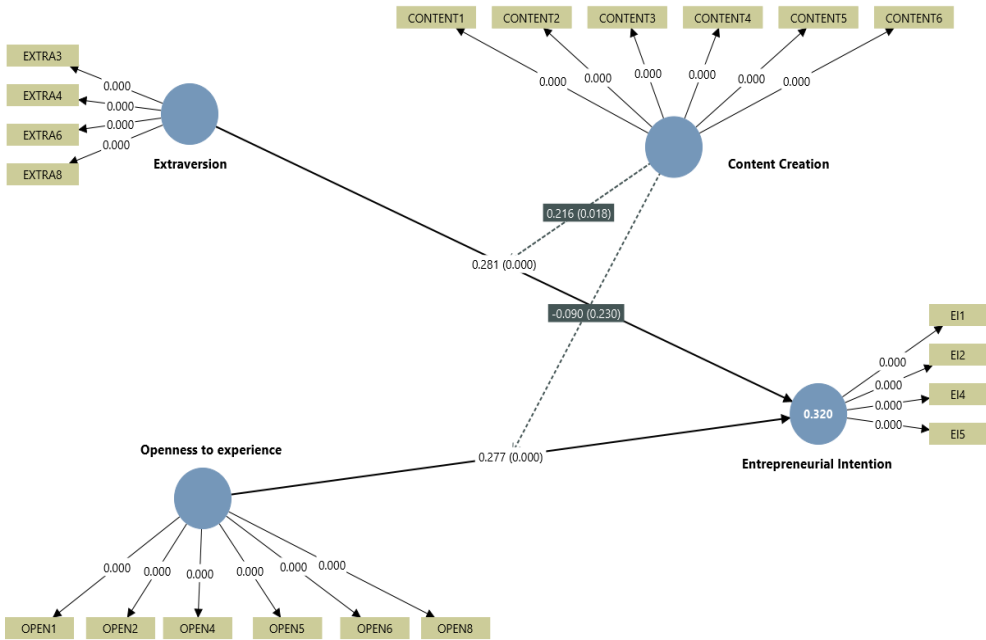
First Online: May 5, 2026

Appendix A. Measurement Instrument

Variable	Items	Questions	Reverse Coded	Reference
Extraversion	1	Is talkative	No	John & Srivastava (1999)
	2	Is reserved	Yes	
	3	Is full of energy	No	
	4	Generates a lot of enthusiasm	No	
	5	Tends to be quiet	Yes	
	6	Has an assertive personality	No	
	7	Is sometimes shy, inhibited	Yes	
	8	Is outgoing, social	No	
Openness to Experience	1	Is original, comes up with new ideas	No	
	2	Is curious about many different things	No	
	3	Is ingenious, a deep thinker	No	
	4	Has an active imagination	No	
	5	Is inventive	No	
	6	Values artistic, aesthetic experiences	No	
	7	Prefers work that is routine	Yes	
	8	Likes to reflect, play with ideas	No	
	9	Has a few artistic interests	Yes	
	10	Is sophisticated in art, music, or literature	No	

Source: Authors

Appendix B. Full Measurement and Structural Model



Source: Authors


DOI: 10.28934/jwee26.12.pp195-217

JEL: L26, J16, I23

ORIGINAL SCIENTIFIC PAPER

Objective vs. Perceived Digital Entrepreneurial Competencies of Female Students in Serbia



Nevena Veselinović¹ 

Ivana Domazet² 

Milena Lazić³ 

Institute of Economic Sciences, Digital Economics Department, Belgrade, Serbia

ABSTRACT

This study examines the relationship between perceived and objectively demonstrated digital entrepreneurial competence (DEC) among female higher education students in Serbia. The aim is to assess the extent of calibration between self-assessed and knowledge-based measures of DEC and to explore whether demonstrated competence and calibration differ by employment status and study level. The study applies a cross-sectional quantitative design using two complementary instruments: a self-assessment questionnaire and a knowledge-based test. The data originate from an online survey conducted between March and May 2025 among students in Serbian higher education institutions. The analysis focuses on the subsample of female students who completed both instruments (N = 62). The findings indicate a systematic tendency toward overestimation of DEC. Employed female students demonstrate higher objectively assessed competence, while Master's students show both higher demonstrated competence and smaller calibration gaps; however, these differences should be interpreted cautiously due to the overlap between employment status and study level in the subsample. The

¹ Corresponding author, e-mail: nevena.veselinovic@ien.bg.ac.rs

² E-mail: ivana.domazet@ien.bg.ac.rs

³ E-mail: milena.lazic@ien.bg.ac.rs

results underline the importance of combining subjective and objective measures in the assessment of DEC and suggest that dual-assessment approaches can help educators and policymakers identify both competence gaps and self-assessment bias.

KEYWORDS: *digital entrepreneurial competence, calibration gap, self-assessment, knowledge assessment, female students, higher education, Serbia*

Introduction

The digital transformation of entrepreneurship has reshaped how entrepreneurial opportunities are identified, evaluated, and scaled (Prando et al., 2024). In a technology-driven global economy, digital platforms, data, and artificial intelligence (AI) increasingly influence both the feasibility of new ventures and the speed at which business models evolve (Figura et al., 2025; Lazic et al., 2025; Moro-Visconti, 2024; Štavljanin et al., 2017). In this context, the ability to navigate digital environments is no longer an auxiliary skill, but a core element of entrepreneurial capability (Pennetta et al., 2023; Prokopenko et al., 2024). Research on the role of AI and big data in entrepreneurship suggests that these technologies are expanding the “opportunity space” and redefining how entrepreneurs create, deliver, and capture value (Obschonka & Audretsch, 2020). Related work on digital transformation further emphasizes that organizations and individuals operate within increasingly complex digital ecosystems shaped by data, analytics, and interdependent technological infrastructures (Pappas et al., 2018).

As these shifts accelerate, DEC have emerged as a key concept in entrepreneurship education and related policy debates (Prendes-Espinosa et al., 2021). DEC refers to an integrated set of abilities that enable individuals to recognize digitally enabled opportunities, create value through digital technologies, collaborate in virtual contexts, and innovate through technology-enabled processes (Ivanović et al., 2025; Prendes-Espinosa et al., 2021). Importantly, DEC sits at the intersection of entrepreneurial and digital competence development, combining entrepreneurship-oriented value creation and initiative with the applied use of digital skills and tools (Bacigalupo et al., 2016; Vuorikari et al., 2022). This makes DEC particularly relevant for higher education, where curricula are increasingly expected to cultivate transversal competences that prepare students for digitally mediated work and entrepreneurial pathways (Bacigalupo et al., 2016; Vuorikari et al., 2022; Popović Šević et al., 2025).

Despite the growing importance of DEC, gender disparities remain significant in digital entrepreneurship (Gharagozloo et al., 2023). Women continue to be underrepresented in technology-intensive and high-growth entrepreneurial trajectories, with constraints that include unequal access to networks and resources, gendered expectations about technological aptitude, and structural barriers within innovation systems (Guzman & Kacperczyk, 2019; Ranga & Etzkowitz, 2010). These patterns are consistent with broader evidence that the digital economy does not automatically translate into equal inclusion: rather, it can reproduce existing inequalities if capability development, access to support structures, and opportunity recognition processes remain uneven.

Increasing attention to the gender dimensions of digital transformation has revealed how digitalization and digital competences intersect with women's inclusion and labor market outcomes, highlighting the practical relevance of digital skills for employability and participation in changing work environments (Jevtić et al., 2023; Mingaleva & Shironina, 2021). Complementary studies also address digital competence development through an inclusion lens, including gender and disability-related dimensions, contributing to a richer understanding of who benefits from digital transformation and under what conditions (Lazić et al., 2023). However, empirical evidence focusing specifically on female students' DEC, and especially studies using dual assessment and calibration to contrast demonstrated and perceived competence, remains limited, leaving educators with an incomplete basis for designing targeted, evidence-informed interventions.

This study addresses that gap by examining DEC among female students through a dual measurement perspective that distinguishes between demonstrated competence (knowledge-based assessment) and perceived competence (self-assessment). This distinction is important because perceived competence can shape motivation, learning choices, and career intentions (Jeno et al., 2021), while demonstrated competence reflects the concrete capability base that education programs aim to develop (Ponomariovienè et al., 2025). By jointly analyzing these dimensions, the paper provides a more actionable diagnostic picture of competence development in women's entrepreneurship education. Specifically, the study investigates the level and structure of DEC among female students, the extent to which perceived and demonstrated DEC align, and whether

systematic differences in this alignment are associated with relevant student characteristics.

The paper proceeds as follows. The next section reviews research on DEC frameworks, metacognition, and gender dimensions. The methodology section describes the dual-assessment design and sample. Results are then reported, followed by a discussion of implications for women's entrepreneurship education.

Literature Review

The concept and measurement of DEC have progressed alongside broader European competence frameworks. EntreComp conceptualizes entrepreneurship as a combination of knowledge, skills, and attitudes required to create value in diverse contexts (McCallum et al., 2018), while DigComp provides a structured view of citizens' digital competences (Lazic et al., 2024), including updated examples of knowledge, skills, and attitudes relevant to contemporary digital environments (Bacigalupo et al., 2016; Vuorikari et al., 2022). Building on these foundations, the EmDigital model explicitly bridges entrepreneurial and digital competence development and has been used to frame digital entrepreneurship as a competence-based construct relevant for education and policy, including the development of measurement approaches (Prendes-Espinosa et al., 2021).

Within this context, recent work has emphasized that DEC should be considered multidimensional and context-sensitive (Park & Kim, 2024), especially in higher education settings where students' learning pathways, exposure to digital tools, and entrepreneurial intentions can differ significantly. Simović and Domazet (2021) reviewed frameworks for measuring university students' digital competences and highlighted the diversity of approaches and the importance of contextualizing measurement instruments. In related work, Simović and Domazet (2023) offered a research roadmap and preliminary evidence on what drives students' DEC, reinforcing the view that competence development reflects both individual characteristics and learning or experience environments. Empirical studies commonly operationalize DEC around opportunity recognition, digital value creation, virtual collaboration, and technology-enabled innovation (Prendes-Espinosa et al., 2021; Simović & Domazet, 2023). Consistent with this, the present study adopts four DEC dimensions: opportunity identification and

business modelling, personal and professional digital competences, digital value creation and collaboration, and innovation and risk management.

Empirical evidence further suggests that DEC varies according to student characteristics and experiences. A pilot study focusing on opportunity identification as a component of DEC documented cross-country insights for university students in Kuwait and Serbia (Simović et al., 2022). More broadly, evidence on university students indicates that socio-demographic and experience-related factors, including employment status and related exposure to practice environments, are associated with differences in DEC levels (Simović et al., 2023). Complementary research using DigComp-based approaches has also been applied to women's entrepreneurship in Serbia, mapping competence levels across selected digital competence areas and indicating that targeted competence development remains relevant for women's participation in digitally mediated entrepreneurial pathways (Ivanović et al., 2021).

A second relevant strand concerns the metacognitive side of competence, namely how objectively demonstrated competences relate to self-assessed abilities. Research on the Dunning-Kruger effect shows that limited competence can be accompanied by inflated self-assessments, partly because the skills needed to perform well are often also needed to evaluate one's performance accurately (Kruger & Dunning, 1999; Dunning, 2011). In education, calibration, defined as the alignment between self-assessed and actual performance, is linked to learning choices, persistence, and effective skill development (Hacker et al., 2000). Poor calibration can lead students to underinvest in skill development or overestimate their readiness for advanced tasks, with implications for both learning outcomes and career decisions. Related synthesis evidence also shows that self-evaluations are systematically biased in predictable ways across contexts, which supports treating perceived competence as an analytically distinct dimension rather than a direct proxy for demonstrated competence (Zell & Krizan, 2014). These insights motivate dual-assessment designs that jointly measure perceived and demonstrated competence when evaluating DEC.

The gender dimension further strengthens the relevance of examining DEC among female students. Women remain underrepresented in technology-intensive entrepreneurship (Arvidsson, 2025) and may face constraints linked to access to resources and networks, gendered expectations, and structural barriers in innovation systems (Doargajudhur et al., 2026; Galmangodage et al., 2025; Guzman & Kacperczyk, 2019; Ranga

& Etzkowitz, 2010). In Serbia, recent evidence has examined how digitalization and skills relate to women's labor market inclusion and how gender intersects with digital competence development in inclusion-focused contexts (Jevtić et al., 2023; Lazić et al., 2023). Broader discussions of digital workplace transformation similarly underline that women can face distinct challenges in adapting to digitalized work environments (Mingaleva & Shironina, 2021). In parallel, research on women's economic empowerment points to the relevance of financial inclusion, including its digital dimension, as part of the broader ecosystem that can support women's entrepreneurship and economic participation (Antonijević et al., 2024; Abdallah et al., 2025). Evidence on women entrepreneurs also indicates that entrepreneurship outcomes depend on a mix of technical, interpersonal, and planning-related competences, reinforcing the value of competence-based diagnostics in women's entrepreneurship education (Marín et al., 2024).

Taken together, the literature points to two limitations. First, many DEC studies rely primarily on self-report measures, which may not capture demonstrated competence. Second, fewer studies focus on female students and explicitly examine whether perceived and demonstrated DEC align, and whether this alignment varies by study level and employment-related experience. These gaps motivate a dual-assessment approach that distinguishes perceived from demonstrated competence and quantifies calibration.

Educational progression from the Bachelor to Master's level typically entails deeper engagement with subject matter, more complex analytical tasks, and greater opportunities for reflective learning and feedback. Thus, Master's-level study may be associated with stronger domain-specific knowledge as well as more developed metacognitive awareness, that is, the ability to appraise one's own capabilities more accurately (Dunning, 2011). Accordingly, Master's students may exhibit both higher demonstrated competence and more accurate calibration between perceived and actual abilities. In parallel, employment alongside studies can provide practical exposure to digital tools and business processes, which may be associated with higher competence levels and more realistic self-evaluation (Simović et al., 2023; Slijepčević & Krstić, 2020).

Addressing these gaps, the present study examines DEC among female students using a dual measurement perspective that distinguishes demonstrated competence (knowledge-based assessment) from perceived

competence (self-assessment), quantifies the calibration gap, and explores how objective DEC and calibration patterns vary by study level and employment status. These theoretical considerations lead to four testable hypotheses.

Building on the above literature, the hypotheses are formulated to reflect competence calibration dynamics and the expected differences by experience and educational level:

- H1:** Female students, on average, overestimate their DEC, such that the calibration gap is positive.
- H2:** Employed female students demonstrate higher objectively assessed DEC than non-employed female students.
- H3:** Female students enrolled in Master's programmes exhibit higher objectively assessed DEC than female students enrolled in Bachelor-level programmes.
- H4:** Female students enrolled in Master's programmes exhibit smaller calibration gaps than female students enrolled in Bachelor-level programmes.

Methodology

The study uses a cross-sectional quantitative design. DEC is measured with two complementary instruments: a knowledge-based assessment (KA), which captures objectively demonstrated competence, and a self-assessment questionnaire (SA), which captures students perceived competence. Using both instruments allows estimation of the calibration gap between perceived and demonstrated competence, which is the central outcome variable of the analysis.

The data originate from a larger online survey on DEC conducted among students in Serbian higher education. The survey was administered between March and May 2025 and distributed across public and private higher education institutions in Serbia, targeting students enrolled in Bachelor's and Master's programmes. Data collection was organized to ensure broad institutional representation, and the gender composition of the overall sample was actively monitored throughout the survey period.

This analysis focuses on the subsample of female students who completed both KA and SA instruments ($N = 62$). Limiting the analysis to

female participants allows for a focused examination of competence and calibration patterns among women in higher education. This focus is motivated by evidence of gender gaps in high-growth entrepreneurship and access to external finance (Guzman & Kacperczyk, 2019), as well as evidence that women's digital knowledge and skills are relevant for inclusion and employment outcomes in a digitalizing labor market (Jevtić et al., 2023). Table 1 summarizes the characteristics of the female analytical sample. Most respondents are enrolled in Bachelor's programmes (82.3%), while 17.7% are in a Master's programme. Overall, 40.3% of respondents are employed alongside their studies. Importantly, employment status and study level overlap in this subsample: all Master's students report being employed, whereas among Bachelor's students 27.5% are employed. Accordingly, study-level comparisons (Bachelor's vs. Master's) are interpreted as descriptive contrasts rather than estimates of isolated educational effects. Percentages reported in Table 1 are calculated relative to the full female sample unless stated otherwise.

Table 1: Sample characteristics

Characteristic	Category	n	% of sample
Level of study	Bachelor	51	82.3
	Master	11	17.7
Employment status (overall)	Unemployed	37	59.7
	Employed	25	40.3
Employment by level of study	Unemployed (Bachelor)	37	59.7
	Employed (Bachelor)	14	22.6
	Unemployed (Master)	0	0.0
	Employed (Master)	11	17.7
Age (years)	Mean (SD)	23.48 (5.79)	-
	Range (min-max)	18 - 46	-

Source: Authors' calculation

Item-level responses from SA and KA were aggregated at the respondent level using a unique email identifier. In the KA, responses were scored using an answer key (1 if the selected option matched the key, 0 otherwise), and demonstrated competence was computed as the respondent's mean score across items (0-1). To ensure comparability with SA, the KA score was linearly rescaled to the 1-4 metric:

$$KA_i^{scaled} = 1 + 3 \times KA_i \quad (1)$$

Perceived competence was computed as the mean of SA item responses (1-4). Dimension-specific scores for both SA and KA were computed analogously using the four DEC dimensions: (1) opportunity identification and business modelling (Dim 1), (2) personal/professional digital competences (Dim 2), (3) digital value creation and collaboration (Dim 3), and (4) innovation and risk management (Dim 4).

The calibration gap was operationalized as:

$$GAP_i = SA_i - KA_i^{scaled} \quad (2)$$

Positive values indicate overestimation and negative values indicate underestimation.

Hypothesis testing follows the measurement logic of the study. H1 is evaluated using a one-sample t-test of whether the mean overall calibration gap differs from zero. H2 is evaluated by comparing objectively assessed DEC (KA, overall and by dimension) across employment status (employed vs. unemployed). H3 and H4 are evaluated by comparing KA scores and calibration gaps, respectively, across study level (Bachelor vs. Master's). Given the overlap between study level and employment status in the female subsample, study-level comparisons are interpreted as descriptive contrasts. As an ancillary check, Bachelor-Master comparisons were also repeated within the employed-only subsample. Alongside the main parametric tests, distributional assumptions were assessed using the Shapiro-Wilk normality test and Levene's test for homogeneity of variance. As robustness checks, between-group results were cross-checked using Mann-Whitney U tests. Effect sizes were reported as Cohen's d with 95% confidence intervals, interpreted using conventional benchmarks (0.2 small, 0.5 medium, 0.8 large).

All statistical tests are two-tailed and evaluated at the 5% significance level, with effect sizes reported to complement p-values. Analyses were conducted in Stata 14. Participation in the online survey was voluntary and anonymous, and respondents provided informed consent prior to completing the instruments.

Results

Table 2 reports descriptive statistics for KA, SA, and the calibration gaps. For KA, mean scores across the four DEC dimensions are approximately 2.0-2.2 on the 1-4 scale (Dim 1 = 2.09; Dim 2 = 2.20; Dim 3 = 2.21; Dim 4 = 2.01), with an overall KA mean of 2.12 (SD = 0.51), indicating moderate levels of objectively tested DEC among the female students. In contrast, SA means are consistently higher, ranging from 2.58 to 2.83 across dimensions, with an overall SA mean of 2.72 (SD = 0.56). Calibration gaps are positive in all dimensions (0.57-0.72 points) and average 0.60 (SD = 0.71). The largest gaps emerge in Dim 1 (opportunity identification and business modelling; Gap = 0.72) and Dim 3 (digital value creation and collaboration; Gap = 0.61), while the smallest gap is observed in Dim 2 (personal and professional digital competences; Gap = 0.57). Although a few students slightly underestimate their competences (negative minimum values), the overall pattern indicates systematic overestimation of DEC.

Table 2: Descriptive Statistics for DEC scores

Variable	Mean	SD	Min	Max
KA				
Dim 1	2.09	0.79	1.00	4.00
Dim 2	2.20	0.48	1.00	3.18
Dim 3	2.21	0.64	1.00	3.50
Dim 4	2.01	0.59	1.00	3.25
KA Total	2.12	0.51	1.07	3.13
SA				
Dim 1	2.81	0.50	1.83	4.00
Dim 2	2.77	0.54	1.18	3.64
Dim 3	2.83	0.68	1.00	4.00
Dim 4	2.58	0.66	1.00	4.00
SA Total	2.72	0.56	1.16	3.67
Calibration gap (SA - KA)				
Dim 1	0.72	0.89	-1.17	2.33
Dim 2	0.57	0.62	-0.82	1.82
Dim 3	0.61	0.85	-1.17	2.58
Dim 4	0.57	0.88	-1.56	2.38
Gap Total	0.60	0.71	-0.80	2.11

Source: Authors' calculation

Table 3 compares DEC scores between female students who are employed alongside their studies and those who are not. Employed students obtain significantly higher demonstrated competence scores overall (KA Total: $M = 2.31$, $SD = 0.52$) compared to unemployed students ($M = 1.99$, $SD = 0.48$; $t = 2.47$, $p = 0.016$). At the dimensional level, this advantage is most pronounced in Dim 3 (digital value creation and collaboration; $M = 2.50$ vs. $M = 2.02$, $p = 0.003$) and Dim 4 (innovation, risk, and improvement by digital technology; $M = 2.19$ vs. $M = 1.89$, $p = 0.048$), with a marginal difference in Dim 1 (opportunity identification and business modelling; $p = 0.054$).

In contrast, self-assessed competence does not differ significantly by employment status (SA Total: $M = 2.74$ vs. $M = 2.71$, $p = 0.837$). Similarly, the overall calibration gap does not vary significantly between employed and unemployed students (Gap Total: $M = 0.43$ vs. $M = 0.72$, $p = 0.121$), although unemployed students show a tendency toward larger overestimation. A significant difference does emerge for the Dim 4 calibration gap ($M = 0.29$ vs. $M = 0.76$, $p = 0.040$), indicating that employed women exhibit smaller calibration gaps in innovation- and technology-related competences. To maintain focus on the most theoretically relevant contrasts and avoid overloading the presentation with multiple tests, Table 3 reports KA scores for all four dimensions but only total SA and gap scores, plus the single dimensional gap (Dim 4) that shows a statistically significant difference by employment status.

Table 3: Comparison of DEC scores by employment status

Variable	Unemployed	Employed	t	p
	M (SD)	M (SD)		
KA Total	1.99 (0.48)	2.31 (0.52)	-2.47	0.016*
Dim 1	1.93 (0.77)	2.32 (0.78)	-1.95	0.054*
Dim 2	2.15 (0.49)	2.28 (0.46)	-1.02	0.310
Dim 3	2.02 (0.58)	2.50 (0.65)	-3.07	0.003*
Dim 4	1.89 (0.53)	2.19 (0.63)	-2.02	0.048*
SA Total	2.71 (0.59)	2.74 (0.53)	-0.21	0.837
Gap Total	0.72 (0.69)	0.43 (0.72)	1.57	0.121
Dim 4	0.76 (0.79)	0.29 (0.95)	2.10	0.040*

Note. * $p < 0.05$ (two-tailed).

Source: Authors' calculation

Table 4 compares DEC scores between Bachelor's and Master's students. Master's students achieve significantly higher demonstrated competence scores overall (KA Total: $M = 2.41$, $SD = 0.57$) compared to Bachelor students ($M = 2.06$, $SD = 0.49$; $t = 2.13$, $p = 0.037$). This difference is particularly evident in Dim 1 (opportunity identification and business modelling; $p = 0.018$) and Dim 3 (digital value creation and collaboration; $p = 0.010$), with a marginal difference in Dim 4 ($p = 0.056$).

Self-assessed competence does not differ significantly by study level (SA Total: $p = 0.449$). However, the overall calibration gap is substantially smaller among Master's students ($M = 0.19$, $SD = 0.64$) than among Bachelor students ($M = 0.69$, $SD = 0.70$; $p = 0.034$). Significant differences in calibration gaps also emerge in Dim 1 ($p = 0.022$), Dim 3 ($p = 0.024$), and Dim 4 ($p = 0.011$), indicating that Master's students combine higher objectively assessed DEC with more realistic self-evaluations. Because all Master's students in this subsample are employed, whereas only a minority of Bachelor's students are employed, study-level differences should be interpreted as descriptive contrasts that may reflect both educational progression and employment-related experience.

Table 4: Comparison of DEC scores by study level

Variable	Bachelor	Master	t	p
	M (SD)	M (SD)		
KA Total	2.06 (0.49)	2.41 (0.57)	-2.13	0.037*
Dim 1	1.98 (0.73)	2.59 (0.89)	-2.43	0.018*
Dim 2	2.20 (0.48)	2.19 (0.49)	0.08	0.935
Dim 3	2.12 (0.61)	2.66 (0.64)	-2.65	0.010*
Dim 4	1.94 (0.55)	2.31 (0.68)	-1.95	0.056
SA Total	2.75 (0.58)	2.60 (0.44)	0.76	0.449
Gap Total	0.69 (0.70)	0.19 (0.64)	2.17	0.034*
Dim 1	0.84 (0.83)	0.17 (1.00)	2.35	0.022*
Dim 3	0.73 (0.84)	0.09 (0.76)	2.32	0.024*
Dim 4	0.70 (0.85)	-0.04 (0.81)	2.64	0.011*

Note. * $p < 0.05$ (two-tailed).

Source: Authors' calculation

All Master's students in the sample are employed (Table 1), whereas only 27.5% of Bachelor students hold jobs. This overlap implies that the observed study-level differences may reflect both educational progression

and employment-related experience. Accordingly, Bachelor-Master comparisons are interpreted as descriptive contrasts rather than isolated educational effects. Notably, Master’s students exhibit smaller calibration gaps while showing no statistically significant differences in self-assessed competence (SA Total) (Table 4), which is consistent with the possibility of metacognitive gains beyond employment experience alone; however, this interpretation remains tentative given the sample structure.

To partially address this overlap, we conducted an ancillary employed-only comparison between employed Master’s students (n = 11) and employed Bachelor students (n = 14) (Table 4a). In this employed-only subsample, Master’s students show a modest advantage in demonstrated competence (KA Total: M = 2.41, SD = 0.57 vs. M = 2.23, SD = 0.49), but this difference is not statistically significant (t = 0.87, p = 0.394; Mann-Whitney z = 0.99, p = 0.323; Cohen’s d = 0.35). The calibration gap is also numerically smaller among employed Master’s students (Gap Total: M = 0.19, SD = 0.64) than among employed Bachelor students (M = 0.62, SD = 0.75), although this contrast does not reach conventional significance levels given the small group sizes (t = 1.50, p = 0.148; Mann-Whitney z = 1.48, p = 0.139; Cohen’s d = -0.60). Overall, the employed-only comparison is directionally consistent with the main study-level patterns, especially for calibration, but inference is limited by low statistical power and by the non-independence of education and employment in this subsample.

Table 4a: Ancillary employed-only comparison of DEC outcomes

Variable	Bachelor (employed)	Master (employed)	t	p	z (Mann-Whitney)	p
	M (SD)	M (SD)				
KA Total	2.23 (0.49)	2.41 (0.57)	-0.87	0.394	-0.99	0.323
Gap Total	0.62 (0.75)	0.19 (0.64)	1.50	0.148	1.48	0.139

Note. Two-tailed tests. z refers to the Mann-Whitney U test.

Source: Authors’ calculation

Table 5 summarizes robustness checks and complementary statistics. Shapiro-Wilk tests do not indicate departures from normality for the key variables (Panel A). Levene’s tests do not suggest heterogeneity of variances for KA_scaled and Gap_overall (Panel A). Mann-Whitney U tests confirm the main patterns. KA_scaled differs by employment status (z = -2.29, p = 0.022) and Gap_overall differs by study level (z = 2.23, p =

0.026), while the study-level difference in KA_scaled is borderline ($z = -1.96, p = 0.050$) (Panel B). Effect sizes are in the medium to medium-large range (Panel C). The mean overall calibration gap is significantly greater than zero ($t = 6.65, p < 0.001$), supporting systematic overestimation in the sample (Panel D).

Table 5: Robustness checks and effect sizes

Panel A: Normality and homogeneity of variance				
Variable	Shapiro-Wilk W	p	Levene's W	p
KA_scaled	0.98	0.41	0.77	0.38
SA_overall	0.98	0.41	-	-
Gap_overall	0.99	0.71	0.37	0.54

Panel B: Non-parametric tests (Mann-Whitney U)			
Comparison	Variable	z	p
Employment (Unemp. vs Emp.)	KA_scaled	-2.29	0.022*
Study level (Bachelor vs Master)	KA_scaled	-1.96	0.050
Study level (Bachelor vs Master)	Gap_overall	2.23	0.026*

Panel C: Effect sizes (Cohen's d)				
Comparison	Variable	d	95% CI	Size
Employment (Unemp. vs Emp.)	KA_scaled	0.64	[0.12, 1.16]	Medium
Study level (Bachelor vs Master)	KA_scaled	0.71	[0.04, 1.37]	Medium-large
Study level (Bachelor vs Master)	Gap_overall	0.72	[0.05, 1.38]	Medium-large

Panel D: One-sample t-test (Is gap ≠ 0?)				
Variable	Mean	t	df	p
Gap_overall	0.60	6.65	61	<0.001***

Note: * $p < 0.05$, *** $p < 0.001$. Effect size interpretation: 0.2 = small, 0.5 = medium, 0.8 = large (Cohen, 1988).

Source: Authors' calculation

Taken together, the results support H1 and H2 and provide evidence broadly consistent with H3 and H4. H1 is supported by a positive overall calibration gap (Gap_overall, $M = 0.60; t = 6.65, p < 0.001$; Tables 2 and 5). H2 is supported by higher demonstrated competence among employed

students (KA Total, $M = 2.31$ vs. 1.99 , $p = 0.016$; Table 3), and the non-parametric test corroborates this difference (Table 5, Panel B). Study-level differences are directionally consistent with H3 and H4. Master's students show higher KA scores and smaller calibration gaps than Bachelor students (Table 4). The study-level gap difference remains significant in the Mann-Whitney test (Table 5, Panel B), whereas the study-level KA difference is borderline in the non-parametric check ($p = 0.050$). However, because all Master's students in this subsample are employed, these Bachelor-Master comparisons are interpreted as descriptive contrasts rather than isolated educational effects. An employed-only ancillary comparison (Table 4a) shows the same directions, especially for calibration, but it is underpowered for definitive inference.

Discussion

The finding that female students systematically overestimate their DEC (H1) is consistent with metacognitive accounts emphasized in the Dunning-Kruger literature (Kruger & Dunning, 1999; Dunning, 2011) and extends evidence on self-assessment miscalibration to the domain of DEC. The positive calibration gap ($M = 0.60$) indicates that female students' self-assessed capabilities exceed their objectively demonstrated knowledge by more than half a scale point on average. This pattern aligns with prior evidence that self-evaluations show only moderate accuracy and are susceptible to bias and contextual moderators (Zell & Krizan, 2014; Zell et al., 2020). Notably, the magnitude and consistency of overestimation across all four DEC dimensions suggest that calibration challenges may be particularly salient in this competence domain. The largest gaps emerged in opportunity identification and business modeling (Dim 1: Gap = 0.72) and digital value creation and collaboration (Dim 3: Gap = 0.61), competence areas central to entrepreneurial value creation that may reflect uneven curricular emphasis or differential exposure in undergraduate business programs. These findings also align with recent work treating DEC as multidimensional and context-sensitive (Simović & Domazet, 2023), suggesting that calibration may vary systematically across distinct DEC facets.

The association between employment status and demonstrated competence (H2) is consistent with the contemporary literature (Ivanović et al., 2025) and aligns with evidence showing that socio-demographic and

experience-related factors significantly shape DEC levels (Simović et al., 2023). Employed students achieved significantly higher objectively assessed DEC, with the strongest advantages in digital value creation and collaboration (Dim 3) and innovation, risk, and improvement (Dim 4), suggesting that work experience provides domain-specific exposure to digital tools and collaborative processes rather than broad-based competence gains. However, employment was not associated with smaller overall calibration gaps, although employed students showed more accurate calibration in innovation and technology-related competence (Dim 4). This indicates that workplace experience may improve metacognitive accuracy in directly applicable domains without generalizing across all DEC facets. In contrast, Master's-level students exhibited smaller calibration gaps across multiple dimensions, implying that graduate-level study and employment may foster metacognitive accuracy through different mechanisms.

The finding that Master's students demonstrate higher objectively assessed DEC (H3) and substantially smaller calibration gaps (H4) is consistent with the view that increased expertise and exposure to performance feedback can support more accurate self-assessment, while miscalibration reflects metacognitive limits (Dunning, 2011). Master's students scored higher on demonstrated competence (KA Total: $M = 2.41$ vs. 2.06 ; $p = 0.037$) and showed markedly smaller overall calibration gaps ($M = 0.19$ vs. 0.69 ; $p = 0.034$), with gap differences evident in three of four dimensions, especially Dim 3, where calibration was close to zero (Gap = 0.09). While some recent evidence reports higher digital entrepreneurial competencies among Bachelor's students (Ivanović et al., 2025), the present results should be interpreted in light of sample composition: all Master's students in the analyzed subsample were employed, conflating study level with work experience. Restricting the comparison to employed respondents yields directionally consistent results, although limited statistical power precludes firm conclusions.

More broadly, the results highlight calibration accuracy as a distinct outcome alongside demonstrated and perceived competence. Self-assessed competence did not differ significantly by either employment status or study level, whereas objectively assessed competence and calibration gaps did, reinforcing that perceived competence should be treated as analytically distinct rather than a proxy for demonstrated competence (Zell & Krizan, 2014).

The findings have direct implications for entrepreneurship educators and curriculum designers. The systematic overestimation among female students suggests that courses should include elements that improve calibration accuracy, not only competence. Practical options include low-stakes formative tests with clear performance criteria, rapid feedback, and structured reflection in which students compare self-ratings with objective benchmarks. Because gaps were largest in opportunity identification and business modeling and in digital value creation and collaboration, these domains warrant more explicit instruction, repeated practice, and feedback.

Smaller gaps among Master's students suggest that learning environments with intensive feedback and project-based work may support more realistic self-evaluation. However, since Master's students in this subsample were also employed, the differences should be interpreted cautiously. For students, calibration accuracy matters for career planning and entrepreneurial entry because realistic self-assessment helps identify skill deficits early and target learning investments. Finally, the dual-assessment approach offers a simple diagnostic tool. Using both knowledge tests and self-assessments allows educators to detect competence deficits and calibration bias and to tailor interventions by DEC dimension (Guzman & Kacperczyk, 2019; Ivanović et al., 2021; Jevtić et al., 2023; Simović & Domazet, 2023).

Conclusion

This study demonstrates that female students tend to systematically overestimate their DEC, while objectively demonstrated competence is higher among employed students and those enrolled in Master's studies. Beyond these group differences, a key contribution of the study lies in showing that calibration accuracy represents a distinct analytical outcome, conceptually and empirically separate from both perceived and demonstrated competence. The results suggest that students may possess similar levels of knowledge or self-confidence yet differ substantially in how accurately they judge their own capabilities. By jointly measuring SA and KA DEC and explicitly quantifying the calibration gap between them, the dual-assessment design offers a practical and theoretically grounded diagnostic framework for entrepreneurship and digital skills education. It provides evidence that competence development should be evaluated not

only in terms of what students know and what they believe they know, but also in terms of how well these two perspectives align.

At the same time, the findings must be interpreted considering several limitations. The sample size is relatively small and restricted to female students, which is appropriate for the study's analytical focus but limits broader generalizability. The cross-sectional design precludes causal inference regarding the effects of employment status or graduate-level education on either competence or calibration. Moreover, in this subsample all Master's students were also employed, which conflates study level with work experience and prevents disentangling educational effects from those related to labor-market exposure. Measurement-related constraints should also be acknowledged. Although rescaling procedures enhance comparability between KA and SA measures, the observed calibration gap remains sensitive to test difficulty, the breadth and balance of item coverage across DEC dimensions, and potential heterogeneity in how respondents interpret self-assessment statements.

Future research can extend these findings in several important directions. Longitudinal designs would allow examination of how calibration accuracy develops over time and whether improvements are associated with specific educational milestones, instructional methods, or workplace experiences. Experimental and quasi-experimental studies could test targeted pedagogical interventions, such as structured feedback, peer benchmarking, formative assessment, and reflective calibration training, particularly in competence dimensions where miscalibration is most pronounced. Larger and more diverse samples should include male students, multiple institutions, and cross-country settings to assess the robustness and contextual sensitivity of calibration patterns. Future work should also link calibration accuracy to downstream outcomes, such as entrepreneurial intentions, academic performance, and early venture behavior, to clarify when miscalibration primarily acts as a barrier to learning and effective decision-making, and when it may reflect adaptive confidence in early-stage entrepreneurial development.

Acknowledgments

The research presented in this paper was funded by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia under contract number 451-03-33/2026-03.

References

- [1] **Abdallah, F., Antonijević, M., & Domazet, I.** (2025a). Determinants of women's financial inclusion: Evidence from the Gulf and the Western Balkan region. *Journal of Women's Entrepreneurship and Education*, (3-4), 95-112. <https://doi.org/10.28934/jwee25.34.pp95-112>
- [2] **Antonijević, M., Domazet, I., Kojić, M., & Simović, V.** (2024). Financial inclusion - A driving force for women's entrepreneurship development. *Journal of Women's Entrepreneurship and Education*, (3-4), 73-92. <https://doi.org/10.28934/jwee24.34.pp73-92>
- [3] **Arvidsson, H. G.** (2025). Empowered but Undersupported: Female Entrepreneurship in the IT Industry across the Nordic and Baltic Regions. *Zenodo (CERN European Organization for Nuclear Research)*. <https://doi.org/10.5281/zenodo.15383996>
- [4] **Bacigalupo, M., Kamylyis, P., Punie, Y., & Van den Brande, G.** (2016). *EntreComp: The Entrepreneurship Competence Framework*. Publications Office of the European Union. <https://doi.org/10.2791/593884>
- [5] **Doargajudhur, M., Hosanoo, Z., Rughoobur-Seetah, S., & Lichy, J.** (2026). Digital entrepreneurship and gendered boundaries: Technology, work–life conflict, and well-being. *Gender, Work & Organization*. <https://doi.org/10.1111/gwao.70090>
- [6] **Dunning, D.** (2011). The Dunning–Kruger effect: On being ignorant of one's own ignorance. In *Advances in experimental social psychology* (pp. 247–296). Elsevier. <https://doi.org/10.1016/b978-0-12-385522-0.00005-6>
- [7] **Figura, M., Juracka, D., & Impola, J.** (2025). From Idea to Impact: The role of Artificial intelligence in the transformation of business models. *Management Dynamics in the Knowledge Economy*, 13(2), 120–147. <https://doi.org/10.2478/mdke-2025-0008>
- [8] **Galmangodage, L., Yu, A., & Costanzo, L.** (2025). Not ready yet: Why accelerators may not close the gender gap in entrepreneurship as expected. *Gender, Work & Organization*. <https://doi.org/10.1111/gwao.13238>
- [9] **Gharagozloo, M. M. M., Bajestani, M. F., Gharagozloo, A. M., Sedeh, A. A., & Askarzadeh, F.** (2023). The role of digitalization in decreasing gender gap in opportunity driven entrepreneurship. *Information Technology for Development*, 29(4), 645–664. <https://doi.org/10.1080/02681102.2023.2237470>
- [10] **Guzman, J., & Kacperczyk, A.** (2019). Gender gap in entrepreneurship. *Research Policy*, 48(7), 1666–1680. <https://doi.org/10.1016/j.respol.2019.03.012>
- [11] **Hacker, D. J., Bol, L., Horgan, D. D., & Rakow, E. A.** (2000). Test prediction and performance in a classroom context. *Journal of Educational Psychology*, 92(1), 160–170. <https://doi.org/10.1037/0022-0663.92.1.160>

- [12] **Ivanović, D., Radenković, S. D., Hanić, H., Simović, V., & Kojić, M.** (2025). A novel approach to measuring digital entrepreneurial competences among university students. *The International Journal of Management Education*, 23(2), 101180. <https://doi.org/10.1016/j.ijme.2025.101180>
- [13] **Ivanovic, D., Simovic, V., Domazet, I., & Antonijevic, M.** (2021). Average matching levels for two digcomp competence areas of the female entrepreneurs in Serbia. *Journal of Women's Entrepreneurship and Education*, (3-4), 42–60. <https://doi.org/10.28934/jwee21.34.pp42-60>
- [14] **Jeno, L. M., Nylehn, J., Hole, T. N., Raaheim, A., Velle, G., & Vandvik, V.** (2021). Motivational determinants of students' academic functioning: the role of autonomy-support, autonomous motivation, and perceived competence. *Scandinavian Journal of Educational Research*, 67(2), 194–211. <https://doi.org/10.1080/00313831.2021.1990125>
- [15] **Jevtić, B., Vucekovic, M., & Tasić, S.** (2023). The effects of digitalization and skills on women's labor market inclusion - Serbian gap study. *Journal of Women's Entrepreneurship and Education*, 58–75. <https://doi.org/10.28934/jwee23.pp58-75>
- [16] **Kruger, J., & Dunning, D.** (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77(6), 1121–1134. <https://doi.org/10.1037/0022-3514.77.6.1121>
- [17] **Lazic, M., Simovic, V., & Domazet, I.** (2024). Digital competences and disability: a contribution to a more inclusive digital society. *Universal Access in the Information Society*, 24(2), 1623–1642. <https://doi.org/10.1007/s10209-024-01165-4>
- [18] **Lazic, M., Simovic, V., Domazet, I., & Abdallah, F.** (2025). Predictive Insights into Digital Competencies: A Data-Driven Approach to Inclusion. *Journal of Technology in Human Services*, 43(4), 271–300. <https://doi.org/10.1080/15228835.2025.2491344>
- [19] **Lazić, M., Vukmirović, V., Banović, J., Simović, V., & Paunović, M.** (2023). Digital competences as a precondition for an inclusive digital economy - is there a gender gap among persons with disabilities in Serbia? *Journal of Women's Entrepreneurship and Education*, (1-2), 51–71. <https://doi.org/10.28934/jwee23.12.pp51-71>
- [20] **McCallum, E., Weicht, R., McMullan, L., & Price, A.** (2018). *EntreComp into Action - Get inspired, make it happen: A user guide to the European Entrepreneurship Competence Framework*. JRC Publications Repository. <https://doi.org/10.2760/574864>
- [21] **Mingaleva, Z., & Shironina, E.** (2021). Gender aspects of digital workplace transformation. *Journal of Women's Entrepreneurship and Education*, (1-2), 1–17. <https://doi.org/10.28934/jwee21.12.pp1-17>

- [22] **Moro-Visconti, R.** (2024). Digital networking and artificial intelligence-driven startups. In *Startup valuation* (pp. 241–291). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-77469-0_6
- [23] **Obschonka, M., & Audretsch, D. B.** (2019). Artificial intelligence and big data in entrepreneurship: A new era has begun. *Small Business Economics*, 55(3), 529–539. <https://doi.org/10.1007/s11187-019-00202-4>
- [24] **Pappas, I. O., Mikalef, P., Giannakos, M. N., Krogstie, J., & Lekakos, G.** (2018). Big data and business analytics ecosystems: Paving the way towards digital transformation and sustainable societies. *Information Systems and E-Business Management*, 16(3), 479–491. <https://doi.org/10.1007/s10257-018-0377-z>
- [25] **Park, J., & Kim, S.** (2025). Entrepreneurial Competencies in the Era of Digital Transformation: A Systematic Literature review. *Digital*, 5(4), 46. <https://doi.org/10.3390/digital5040046>
- [26] **Pavlovic, D., Bjelica, D., & Domazet, I.** (2019). What characteristics in the youth labour market of Serbia are likely to result in employment? *Stanovništvo*, 57(2), 35–47. <https://doi.org/10.2298/stnv190823006p>
- [27] **Pennetta, S., Anglani, F., & Mathews, S.** (2023). Navigating through entrepreneurial skills, competencies and capabilities: a systematic literature review and the development of the entrepreneurial ability model. *Journal of Entrepreneurship in Emerging Economies*, 16(4), 1144–1182. <https://doi.org/10.1108/jee-09-2022-0257>
- [28] **Ponomariovienė, J., Jakavonytė-Staškuvienė, D., & Torterat, F.** (2025). Implementing Competency-Based Education Through the Personalized Monitoring of Primary Students' Progress and Assessment. *Education Sciences*, 15(2), 252. <https://doi.org/10.3390/educsci15020252>
- [29] **Popović Šević, N., Šević, A., Slijepčević, M., & Krstić, J.** (2025). AI adoption in higher education: Exploring attitudes and perceived benefits between users and non-users. *Online Journal of Communication and Media Technologies*, 15(4), Article e202528. <https://doi.org/10.30935/ojcm/17246>
- [30] **Prando, L. T., Schmitt, J., De Souza Mendonça, A. K., Rosa, F. S., Lunkes, R. J., Bornia, A. C., & De Andrade, D. F.** (2024). Entrepreneurial potential in digital transformation: scale development using item response theory. *European Journal of Innovation Management*, 28(7), 2784–2814. <https://doi.org/10.1108/ejim-06-2024-0727>
- [31] **Prendes-Espinosa, P., Solano-Fernández, I. M., & García-Tudela, P. A.** (2021). EmDigital to promote digital entrepreneurship: The relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 63. <https://doi.org/10.3390/joitmc7010063>
- [32] **Prokopenko, O., Jarvis, M., Bielialov, T., Omelyanenko, V., & Malheiro, T.** (2024). The future of entrepreneurship: Bridging the innovation skills gap through digital learning. In *Innovations in industrial engineering III* (pp.

- 206–230). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-61582-5_18
- [33] **Ranga, M., & Etzkowitz, H.** (2010). Athena in the world of techne: The gender dimension of technology, innovation and entrepreneurship. *Journal of Technology Management & Innovation*, 5(1). <https://doi.org/10.4067/s0718-27242010000100001>
- [34] **Reina Marín, Y., Sánchez Bardales, E., Carrasco Rituay, A. M., Cruz Caro, O., & Chávez Santos, R.** (2024). Empowering entrepreneurial success through the development of interpersonal skills and business plans in women entrepreneurs. *Journal of Women's Entrepreneurship and Education*, (3-4), 249-276. <https://doi.org/10.28934/jwee24.34.pp249-276>
- [35] **Simović, V. M., & Domazet, I. S.** (2021). An overview of the frameworks for measuring the digital competences of college students: A European perspective. In T. Niemann et al. (Eds.), *Stagnancy Issues and Change Initiatives for Global Education in the Digital Age* (pp. 259–282). IGI Global. <https://doi.org/10.4018/978-1-7998-4993-3.ch012>
- [36] **Simović, V. M., & Domazet, I. S.** (2023). What drives the levels of digital entrepreneurial competences of university students? A research roadmap and preliminary results. In A. Dias Daniel & C. I. Fernandes (Eds.), *Female Entrepreneurship as a Driving Force of Economic Growth and Social Change* (pp. 55–72). IGI Global. <https://doi.org/10.4018/978-1-6684-7669-7.ch004>
- [37] **Simović, V., Domazet, I., Bhagat, R., Sarhan, H., & Ivanović, D.** (2022). Identification of opportunities as the component of digital entrepreneurial competences of university students: A pilot study in Kuwait and Serbia. In *Proceedings of the 6th International Conference on E-Commerce, E-Business and E-Government (ICEEG 2022)*. ACM. <https://doi.org/10.1145/3537693.3537724>
- [38] **Simovic, V., Domazet, I., Bugarcic, M., Safi, M., Sarhan, H., Bhagat, R., & Bradic Martinovic, A.** (2023). The association of socio-demographic characteristics of university students and the levels of their digital entrepreneurial competences. *Heliyon*, 9(10). <https://doi.org/10.1016/j.heliyon.2023.e20897>
- [39] **Slijepcević, M., & Krstić, J.** (2019). Organizational culture and perceived effectiveness: A case study of an insurance company. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*. <https://doi.org/10.7595/management.fon.2019.0019>
- [40] **Štavljanin, V., Cvijović, J., & Kostić-Stanković, M.** (2017). Research of indirect advertising in video game industry. *Industrija*, 45(4), 113–132. <https://doi.org/10.5937/industrija45-16065>

-
- [41] **Vuorikari, R., Kluzer, S., & Punie, Y. (2022).** *DigComp 2.2: The Digital Competence Framework for Citizens* (EUR 31006 EN). Publications Office of the European Union. <https://doi.org/10.2760/115376>
- [42] **Zell, E., & Krizan, Z. (2014).** Do people have insight into their abilities? A metasynthesis. *Perspectives on Psychological Science*, 9(2), 111–125. <https://doi.org/10.1177/1745691613518075>
- [43] **Zell, E., Strickhouser, J. E., Sedikides, C., & Alicke, M. D. (2020).** The better-than-average effect in comparative self-evaluation: A comprehensive review and meta-analysis. *Psychological Bulletin*, 146(2), 118–149. <https://doi.org/10.1037/bul0000218>

Article history: Received: January 22, 2026

Accepted: May 6, 2026

First Online: May 7, 2026

DOI: 10.28934/jwee26.12.pp218-242

JEL: A22, I23, J12, L26

ORIGINAL SCIENTIFIC PAPER

An Analysis of the Influence of Entrepreneurship Education and the Family Context on Entrepreneurial Intentions among Higher Education Students



Roni Wiranata¹ 

Susanti² 

Siti Sri Wulandari³ 

State University of Surabaya, Faculty of Economics and Business, Department Post
Doctoral Economic Education, East Java, Indonesia

ABSTRACT

Entrepreneurial interest remains underdeveloped in developing countries, making it crucial to foster it among students. This study examines the influence of entrepreneurial learning and the family environment, particularly parental roles, on students' entrepreneurial interest. The study involved 312 undergraduate students from education departments at several universities in East Java, Indonesia, who were selected using a purposive sampling technique. A questionnaire was used as the research instrument. Descriptive statistics and multiple linear regression were employed to analyze the data and examine variable relationships. The results show that entrepreneurship education and the family environment have a positive and significant effect on students' entrepreneurial interest, with the model explaining 63.3% of the variance ($R^2 = 0.633$). These findings suggest that lecturers should carefully select and implement

¹ Corresponding author, e-mail: 25081646001@mhs.unesa.ac.id,

² E-mail: susanti@unesa.ac.id

³ E-mail: sitiwulandari@unesa.ac.id

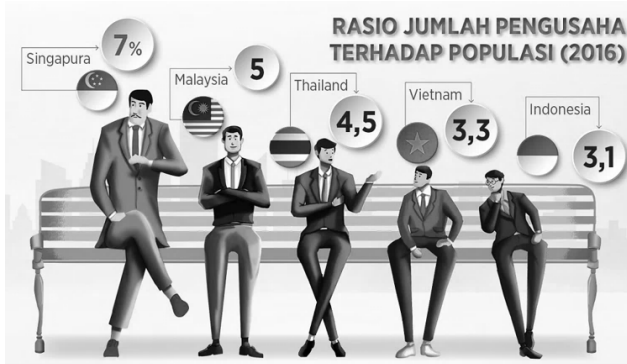
entrepreneurship learning models, while parental support remains essential to enhance students' entrepreneurial interest. This study contributes to entrepreneurship education literature by showing that survey-based learning with direct interaction with business actors connects classroom knowledge to real practice, enhancing students' contextual understanding and strengthening their entrepreneurial intentions. This study highlights the importance of the family environment in shaping prospective entrepreneurs. Its influence is not deterministic but works through entrepreneurial socialization, role modeling, and resource access, which collectively foster entrepreneurial orientation and capabilities. This study provides empirical insights into the relationship between survey-based entrepreneurial learning that directly engages business actors and students' entrepreneurial interest and spirit, highlighting the importance of inclusive learning approaches and university-organized bazaar programs as experiential contexts in entrepreneurship education.

KEYWORDS: *entrepreneurship learning, family environment, interest in entrepreneurship, higher education*

Introduction

While unemployment remains a persistent issue discussed in economic development literature, previous studies have largely focused on macroeconomic policies and labor market dynamics. Less attention has been given to how higher education institutions design learning models that can cultivate students' entrepreneurial orientation and capacity to create employment opportunities. This limitation highlights the need to investigate more contextualized entrepreneurship learning models that integrate academic learning with real-world business engagement. Entrepreneurship has increasingly been recognized as an important driver of job creation and unemployment reduction. Empirical research demonstrates that new venture creation and the expansion of small and medium-sized enterprises significantly contribute to employment generation and local economic development, thereby helping to mitigate unemployment pressures in many economies. The entrepreneurship literature consistently highlights that a growing number of entrepreneurs can enhance job creation and increase labor absorption, thereby helping to reduce unemployment (Audretsch & Thurik, 2001). As stated by Rengganis et al. (2022) the advancement of a nation is contingent upon the proliferation of educated individuals engaged in business endeavors.

Figure 1: Percentage of Entrepreneurs in Southeast Asian Countries (Singapore, Malaysia, Thailand, Vietnam, and Indonesia)



Source: Adapted from Lidwina (2019)

Given the identified issues, it can be concluded that the total number of entrepreneurs in Indonesia remains relatively small compared to other countries (Figure 1). According to Indah (2024), fostering a greater number of entrepreneurs is crucial, given that entrepreneurship serves as a key catalyst for enhancing economic development and promoting sustainable growth. (Bjørnskov & Foss, 2016). National statistical data shows that entrepreneurs only comprise around 1.65% of Indonesia's population of around 252 million people, which indicates that entrepreneurial participation is still limited compared to the demographic potential in Indonesia (Putra, 2018). Meanwhile, in ASEAN countries such as Singapore, the number of entrepreneurs reaches 8 percent, Malaysia 5 percent, and Thailand have 4,8% entrepreneurs from the total populations (Dihni, 2023). According to Statistics Indonesia (BPS), in August 2019, there were 6.82 million unemployed people (5.10% of 194.78 million labor force), with a significant portion being university graduates. This indicates a mismatch between higher education outcomes and labor market needs, suggesting graduates lack adaptive competencies for competitive employment. Promoting entrepreneurial intention among students is therefore strategic, as it enables job creation rather than job seeking. Entrepreneurship education is expected to foster a mindset of risk-taking, and opportunity recognition. However, evidence from universities in East Java shows low entrepreneurial interest, with few students starting businesses, indicating that current educational approaches are not yet effective in stimulating entrepreneurial engagement.

This study aims to examine the relationship between entrepreneurship learning and the family environment in shaping students' entrepreneurial interest within higher education contexts. The proposed model is theoretically grounded in the Theory of Planned Behavior (Ajzen, 1991), Social Cognitive Theory (Bandura, 1986), and Social Learning Theory (Bandura, 1977), which emphasize that entrepreneurial motivation is influenced by learning experiences, social environments, and role modeling processes.

Specifically, this study seeks to analyze how the formal educational context, represented by entrepreneurship learning, and the informal social context, represented by the family environment, are associated with variations in students' entrepreneurial interest. By integrating these two contexts into a single analytical framework, this research addresses a gap in previous studies that have often examined educational factors and family influences separately rather than as complementary components shaping entrepreneurial interest among university students.

Entrepreneurship has been widely recognized as a key driver of economic development, particularly through its role in job creation and innovation. In developing countries such as Indonesia, however, entrepreneurial participation remains relatively low compared to its demographic potential. This condition highlights a structural challenge in higher education, where graduates are still predominantly oriented toward job-seeking rather than job creation. Consequently, fostering entrepreneurial interest among university students has become a strategic priority.

Previous studies have consistently emphasized the role of entrepreneurship education in shaping entrepreneurial intention. Empirical evidence suggests that entrepreneurship education positively influences students' knowledge, skills, and self-efficacy (Bae et al., 2014; Nabi et al., 2017; Nguyen & Nguyen, 2023). However, the magnitude of its effect on entrepreneurial intention is often modest, indicating that education alone may not be sufficient. Other studies highlight the importance of contextual factors, particularly the family environment, in shaping entrepreneurial attitudes and behaviors (Laspita et al., 2012; Sieger et al., 2021). Family support, role modeling, and access to resources have been shown to play a crucial role in fostering entrepreneurial orientation.

Despite substantial progress in entrepreneurship research, the existing literature remains theoretically and empirically fragmented. Prior studies have predominantly examined entrepreneurship education and family

environment as separate antecedents of entrepreneurial interest, offering a limited understanding of how these formal and informal contexts interact in shaping students' entrepreneurial aspirations. Moreover, empirical findings concerning the magnitude and consistency of these relationships remain inconclusive, particularly in developing economies, where socio-cultural and institutional contexts may differ significantly from those of developed countries. Another limitation lies in the heavy reliance on the Theory of Planned Behavior, while the integration of complementary perspectives, such as Social Cognitive Theory, Social Learning Theory, and Human Capital Theory, has received comparatively limited scholarly attention.

Addressing these gaps, this study aims to examine the simultaneous influence of entrepreneurship learning and family environment on students' entrepreneurial interest in higher education. By integrating formal educational factors and informal social contexts, this study provides a more comprehensive understanding of how entrepreneurial interest is formed.

This study contributes to the literature in three main ways. First, it develops an integrative model that combines entrepreneurship education and family context. Second, it provides empirical evidence from a developing country context, which remains underexplored. Third, it extends theoretical understanding by incorporating multiple perspectives, including the Theory of Planned Behavior, Social Cognitive Theory, and Social Learning Theory, to explain the formation of entrepreneurial interest among university students.

Literature Review

Entrepreneurial Learning

Entrepreneurship is widely recognized in economic literature as a key driver of economic dynamics through the creation of opportunities, self-employment, and the development of individuals' capabilities in flexible and autonomous activities (Braun & Follert, 2024). Entrepreneurial intention reflects an individual's readiness to engage in business activities and is often shaped by prior learning experiences.

Entrepreneurship education is defined as a systematic process of transferring knowledge, skills, and attitudes that enable students to identify opportunities, plan ventures, and build mental readiness for entrepreneurship (Larsen et al., 2024). Empirical studies show that such

education positively influences entrepreneurial intention, self-efficacy, motivation, and competence. International evidence further indicates that improved competencies strengthen individuals' readiness to start businesses (Nguyen & Nguyen, 2023).

Research also highlights demographic differences, particularly gender, in shaping entrepreneurial intention and learning preferences (Paunović & Musial, 2024). In Indonesia, studies confirm that entrepreneurship education affects entrepreneurial intention both directly and indirectly through self-efficacy (Soelaiman et al., 2026), although its impact may be limited without strong attitudes and behavioral control (Cahyono, 2017).

Overall, the literature suggests that entrepreneurship education is most effective when competency-based, experiential, and supported by a conducive environment, influencing entrepreneurial intention through mediators such as self-efficacy, motivation, and risk-taking attitudes (Lee et al., 2025)

Role of Universities in Entrepreneurship Learning

Universities play a central role in fostering entrepreneurial intention by designing and implementing entrepreneurship learning processes. Within the framework of the Theory of Planned Behavior (Ajzen, 1991), universities influence students' attitudes, perceived behavioral control, and subjective norms primarily through structured educational experiences. Rather than functioning as separate constructs, the role of universities and entrepreneurship learning is inherently intertwined, as institutional support is operationalized through curriculum design, pedagogical approaches, and experiential learning opportunities (Diepolder et al., 2025). Entrepreneurship education has the potential to enhance students' inclination to pursue entrepreneurial careers as a viable alternative to employment in the private sector, public service, or state-owned enterprises by meaningfully shaping their attitudes, behaviors, and entrepreneurial intentions.

Entrepreneurship education in universities extends beyond theoretical instruction to include experiential learning, business incubation, and mentoring programs, all of which have been shown to enhance entrepreneurial attitudes and intentions (Karunambika & Arthi, 2025). Similarly, Widiyanto et al. (2023) emphasize that entrepreneurship learning models should be designed by considering the characteristics and needs of

specific groups, including women entrepreneurs, in order to make entrepreneurship education more inclusive and effective.

Universities play a key role in equipping young people with the competencies needed to sustain entrepreneurial activities (Frank, 2024) and to address national challenges. Prior studies link university initiatives to entrepreneurial intentions; this study focuses on institutions involved in government poverty alleviation programs. The effort that must be made is to foster entrepreneurial interest by taking entrepreneurship courses in one semester (Barba-Sánchez et al., 2022). The provision of entrepreneurship courses aims to make students have an entrepreneurial spirit, nature, and attitude, and foster their interests and talents (Martínez-Gregorio et al., 2021). With an understanding of entrepreneurship and the characteristics of entrepreneurs, it is expected that they will be able to create jobs (Decker et al., 2014). Accordingly, a growing cohort of university graduates who pursue entrepreneurial ventures has the potential to mitigate unemployment rates by generating new employment opportunities.

Family Environment

Community empowerment efforts undertaken by the Ministry of Education and Culture involve restructuring the educational curriculum from secondary to tertiary levels. Among other things, it includes/adds entrepreneurship subjects/courses, which are intended to instill an entrepreneurial spirit in the younger generation (Ramadhan et al., 2022; Chang & Yang, 2024). Universities, as the highest level of formal education, are expected to produce young people who are independent and can encourage students to become job creators rather than job seekers (Ellikkal, 2020).

According to social learning theory, families serve as role models through observation and imitation; witnessing family members engage in entrepreneurial activities can shape entrepreneurial norms and values. This intergenerational transmission of entrepreneurial behavior fosters the perception that entrepreneurship is both achievable and socially respected, highlighting the role of family as a source of social capital in informal entrepreneurial education (Laspita et al., 2012). Families can also help practically, for example through seed capital facilities, social networks, or assistance in marketing early products (Anderson & Jack, 2010). Thus, the role of the family is not only as a passive background, but as an active agent

in forming interest and readiness for entrepreneurship (Cardella et al., 2020).

Entrepreneurial Interest

Entrepreneurial interest refers to an individual's inclination or attraction toward engaging in entrepreneurial activities, reflecting curiosity, enjoyment, or preference for such behaviors. Unlike entrepreneurial intention, which indicates a planned commitment to start a venture, interest represents a motivational precursor that can influence attitudes and perceived behavioral control, consistent with the Theory of Planned Behavior framework. (Batz Liñeiro et al., 2024; Ferreira-Neto et al., 2023). Students with a high interest in entrepreneurship are more likely to choose a career path than working as employees, are future-oriented, and prefer tasks that demand personal responsibility for the outcome (Al-Mamary & Alshallaqi, 2022). Prior research also highlights that entrepreneurial interest may differ depending on gender-related factors such as social expectations, access to resources, and perceived entrepreneurial capability. Efendi et al. (2024) found that gender plays a meaningful role in shaping entrepreneurial interest among Indonesian students, suggesting that social context and gender norms can influence how individuals perceive entrepreneurship as a career option. According to social cognitive theory (Bandura, 1986), individual motivation and interest in specific activities are influenced by environmental factors and learning experiences. In the context of entrepreneurship, a supportive family environment can provide role modeling, encouragement, and resources that shape entrepreneurial self-efficacy, while effective entrepreneurship education can enhance knowledge, skills, and exposure to entrepreneurial tasks (Rae, 2005). Therefore, it is theoretically plausible that family support and educational interventions contribute to the development of interest in entrepreneurial activities, providing a basis for empirical investigation.

The inclination toward entrepreneurship reflects an individual's motivational and cognitive processes, shaping their intentions and readiness to engage in entrepreneurial activities (Virasa et al., 2022). On a broader level, the growth of entrepreneurial interest contributes to the creation of new jobs, which in turn can help the surrounding social environment and promote economic growth (Kritikos, 2024). Previous studies indicate that exposure to entrepreneurship education positively shapes students' entrepreneurial intentions by enhancing their skills, knowledge, and self-

efficacy (Fayolle & Gailly, 2015; Nabi et al., 2017). Similarly, family support, through modeling entrepreneurial behavior and providing resources, has been shown to influence entrepreneurial interest in younger individuals (Zellweger et al., 2012).

Hypotheses Development

Based on the theoretical and empirical literature, entrepreneurship learning plays a significant role in enhancing students' entrepreneurial competencies, self-efficacy, and opportunity recognition, which in turn influence their entrepreneurial interest (Fayolle & Gailly, 2015; Nguyen & Nguyen, 2023).

H1: Entrepreneurship education has a positive effects students' entrepreneurial interest.

Family environment also serves as a critical social context shaping entrepreneurial attitudes through role modeling, support, and resource provision (Cardella et al., 2020; Laspita et al., 2012)

H2: Family support positively affects students' entrepreneurial interest.

Furthermore, the interaction between formal education and informal social context is expected to jointly influence entrepreneurial interest

H3: Entrepreneurship education and family environment simultaneously have a positive effect on entrepreneurial interest

Methodology

This study employs a quantitative approach using a cross-sectional survey design. Data were collected at a single point in time through a structured questionnaire and analyzed using regression analysis to examine the relationships among the study variables. The data were collected directly from respondents using a structured questionnaire administered online by Google Form, with a total of 312 respondents. This research examines how the independent factors of entrepreneurship education and family environment shape students' entrepreneurial interest.

The study involved 312 undergraduate students from education departments at several universities in East Java, Indonesia (Table 2).

Participants were selected using a purposive sampling technique based on specific inclusion criteria: (1) the universities offer Economic Education and Mathematics Education study programs, and (2) the students had completed or were currently enrolled in an entrepreneurship course. These criteria were applied to ensure that the respondents possessed relevant academic exposure to entrepreneurship education, enabling them to provide informed responses related to entrepreneurial learning and interest. This research used a questionnaire. The questionnaire was distributed to students in the economic education and Mathematics education departments, while interviews were conducted with student informants at STKIP PGRI Lumajang. The questionnaire instrument uses a five-point Likert scale ranging from 1 to 5. The indicators assessed in the present research are outlined as follows:

Table 1: Explanation of Research Variables into Measurement Indicators

No	Variable	Measurement Indicator	Number of Items	Sources
1.	Entrepreneurship Learning	1. Learning Material Concept 2. Learning Method 3. Quality of teaching staff 4. Facilities	11 Items	Adapted from Fayolle & Gailly (2015) and Suherman (2010)
2.	The Family Environment	1. Family functioning 2. Parental attitudes and treatment 3. Economic status	15 Items	Adapted from Sujai et al. (2020) and Syamsu (2011)
3.	Entrepreneurial Interest	1. Personal 2. Sociological 3. Environment	16 Items	Adapted from Alma (2016) and Bae et al. (2014)

Source: Authors

All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement items were adapted from previously published studies and adjusted to the context of entrepreneurship education among university students. The analysis in this study employs multiple regression techniques. The instrument was tested for validity and reliability using IBM SPSS Statistics 19 with data from 33 respondents. Validity was assessed via item–total correlation, with coefficients ranging from 0.570 to 0.920 (entrepreneurial learning), 0.705 to

0.879 (family environment), and 0.434 to 0.870 (entrepreneurial interest), all exceeding r -table (0.344), confirming validity. Reliability, as measured by Cronbach's alpha, showed strong consistency: 0.940, 0.958, and 0.942, respectively. After confirming validity and reliability, data were analyzed using classical assumption tests, including normality, heteroscedasticity, multicollinearity, and linearity.

Table 2: The socio-demographic and academic profile of the respondents

Characteristic	Category	Frequency	Percentage
Gender	Male	71	22.8
	Female	241	77.2
Year of Study	2022	191	61.2
	2023	121	38.8
Field of Study	Economic Education	203	65.1
	Mathematics Education	109	34.9
Institution	Public University	218	69.9
	Private University	94	30.1

Source: Authors

Results and Discussion

The research process commences with an examination of the classical assumption tests prior to hypothesis testing. These tests consist of several sequential stages that must be satisfied. The following section presents an explanation of each stage of the classical assumption testing procedure:

Test of Data Distribution Normality

The normality assumption of the regression model was evaluated using the Kolmogorov–Smirnov test applied to the unstandardized residuals generated from the regression analysis. Based on the test results ($N = 312$), the Asymp. Sig. value was 0.250, which exceeds the significance threshold of 0.05, indicating that the residuals are normally distributed and that the normality assumption of the regression model is satisfied. Accordingly, it can be concluded that the residuals associated with all variables follow a normal distribution. This is shown in the normality test table 2 as follows:

Table 3: One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		312
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	5.94484338
Most Extreme Differences	Absolute	.058
	Positive	.046
	Negative	-.058
Kolmogorov-Smirnov Z		1.019
Asymp. Sig. (2-tailed)		.250

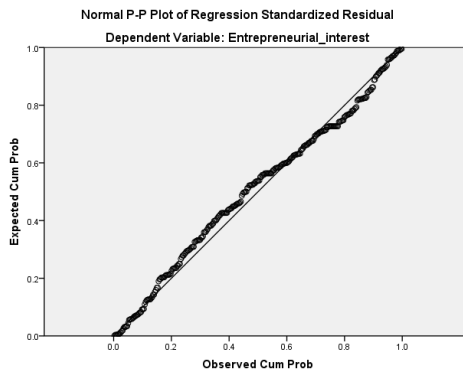
a. Test distribution is Normal.

b. Calculated from data.

Source: Authors

This conclusion is corroborated by the normal probability plot (P-P plot), which shows that the observed points closely align with the diagonal reference line (Figure 2). Accordingly, the findings demonstrate that the residuals are normally distributed, thereby confirming that the normality assumption required for linear regression analysis is satisfied in this study.

Figure 2: The result of the p-plot test

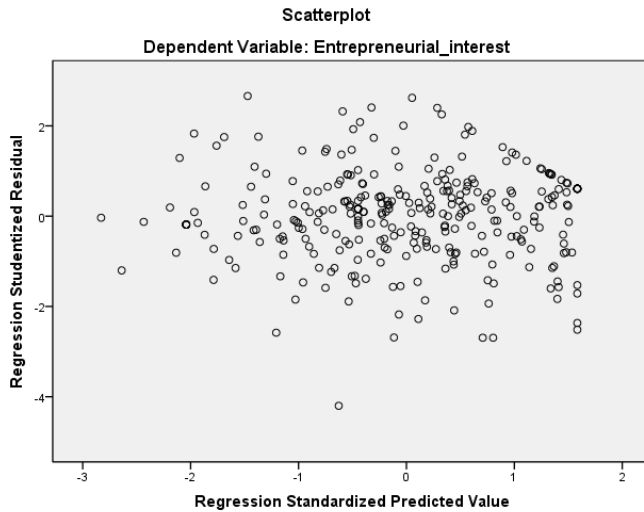


Source: Authors

Heteroscedasticity Test

The test results show that there is no heteroscedasticity, which is indicated by the dots on the scatterplot test not showing a pattern, such as the results in the picture below, Figure 3:

Figure 3: The result of the scatterplot test



Source: Authors

Multicollinearity Test

The Variance Inflation Factor (VIP) value of the two variables, namely entrepreneurial learning and family environment, is 1.419, smaller than 10, with a tolerance value of 0.705 greater than 0.1. The analysis indicates that multicollinearity is not present. The results are evidenced in the following Table 4:

Table 4: Coefficients

Independent Variable	Collinearity Statistics	
	Tolerance	VIF
Entrepreneurship Learning	.705	1.419
Family Environment	.705	1.419

Source: Authors

This study explains how entrepreneurship education and family context shape students' entrepreneurial intentions, with a particular focus on those in the Faculty of Education. To facilitate the analytical procedure involving multiple linear regression, the following researchers will present the results of processed data using the computer-assisted IBM SPSS Statistical

Program 19 for Windows. The outcomes of the multiple linear regression analysis are presented in Table 5 below:

The regression model yields a constant of 7459.216, reflecting the measurement of Entrepreneurial Interest (Y) as a composite score from multiple Likert-scale items. This aggregated structure results in a large baseline value, representing entrepreneurial interest when independent variables are zero. The magnitude of the constant does not affect the validity of regression coefficients in explaining variable relationships.

Table 5: The Result of Multiple Linear Regression Test

	Coefficients ^a				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant)	7459.216	2157.634		3.457	.001
Entrepreneurship Learning (X1)	.293	.052	.230	5.600	.000
Family Environment (X2)	.656	.042	.647	15.768	.000

a. Dependent Variable: Entrepreneurial Interest (Y)

Source: Authors

Drawing upon the data summarized in the previous Table, the regression model may be expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 \quad (1)$$

$$Y = 7459.216 + 0.293 X_1 + 0.656 X_2 + e \quad (2)$$

The regression equation above shows the relationship between the independent and dependent variables. An examination of the partial effects, based on the results of the equation estimations, indicates that:

- (1) The constant value of 7,459.216 indicates that when the entrepreneurship learning variable and the family environment variable remain unchanged (i.e., X1 and X2 are equal to zero), the level of students' entrepreneurial interest is estimated at 7,459.216.

(2) The regression coefficient for entrepreneurship education is 0.293, indicating a positive and statistically significant effect ($p < 0.001$). This result means that for every one-unit increase in entrepreneurship education, entrepreneurial interest increases by 0.293 units, assuming that other variables in the model remain constant.

The regression coefficient for the family environment variable is 0.656, suggesting that the family environment exerts a meaningful and positive effect on students' entrepreneurial interest. This finding indicates that, holding other factors constant, a one-unit increase in entrepreneurial interest.

(3) Table 6 below displays the findings for the coefficient of determination (R^2), illustrating the proportion of variance explained by the model:

Table 6: The Result Coefficient with Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.796	.633	.631	5983.77360

Predictor from Family Environment and Entrepreneurship Learning

Source: Authors

Based on Table 6, the coefficient of determination indicates that the Adjusted R-Squared value is 0.631. This suggests that approximately 63.1% of the variation in entrepreneurial interest is explained by its statistical association with entrepreneurship learning and family environment included in the regression model. The remaining 36.9% of the variation may be related to other variables not examined in this study.

The regression results show that entrepreneurship learning has a positive and statistically significant effect on students' entrepreneurial interest ($\beta = 0.293$, $t = 5.600$, $p < 0.001$), thereby supporting H1. This indicates that improved quality and implementation of entrepreneurship learning increase students' entrepreneurial interest. In this study, entrepreneurship learning includes material relevance, teaching methods, lecturer competence, and learning facilities. Its strong significance suggests that structured learning enhances students' cognitive and motivational orientation toward entrepreneurship. Nguyen & Nguyen, (2023) confirm that entrepreneurship education shapes intentions through entrepreneurial

capacity. Additionally, practical learning experiences strengthen feasibility perceptions, opportunity recognition, competence, and confidence (Wardhani & Nastiti, 2023). Therefore, the results of this study reinforce the argument that well-designed entrepreneurship learning environments in higher education play an important role in fostering students' entrepreneurial interest.

As the earliest context of learning, the family environment plays a crucial role in shaping children's development and behavior; therefore, this study focuses on parenting practices, family functioning, economic status, and parental attitudes and roles.

Figure 4: Entrepreneurship Learning Activities in community businesses



Sources: pictures taken by students during a survey of business actors

Figure 4 illustrates an example of entrepreneurship learning activities conducted through direct interaction with community-based business actors. The purpose of presenting this figure is to provide contextual clarification regarding how entrepreneurship learning (X1) is implemented in the educational setting examined in this study. Specifically, the activity shown in the figure reflects a survey-based experiential learning approach in which students observe, interact with, and learn from real business practitioners.

Although the figure does not constitute part of the statistical analysis, it helps to illustrate the practical form of the entrepreneurship learning process measured in the questionnaire indicators, particularly those related to learning methods and the quality of teaching activities. In this way, the figure provides contextual support for interpreting the regression results by demonstrating the type of learning experience that may contribute to students' entrepreneurial interest. Therefore, the figure should be interpreted as descriptive evidence of the learning environment underlying the variable

of entrepreneurship learning rather than as an analytical component of the regression model.

The results of the hypothesis testing reveal that the family environment variable produced a t-value of 15.768, which surpasses the critical value of 1.967, accompanied by a significance level of 0.000, well below the 0.05 criterion, hypothesis (H2) is accepted. This evidence demonstrates that the family environment exerts a statistically significant influence on entrepreneurial interest. Specifically, a more supportive and conducive family environment is associated with a higher level of interest in entrepreneurship.

The empirical evidence from this study is in agreement with the argument suggested by Luis-Rico et al. (2020), who states that one of the factors that influences entrepreneurial interest is the encouragement and upbringing of parents to become entrepreneurs. The family constitutes the primary and most influential environment shaping children's development and behavioral patterns. The family environment has a significant influence on a child's career or work choices. Suherman (2011) argues that parents and the family environment form the foundation of children's development; entrepreneurial interest emerges when parents provide direction and positive encouragement toward entrepreneurship.

Table 7: The Result of F Anova

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.911E10	2	9.554E9	266.828	.000 ^a
Residual	1.106E10	309	35805546.54		
Total	3.017E10	311			

Source: Authors

In the hypothesis (H3 accepted), the statistical analysis (Table 7) indicates that the calculated F-value (266.828) exceeds the critical F-value (3.025), demonstrating a significance level ($p < 0.05$), as reflected by a p-value of 0.000. These results demonstrate that entrepreneurship learning and the family environment have a statistically significant influence on entrepreneurial interest. Entrepreneurial interest develops through the interaction of several key factors, including: 1) Personal factors, which encompass individual personality traits and inherent psychological characteristics; 2) Environmental factors, which relate to the surrounding

physical conditions and contextual settings; 3) Sociological factors, which pertain to social interactions and relationships, including those within the family and broader social networks. According to Jati et al. (2021), entrepreneurial interest is influenced by a set of factors that can be broadly organized into two main dimensions. First, intrinsic factors encompass internal drivers such as the need for income, personal motives, self-esteem, a sense of enjoyment, and individual attention toward entrepreneurial activities. Second, extrinsic factors consist of external influences, including the family context, social and community environment, available opportunities, and educational background. The findings of this study indicate that entrepreneurship learning and the family environment are both positively associated with students' entrepreneurial interest when considered simultaneously. These results provide empirical support for theoretical perspectives suggesting that entrepreneurial interest develops through the interaction between educational experiences and social contexts, particularly the family environment. Rather than definitively proving the theory, the present findings contribute additional empirical evidence that is consistent with prior theoretical and empirical studies emphasizing the role of educational and familial influences in shaping entrepreneurial motivation among university students.

Table 8: Percentage Distribution of Measurement Indicators Across Research Variables

No	Measurement Indicator	Percentage
1.	1. Learning Material Concept	85.7
	2. Learning Method	85.4
	3. Quality of teaching staff	87.7
	4. Facilities	77.3
2.	1. Family functioning	82.9
	2. Parental attitudes and treatment	88.7
	3. Economic status	75.6
3.	1. Personal	82.6
	2. Sociological	79.2
	3. Environment	77.2

Source: Authors

The percentage values presented in Table 8 were obtained by transforming the mean scores for each indicator into percentages. Each

indicator was measured using a Likert scale, and the percentage was calculated using the formula:

$$\text{Percentage} = \frac{\text{Mean Score}}{\text{Maximum possible score}} \times 100 \quad (3)$$

This transformation makes it easier to interpret the relative strength of each indicator within the studied variables.

Based on the analysis of each indicator across the research variables, the highest percentage was observed for the parental attitudes and treatment indicator within the family environment variable. This finding indicates that student respondents perceive parental attitudes and the way parents treat their children as crucial in fostering and strengthening students' entrepreneurial interest. Meanwhile, from the study of statement items in the family environment variable, it is known that 180 students agreed with the statement that "parents always guide them not to give up easily when their efforts fail", 160 respondents strongly agreed with the statement that "parents always teach them to dare to take risks", and 142 respondents stated that "parents support entrepreneurship". In the entrepreneurship learning variable, one indicator of teaching quality has the highest percentage. This shows that students can understand the material taught by the instructor in the entrepreneurship course, and they also acknowledge that the instructor has competencies relevant to their knowledge. In addition, students strongly agree with the statement that lecturers provide motivation to continue entrepreneurship. Thus, it can be said that several of the statements that have been traced are consistent with and have an effect on the variable examined is students' entrepreneurial interest. The findings indicate that 61.1% of students reported a very high level of interest in pursuing entrepreneurship as a career path.

Conclusion

The findings indicate a significant statistical association between entrepreneurship education within academic courses and students' entrepreneurial intentions. The findings indicate that entrepreneurial learning plays an important role in fostering students' entrepreneurial interest. In this context, the indicators of entrepreneurial interest, such as students' motivation, intention, and readiness to engage in entrepreneurial

activities, should be systematically integrated into the semester learning plan (SLP). Embedding these indicators in the learning design allows entrepreneurship education to not only deliver theoretical knowledge but also to cultivate students' desire and intention to pursue entrepreneurial careers. The implementation of entrepreneurship learning provided by lecturers is not only the delivery of material but also the practice of surveying business actors. This is done so that students can draw inspiration from business leaders to become young entrepreneurs before and after graduating from college. The empirical findings provide support for the hypothesis that entrepreneurship learning and the family environment are significantly related to students' entrepreneurial interest.

This study has several limitations. The relatively small sample, drawn from a specific educational context, may limit the generalizability of the findings. Additionally, reliance on self-reported questionnaire data may introduce response bias. Despite this, the findings offer important implications: institutions should enhance interactive entrepreneurship learning and practical training opportunities, while parents should provide consistent support and motivation to foster students' entrepreneurial aspirations and long-term engagement. This is because parents play a significant role in shaping children's interest in entrepreneurship. For future research, it is recommended to examine additional determinants of entrepreneurial interest beyond entrepreneurship education and family environment. Potential variables that may provide deeper explanatory power include entrepreneurial self-efficacy, risk-taking propensity, social support, digital entrepreneurial competence, and institutional support. Future studies may also employ theoretical perspectives such as the Theory of Planned Behavior to better explain how attitudes, subjective norms, and perceived behavioral control shape students' entrepreneurial interest.

Acknowledgment

The authors wish to express their sincere appreciation to the faculty members of the Doctoral/Ph.D. Program at the State University of Surabaya, collaborating universities in Lumajang, members of the Lumajang academic community, and the Institute for Research and Community Service (LPPM) of STKIP PGRI Lumajang for their valuable contributions, institutional support, and academic guidance throughout the conduct and completion of this study.

References

- [1] **Ajzen, I.** (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/https://doi.org/10.1016/0749-5978(91)90020-T)
- [2] **Al-Mamary, Y. H., & Alshallaqi, M.** (2022). Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation and Knowledge*, 7(4), 100239. <https://doi.org/10.1016/j.jik.2022.100239>
- [3] **Alma, B.** (2016). *Kewirausahaan: Untuk Mahasiswa dan Umum*. Alfabeta.
- [4] **Anderson, A. R., & Jack, S. L.** (2010). *The Role of Family Members in Entrepreneurial Networks: Beyond Boundary of the Family Firms*. 45.
- [5] **Audretsch, D., & Thurik, R.** (2001). *Linking Entrepreneurship to Growth* (OECD Science, Technology and Industry Working Papers, Issue 2001/2). OECD Publishing. <https://econpapers.repec.org/RePEc:oec:stiaaa:2001/2-en>
- [6] **Bae, Tae Jun, Qian, Shanshan, Miao, Chao, & Fiet, James O.** (2014). The Relationship between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review. *Entrepreneurship Theory and Practice*, 38(2), 217–254. <https://doi.org/10.1111/etap.12095>
- [7] **Bandura, A.** (1977). Social learning theory. In *Englewood Cliffs, NJ: Prentice-Hall*. <https://doi.org/10.4337/9781803928180.ch33>
- [8] **Bandura, A.** (1986). Social foundations of thought and action: A social cognitive theory. In *Social foundations of thought and action: A social cognitive theory*. (pp. xiii, 617–xiii, 617). Prentice-Hall, Inc.
- [9] **Barba-Sánchez, V., Mitre-Aranda, M., & Brió-González, J. del.** (2022). The entrepreneurial intention of university students: An environmental perspective. *European Research on Management and Business Economics*, 28(2). <https://doi.org/10.1016/j.iedeen.2021.100184>
- [10] **Batz Liñeiro, A., Romero Ochoa, J. A., & Montes de la Barrera, J.** (2024). Exploring entrepreneurial intentions and motivations: a comparative analysis of opportunity-driven and necessity-driven entrepreneurs. *Journal of Innovation and Entrepreneurship*, 13(1). <https://doi.org/10.1186/s13731-024-00366-8>
- [11] **Bjørnskov, C., & Foss, N. J.** (2016). Institutions, entrepreneurship, and economic growth: What do we know and what do we still need to know? *Academy of Management Perspectives*, 30(3), 292–315. <https://doi.org/10.5465/amp.2015.0135>
- [12] **Braun, E., & Follert, F.** (2024). The calculating entrepreneur — The role of economic calculation in supporting alertness and creative destruction. *Managerial and Decision Economics*, July, 1–11. <https://doi.org/10.1002/mde.4341>
- [13] **Cahyono, A. E.** (2017). Pengaruh Pendidikan Kewirausahaan melalui

- Variabel Intervening Teori Perilaku Terencana terhadap Intensi Berwirausaha Mahasiswa Fakultas Keguruan dan Ilmu Pendidikan Universitas Jember. *JURNAL EKONOMI PENDIDIKAN DAN KEWIRAUSAHAAN*, 2(2 SE-Articles), 251–262. <https://doi.org/10.26740/jepk.v2n2.p251-262>
- [14] **Cardella, G. M., Hernández-Sánchez, B. R., & Sánchez García, J. C.** (2020). Entrepreneurship and Family Role: A Systematic Review of a Growing Research. *Frontiers in Psychology*, 10(January), 1–17. <https://doi.org/10.3389/fpsyg.2019.02939>
- [15] **Chang, H., & Yang, P.** (2024). Entrepreneurial spirit: A catalyst on the road to green and sustainable development—A theoretical analysis based on dynamic games and empirical tests from Chinese data. *Journal of Cleaner Production*, 446, 141407. <https://doi.org/10.1016/j.jclepro.2024.141407>
- [16] **Decker, R., Haltiwanger, J., Jarmin, R., & Miranda, J.** (2014). The role of entrepreneurship in us job creation and economic dynamism. *Journal of Economic Perspectives*, 28(3), 3–24. <https://doi.org/10.1257/jep.28.3.3>
- [17] **Diepolder, C. S., Huwer, J., & Weitzel, H.** (2025). Effects of competence-based sustainable entrepreneurship education on secondary school students' sustainable entrepreneurial intention. *Sustainable Technology and Entrepreneurship*, 4(2), 100103. <https://doi.org/10.1016/j.stae.2025.100103>
- [18] **Dihni, V. A.** (2023). *Jumlah Wirausahawan di Indonesia Ganjal Pertumbuhan Ekonomi*. Katadata.Co.Id-JURNALISME DATA. <https://katadata.co.id/analisisdata/6464b3d3c584e/jumlah-wirausahawan-di-indonesia-ganjal-pertumbuhan-ekonomi>
- [19] **Efendi, R., Mulyadi, H., Disman, Purnamasari, I., & Tantri, P. A.** (2024). The Role of Gender in Fostering Interest in Entrepreneurship in Indonesia. *Journal of Women's Entrepreneurship and Education*, 2024(1–2), 141–156. <https://doi.org/10.28934/jwee24.12.pp141-156>
- [20] **Ellikkal, A. S. R.** (2020). Entrepreneurship Mindset Curriculum: A Transformation from Job Seeker to Job Creator. *KICMA-Reach Journal Management*, 6(1), 5–13. <https://www.researchgate.net/publication/359025537>
- [21] **Fayolle, A., & Gailly, B.** (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. In *Journal of Small Business Management* (Vol. 53, Issue 1, pp. 75–93). Wiley-Blackwell Publishing Ltd. <https://doi.org/10.1111/jsbm.12065>
- [22] **Ferreira-Neto, M. N., de Carvalho Castro, J. L., de Sousa-Filho, J. M., & de Souza Lessa, B.** (2023). The role of self-efficacy, entrepreneurial passion, and creativity in developing entrepreneurial intentions. *Frontiers in Psychology*, 14(March), 1–14. <https://doi.org/10.3389/fpsyg.2023.1134618>
- [23] **Frank, L.** (2024). Sustainable Entrepreneurship Education and the Role of Universities. *Research Gate*, July, 1–7.

- [24] Indah, B. (2024). Kewirausahaan merupakan kunci utama untuk meningkatkan perekonomian negara. *Jurnal Transformasi Bisnis Digital*, 1(1), 1–12. <https://ejournal.arimbi.or.id/index.php/JUTRABIDI/article/view/42%0Ahttps://ejournal.arimbi.or.id/index.php/JUTRABIDI/article/download/42/40>
- [25] Jati, M. N. K., Santi, M., & Sultoni, H. (2021). Faktor-Faktor Yang Mempengaruhi Minat Berwirausaha Mahasiswa Stai Muhammadiyah Tulungagung. *Istithmar: Jurnal Studi Ekonomi Syariah*, 5(1), 69–82. <https://doi.org/10.30762/istithmar.v5i1.18>
- [26] Karunambika, & Arthi. (2025). Fostering Entrepreneurial Spirit: Impact of Incubation Activities on Female Students' Entrepreneurial Intention. *Journal of Women's Entrepreneurship and Education*, 2025(1–2), 155–173. <https://doi.org/10.28934/jwee25.12.pp155-173>
- [27] Kritikos, A. S. (2024). Entrepreneurs and their impact on jobs and economic growth. *IZA World of Labor*, 2(8). <https://doi.org/10.15185/izawol.8.v2>
- [28] Larsen, E. S. H., Haneberg, D. H., & Lakså, S. (2024). Revealing three anomalies: Extending Kolb educator roles profile in experiential entrepreneurship education. *International Journal of Management Education*, 22(3). <https://doi.org/10.1016/j.ijme.2024.101048>
- [29] Laspita, S., Breugst, N., Hebllich, S., & Patzelt, H. (2012). Intergenerational transmission of entrepreneurial intentions. *Journal of Business Venturing*, 27(4), 414–435. <https://doi.org/10.1016/j.jbusvent.2011.11.006>
- [30] Lee, H. W., Jang, S. H., & Jeong, J. S. (2025). A literature review on university student entrepreneurship from a Human Resource Development (HRD) perspective. *Human Resources Management and Services*, 7(3), 1–20. <https://doi.org/10.18282/hrms4900>
- [31] Luis-Rico, M. I., Escolar-Llamazares, M. C., de la Torre-Cruz, T., Herrero, Á., Jiménez, A., Val, P. A., Palmero-Cámara, C., & Jiménez-Eguizábal, A. (2020). The association of parental interest in entrepreneurship with the entrepreneurial interest of Spanish youth. *International Journal of Environmental Research and Public Health*, 17(13), 1–16. <https://doi.org/10.3390/ijerph17134744>
- [32] Martínez-Gregorio, S., Badenes-Ribera, L., & Oliver, A. (2021). Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: a meta-analysis. *International Journal of Management Education*, 19(3), 100545. <https://doi.org/10.1016/j.ijme.2021.100545>
- [33] Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda. *Academy of Management Learning & Education*, 16(2), 277–299. <https://doi.org/10.5465/amle.2015.0026>

- [34] **Nguyen, Q. Do, & Nguyen, H. T.** (2023). Entrepreneurship education and entrepreneurial intention: The mediating role of entrepreneurial capacity. *The International Journal of Management Education*, 21(1), 100730. <https://doi.org/10.1016/j.ijme.2022.100730>
- [35] **Paunović, I., & Musial, J.** (2024). Gender Gap in Entrepreneurial Intention, Reasoning, Self-Efficacy, and Education Preferences Among University Students: an Entrepreneurial Event Theory Perspective. *Journal of Women's Entrepreneurship and Education*, 2024(3–4), 93–111. <https://doi.org/10.28934/jwee24.34.pp93-111>
- [36] **Putra, B. P.** (2018). Peningkatkan Jumlah Wirausahawan Di Indonesia Melalui Kolaborasi Akademisi – Pelaku Usaha – Mahasiswa. *Economicus*, 9(1), 63–71. <https://doi.org/10.47860/economicus.v12i1.147>
- [37] **Rae, D.** (2005). Entrepreneurial learning: A narrative-based conceptual model. *Journal of Small Business and Enterprise Development*, 12(3), 323–335. <https://doi.org/10.1108/14626000510612259>
- [38] **Ramadhan, I., Manisah, A., Angraini, D. A., Maulida, D., Sana, S., & Hafiza, N.** (2022). Proses Perubahan Pembelajaran Siswa dari Daring ke Luring pada Saat Pandemi Covid-19 di Madrasah Tsanawiyah. *Edukatif: Jurnal Ilmu Pendidikan*, 4(2), 1783–1792. <https://doi.org/10.31004/edukatif.v4i2.2200>
- [39] **Rengganis, R. M. Y. D., Mirayani, L. P. M., & Pramanaswari, A. . S. I.** (2022). The Influence of Entrepreneurship Education, Motivation and Family Environment on Interest in Entrepreneurship. *Jurnal Economina*, 1(4), 975–984.
- [40] **Sieger, P., Raemy, L., Zellweger, T., Fueglistaller, U., & Hatak, I.** (2021). *GUESSS Global Report 2021*. 1–28. http://www.guesssurvey.org/resources/PDF_InterReports/GUESSS_Global_2018.pdf
- [41] **Soelaiman, L., Keni, K., & Chin, T. L.** (2026). *The Effectiveness of Entrepreneurship Education on Students ' Self- Efficacy and Entrepreneurial Intention : A Comparative Study of Major Cities in Indonesia*. 14(1), 75–96.
- [42] **Suherman, E.** (2010). *Desain Pembelajaran Kewirausahaan*. CV TIRTA BUANA MEDIA.
- [43] **Sujai, R. A. D. A., Susanti, N., & Rahmayanti, R.** (2020). The Effects of Entrepreneurship Education and Family Environment on Entrepreneurial Attitudes with Motivation as Intervening Variables to Management Field at University X. *International Journal of Psychosocial Rehabilitation*, 24(02), 3629–3640. <https://doi.org/10.37200/ijpr/v24i2/pr200685>
- [44] **Syamsu, Y.** (2011). Psikologi perkembangan anak dan remaja. Bandung: PT Remaja Rosdakarya.

- [45] **Virasa, T., Sukavejworakit, K., & Promsiri, T.** (2022). Predicting entrepreneurial intention and economic development: A cross-national study of its policy implications for six ASEAN economies. *Heliyon*, 8(5), e09435. <https://doi.org/10.1016/j.heliyon.2022.e09435>
- [46] **Wardhani, P. S. N., & Nastiti, D.** (2023). Implementasi Pendidikan Kewirausahaan Dalam Menumbuhkan Minat Berwirausaha Mahasiswa. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 4(2), 177–191. <https://doi.org/10.37478/jpm.v4i2.2622>
- [47] **Widiyanto, Yulianto, A., Feriady, M., & Nurkhin, A.** (2023). Learning Model of Female Entrepreneurship in Indonesia: Development of Learning Model Based on the Characteristics and Needs of Female Entrepreneurs. *Journal Women's Entrepreneurship and Education*, 1–2. <https://doi.org/10.28934/jwee23.12.pp32-50>
- [48] **Zellweger, T. M., Nason, R. S., & Nordqvist, M.** (2012). From Longevity of Firms to Transgenerational Entrepreneurship of Families: Introducing Family Entrepreneurial Orientation. *Family Business Review*, 25(2), 136–155. <https://doi.org/10.1177/0894486511423531>

Article history: Received: December 29, 2025

Accepted: May 14, 2026

First Online: May 15, 2026

DOI: 10.28934/jwee26.12.pp243-265


JEL: J16, L26, M13, O33

ORIGINAL SCIENTIFIC PAPER


The Importance of Intensifying Mentorship Support to Women Digital Entrepreneurs in the Emerging Markets



Radmila Miković¹ 

Mila Jovkić² 

Mirjana Dejanović³ 

Marina Jovanović-Milenković⁴ 

University of Educons, Faculty of Project and Innovation Management,
Belgrade, Serbia

ABSTRACT

Digital entrepreneurship has become an important driver of innovation, economic development, and employment in the modern economy. Women digital entrepreneurs, however, face numerous barriers in developing and scaling their businesses, including limited access to finance, insufficient information about support programmes, and persistent gender inequalities. Mentorship is increasingly recognised as a key mechanism for addressing these challenges by providing guidance, knowledge transfer, and access to professional networks. The aim of this study is to examine the role of mentorship in the development of women digital entrepreneurs in the Republic of Serbia. The study employs a mixed-method approach, combining quantitative and qualitative research methods. Quantitative data were collected at the end of 2024 through an online survey conducted among 54 women digital entrepreneurs and 23 mentors. In addition, qualitative data were

¹ Corresponding author, e-mail: radmila.mikovic@gmail.com

² E-mail: jovkicmila@gmail.com

³ E-mail: mrmirjanadejanovic@gmail.com

⁴ E-mail: marinajovanovicmilenkovic@gmail.com

obtained through semi-structured interviews with three mentors to provide deeper insights into mentoring practices and challenges. Quantitative data were analysed using descriptive statistical methods, while qualitative data were analysed using thematic analysis. The results indicate that mentorship plays a significant role in strengthening entrepreneurial competencies, increasing confidence, and improving decision-making processes among women digital entrepreneurs. Furthermore, mentorship contributes to business performance and competitiveness by facilitating knowledge exchange, networking, and access to critical resources. A hybrid mentoring model, combining online and in-person interaction, emerged as the most effective approach, balancing flexibility with the need for personal engagement. The findings suggest that well-structured and accessible mentorship programmes can significantly contribute to the development, sustainability, and competitiveness of women's digital entrepreneurship in Serbia.

KEYWORDS: *women, digital entrepreneurship, mentorship, emerging markets*

Introduction

The rapid development of digital technologies has significantly transformed modern business environments, creating new opportunities for entrepreneurial activity, particularly in areas such as e-commerce, information technology, and online services (Lall et al., 2022). Digital entrepreneurship enables individuals to develop businesses with lower start-up costs and access to global markets (Valerio et al., 2014). Digital platforms and online tools can reduce certain traditional barriers to market entry, such as geographical constraints and the need for extensive physical infrastructure (Jovanović Milenković & Petrović, 2023). However, to fully harness its benefits, significant obstacles such as the development of digital infrastructure must be overcome, promoting inclusion and establishing regulatory frameworks that simultaneously encourage innovation and protect people's well-being, attracting a strong and skilled workforce that can effectively navigate the challenges of the digital era (Ateeq, 2024).

In this context, digital transformation has opened important opportunities for women's participation in entrepreneurship. Women's digital entrepreneurship has become an important driver of innovation, economic development, and employment in the modern economy (Shaver, 2010). However, women digital entrepreneurs still face numerous barriers in developing and scaling their businesses (Lazarević-Moravčević et al., 2023), including limited access to financial resources (Antonijević & Domazet,

2024; Abdallah et al., 2025), lack of information about support programs (Dobrilović et al., 2021; Antonijević et al., 2024), insufficient professional networks, gaps in digital skills, and difficulties balancing professional and personal responsibilities (Dobrilović et al., 2021; UN Women, 2023; Siegrist, 2022), the presence of gender stereotypes, as well as the need to balance family, health and work (Simović & Ilić, 2021). These factors can hinder their ability to fully utilize the potential offered by digital technologies and to participate competitively in the digital economy. Consequently, there is a growing need to examine mechanisms that can support women in overcoming these barriers and strengthening their entrepreneurial capabilities.

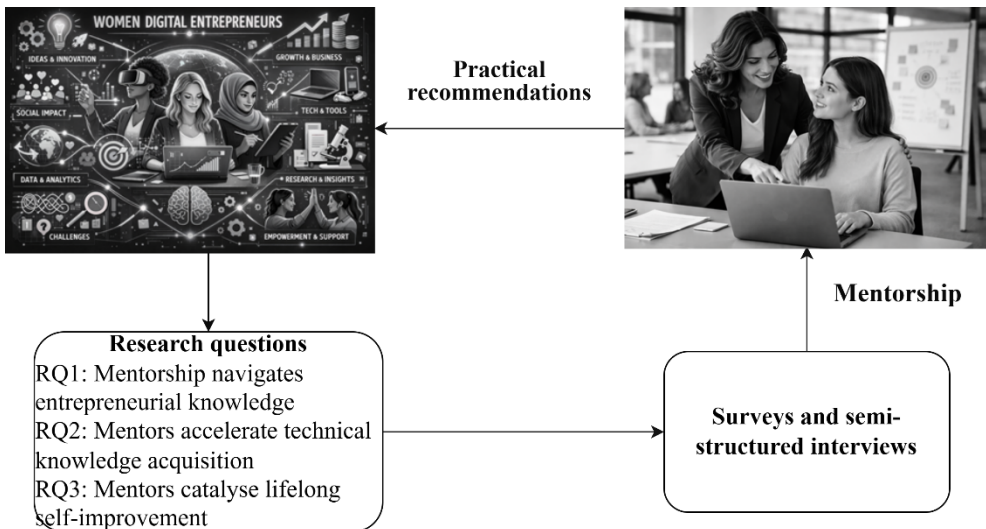
Mentorship is increasingly recognized as an important mechanism that can help women entrepreneurs overcome these challenges by providing guidance, knowledge transfer, and professional networking opportunities (Megginson et al., 2006). Mentorship has been widely acknowledged as an important factor in fostering entrepreneurial development (Clutterbuck, 2004; Cull, 2006). Mentorship relationships provide entrepreneurs with practical knowledge, professional guidance, business networks, and psychological support, which can significantly contribute to their personal and professional development (Megginson et al., 2006). Mentors provide advice, support, knowledge, and access to professional networks, thereby contributing to the development of entrepreneurs' competencies and self-confidence (Prastyaningtyas et al., 2023). Mentorship for women entrepreneurs may boost attraction, professional growth opportunities, foster a positive, collaborative work environment, build viable businesses, provide access to procurement opportunities, and break systemic economic barriers (UN Women, 2023).

Although mentorship is widely recognized as essential, its specific role in digital entrepreneurship, especially for women, remains underexplored (UNDP, 2022; Ngalesoni et al., 2024). For women in the digital sector, mentorship is crucial for enhancing entrepreneurial skills, bolstering confidence, and refining decision-making (Apriyani & Kustini, 2023). However, in emerging economies like Serbia, such initiatives are often fragmented and lack a systematic structure (Popović Šević et al., 2020). This gap is exacerbated by a lack of empirical research on how mentorship builds digital-specific competencies. Ultimately, limited awareness and the absence of formal programs continue to hinder access to vital knowledge

and resources, necessitating a more rigorous evaluation of mentorship's effectiveness in supporting women digital entrepreneurs.

As presented in Figure 1, this research examines the perceptions of women digital entrepreneurs and mentors regarding the value, challenges and potential benefits of mentorship. By combining theoretical insights with empirical data collected from women digital entrepreneurs and mentors, this study aims to better understand mentoring as an effective way for women digital entrepreneurs to gain entrepreneurial knowledge, and run their businesses more successfully (RQ1), the role of a mentor as a knowledge broker which enables the women entrepreneur to more efficiently acquire technical knowledge related to digital entrepreneurship (RQ2), and the capacity of a mentor to enhance entrepreneur's lifelong process of self-improvement, which enables the women digital entrepreneur to more efficiently acquire knowledge related to personal growth and development (RQ3).

Figure 1: Conceptual framework of the research



Source: Authors (2026)

Theoretical Framework

Entrepreneurship is widely recognized as a key driver of economic growth, innovation, and social change. However, its impact is not uniform across countries, as the effectiveness of entrepreneurial activity depends heavily on institutional and cultural contexts. Understanding these dynamics provides a foundation for analyzing how specific mechanisms, such as mentorship and digital competencies, influence entrepreneurial success, particularly among underrepresented groups, such as women in digital business.

The literature review is organized into three main sections. The first section examines the key drivers of entrepreneurship, with a particular focus on digital competencies in contemporary business environments. The second section explores mentorship as a critical support mechanism in entrepreneurial development. The final section addresses the specific characteristics and challenges faced by women digital entrepreneurs, thereby providing a foundation for the empirical part of the study.

Entrepreneurship and Digital Competencies

In their study on the global determinants of entrepreneurial motives, Hechavarría et al. (2024) introduce the concept of an institutional-ideological matrix to explain variations in the relationship between opportunity-driven and necessity-driven entrepreneurship. Their research findings, based on a sample of 109 countries, indicate that formal freedoms alone are not sufficient to guarantee high-quality entrepreneurship; rather, these freedoms are most effective in societies with pronounced secular values and lower deference to traditional authority. This highlights the importance of cultural mindset in shaping whether institutional frameworks foster economic growth or merely survival-driven ventures.

Economies at different stages of development demonstrate different patterns: in less developed countries, entrepreneurship often emerges from a lack of alternative employment opportunities, whereas in more developed economies it tends to be opportunity-driven, based on recognizing market gaps and innovating solutions. Opportunity-driven entrepreneurship positively impacts economic growth, while necessity-driven entrepreneurship generally has a limited contribution, emphasizing the role of quality institutions and targeted economic policies in promoting productive ventures (Acs, Desai, & Hessels, 2008).

The structure of national institutional arrangements also affects the rate and type of entrepreneurial activity. While regulatory environments influence the creation of new businesses, cognitive and normative dimensions, combined with access to knowledge and capital, play a crucial role in shaping high-growth, innovative ventures (Stenholm et al., 2013).

The digital entrepreneurial ecosystem comprises interconnected actors, institutions, and resources that enable the development of entrepreneurship in a particular context. Key components include institutional and regulatory support, access to finance, educational institutions, professional networks, mentorship, and an innovation-friendly culture. Within this ecosystem, knowledge and competencies represent a central resource.

Entrepreneurial knowledge encompasses technical and digital skills, market and financial understanding, managerial and strategic expertise, as well as experiential knowledge acquired through practice. Digital entrepreneurial competencies include technical skills, managerial knowledge, social networking, and personal attributes like self-confidence and resilience (Ilić et al., 2020; Krstić et al., 2019). These competencies can be developed through formal education, non-formal learning, practical experience, and mentorship (Avlijaš & Avlijaš, 2021; Marjanović et al., 2023). Once developed, knowledge, skills, and behaviors can be transferred from the individual to the team level. They become embedded in routines, systems, and organizational culture, enabling collective capability and sustained performance, which are all key enablers of mature knowledge management (Miković et al., 2024, 2020, 2019a, 2019b), resulting in the improved operational quality of work (Miković et al., 2022).

Given the importance of both institutional factors and digital competencies, additional support mechanisms are required to facilitate their effective development and application in practice. One of the most significant among these is mentorship.

Mentorship in Digital Entrepreneurship

Mentorship is a structured relationship between a more experienced individual (mentor) and a less experienced entrepreneur, aimed at facilitating knowledge transfer, skill development, and professional growth. In digital entrepreneurship, mentorship plays a particularly critical role due to the dynamic nature of digital markets and the need for rapid adaptation. Mentorship contributes to entrepreneurial development by (1) accelerating the acquisition of technical and business knowledge, (2) enhancing strategic

thinking and decision-making capabilities, (3) reducing the risk associated with business decisions, (4) strengthening psychological resilience and self-confidence, and (5) expanding access to professional networks and resources (Popović Šević et al., 2020; UNDP, 2022). Digital or online mentorship further extends these benefits by offering flexible, geographically independent access to mentors (Lall et al., 2022). Digital change relies on "knowledge spillover," where mentors act as a key bridge, helping women turn technical information into commercial innovations. Increasing this support is critical because mentors help women navigate complex 'rules of the game' and social norms that often limit their access to digital resources while also helping them reach international markets by strengthening their business strategy (Audretsch et al., 2025).

Women's Digital Entrepreneurship

Despite the growing importance of entrepreneurship and digital transformation, women remain underrepresented in digital business sectors and face a range of structural and socio-cultural barriers. Entrepreneurship enables social change, addressing market gaps, integrating actors within university and community ecosystems, ensuring that entrepreneurial activity generates inclusion and innovative solutions to societal challenges (Audretsch et al., 2025). Women digital entrepreneurs face distinct challenges that can limit the development and sustainability of their digital businesses: (1) limited access to financial resources and professional networks, (2) gaps in digital skills and technological knowledge, (3) gender stereotypes and societal expectations regarding women's roles, and (4) difficulties balancing business responsibilities with family obligations (Dobrilović et al., 2021; Siegrist, 2022; UN Women, 2023).

Mentorship has been identified as a critical mechanism to help women overcome these barriers, providing access to knowledge, skills, support networks, and professional guidance (Ngalesoni et al., 2024; Willie & Magubane, 2023). By connecting women entrepreneurs with experienced mentors, these programmes can foster competence, confidence, and business growth in the digital sector; a well-structured mentorship program can significantly influence both the professional development of female digital entrepreneurs and the overall performance and sustainability of their businesses (Abdallah et al., 2025).

Based on the reviewed literature, mentorship and digital competencies emerge as key factors influencing the success and sustainability of women

digital entrepreneurs, which is further examined in the empirical part of this study.

Research Methodology

Research Design: A Mixed-methods Approach

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to explore the role of mentorship in the development of women's digital entrepreneurship in the Republic of Serbia. The design enables a comprehensive analysis of how mentorship contributes to the acquisition of technical, managerial, and personal competencies, and of its influence on business performance and on the confidence of women entrepreneurs. The quantitative component relies on structured surveys that capture experiences, attitudes, and perceptions regarding mentorship, while the qualitative component employs semi-structured interviews with experienced mentors to gain in-depth insights into mentoring practices, strategies, and challenges in the Serbian digital business context. By combining these approaches, the study seeks not only to measure the impact of mentorship but also to understand the mechanisms through which it supports skill development, networking, and access to resources.

Sample Characteristics: Women Entrepreneurs and Mentors in the Republic of Serbia

This study adopts a mixed-methods approach: quantitative surveys via Google Forms and qualitative interviews conducted online via Zoom, following best practices in entrepreneurship research (Valerio et al., 2014). Mentorship was operationalized as an independent variable, while entrepreneurial competencies, business performance, and confidence were dependent variables (Shaver, 2010). The empirical research involved 54 women digital entrepreneurs and 23 mentors, with three mentors additionally participating in interviews.

Women entrepreneurs were selected based on their active engagement in digital business activities such as e-commerce, IT services, and online platforms, while mentors were chosen for their professional experience and direct involvement in guiding women digital entrepreneurs. This composition provides a dual perspective on mentorship, encompassing both

the recipients' experiences and the mentors' insights. Participants represent a diverse range of ages, professional backgrounds, and business experience levels, offering a detailed picture of the mentorship ecosystem in Serbia. The sample is sufficient to explore patterns in mentoring support, evaluate its effectiveness, and identify context-specific challenges and opportunities for women digital entrepreneurs.

Research Instruments and Variable Measurement

Mentorship is conceptualized as the independent variable, operationalized through indicators related to technical guidance, strategic advice, and personal development support provided by mentors. Dependent variables include the acquisition of entrepreneurial competencies, improvements in business performance, and enhanced self-confidence among women digital entrepreneurs. Data collection employed structured surveys to quantitatively measure experiences with mentorship, perceived skill development, and business outcomes, complemented by semi-structured interviews to capture qualitative insights into mentoring approaches, challenges, and effective practices. The survey and interview instruments were designed to evaluate the specific contributions of mentorship to both professional and personal development in a digital entrepreneurial context.

The research framework allows testing the central assumption that mentorship is an effective mechanism for enhancing competencies and business performance. The design permits examination of the differentiated effects of technical expertise, managerial guidance, and mentor-supported personal development, while also assessing the additional benefits of online mentorship in overcoming geographical constraints. Together, these instruments provide a comprehensive understanding of mentorship as a tool for fostering sustainable growth and competitiveness in female-led digital businesses in Serbia.

Results

The present study surveyed 54 women digital entrepreneurs, representing a diverse range of ages and educational backgrounds. Table 1 presents the demographic profile of the surveyed female digital entrepreneurs, highlighting their age distribution and educational background.

Table 1: Demographic profile of women digital entrepreneurs

Age group	% of entrepreneurs	Education	% of entrepreneurs
<25	5	Secondary school	3.7
26–35	41	Vocational /higher	7.4
36–44	35	Bachelor	38.9
45–55	17	Master	42.6
>55	2	Doctorate	7.4

Sources: Survey conducted by authors

Table 2 summarizes the respondents' entrepreneurial experience and business size, illustrating the variety in their professional backgrounds and the scale of their operations. Participants reported a broad range of experience, from less than one year to more than eleven years in digital entrepreneurship, and business sizes ranged from sole proprietorships to ventures with up to forty-nine employees. This variability underscores the relevance of mentoring programmes tailored to different experience levels and business capacities, offering insights into how mentorship can be adapted to meet diverse needs in the digital entrepreneurial ecosystem.

Table 2: Digital entrepreneurship experience and business size

Experience (years)	% of entrepreneurs	Business size	% of entrepreneurs
<1	13	1 employee	51.8
2–4	44.4	2–5 employees	31.5
5–10	29.6	6–10 employees	9.3
11+	13	11–49 employees	7.4
		50+ employees	0

Sources: Survey conducted by authors

Survey Results - Digital Competencies Among Women Entrepreneurs

Women digital entrepreneurs were engaged across multiple digital sectors, including online education (37%), digital marketing (24.1%), social media management (22.2%), online consulting and mentoring (20.4%), and IT/software development (18.5%). As respondents could indicate more than

one area of digital business activity, the cumulative percentage exceeds 100%. Knowledge acquisition occurred predominantly through online courses and training (75.9%), supplemented by online and other programmes (53.8%), in-person workshops (44.4%), conferences (40.7%), group activities (37%), and practical experience (1.9%).

In terms of mentoring engagement, 42.6% were currently participating in mentoring, 29.6% had done so previously, 18.5% had not, and 9.3% expressed interest. Notably, 74.1% of respondents indicated no preference regarding the mentor's gender, which is particularly interesting given recent research by Germann et al. (2023), which indicates that female entrepreneurs tend to achieve better outcomes when mentored by women compared to those without mentorship or those mentored by men. Entrepreneurs highlighted the importance of mentors who demonstrate understanding, provide freedom of choice, offer support, clarify goals, and actively contribute to business development. Desired skills for improvement included business strategy (66.7%), networking and partnerships (59.3%), marketing and sales (57.4%), finance (50%), team leadership (24.1%), and emotional intelligence (22.2%). Over 94% of respondents considered that mentoring should be accessible to all digital entrepreneurs, and 63% expressed willingness to pay for a high-quality mentoring programme. Personal growth practices were widespread, with 83.3% of participants engaging in activities such as workshops (46.3%), psychotherapy (42.6%), coaching (26%), further education (5.7%), and meditation or yoga (3.8%), with 79.6% affirming the necessity of personal development for managing a digital enterprise. Table 3 summarises key perceptions of women digital entrepreneurs regarding mentoring.

Table 3: Perceptions of mentoring among women digital entrepreneurs

Statement	% of respondents
Mentoring improves business competitiveness	79.6
Mentoring is necessary for digital entrepreneurs	94.4
Willingness to pay for mentoring	63
Currently participating in mentoring	42.6
Previously participated in mentoring	29.6

Sources: Survey conducted by authors

Survey Results – Mentors

The present study incorporated insights from 23 mentors, both through surveys and interviews, providing a specialized perspective on the mentoring process within the digital ecosystem. As illustrated in Table 4, the mentor profile is predominantly female, with the vast majority of participants belonging to the 36–55 age group. This demographic distribution reflects a sample of experienced professionals with established careers and significant industry tenure.

Table 4: Gender and age distribution of mentors

Characteristic	Number of mentors	% of mentors
Gender		
Female	19	82.6
Male	4	17.4
Age Group		
26–30	2	8.7
31–35	1	4.3
36–44	11	47.8
45–55	9	39.1

Sources: Survey conducted by authors

Survey results revealed that 30.4% of mentors had supported one to five women digital entrepreneurs, whereas 17.4% had mentored more than fifty. A combined mentoring approach was common, with 60.9% utilising both individual and group formats, and 65.2% employing online and in-person delivery. Table 5 presents mentors' perspectives on the impact of mentoring.

Table 5: Mentors' perspectives on mentoring impact

Statement	% of mentors
Mentoring improves skills	73.9%
Mentoring increases competitiveness	60.9%
Need to intensify mentoring programmes	87%

Sources: Survey conducted by authors

The predominant mentoring areas were personal growth and development (60.9%), digital marketing (56.5%), development strategy (25.8%), and sales and copywriting (26.1%). Mentors observed tangible outcomes in their entrepreneurs, including increased revenue and business expansion, with 73.9% reporting significant improvement in key competencies and 21.7% noting moderate benefits. Furthermore, 87% of mentors identified the need to intensify mentoring programmes. Challenges to effective mentoring were also reported, including fear of risk, unrealistic expectations, insufficient technical literacy, limited time, and inadequate knowledge of digital business management. Recommendations for enhancement focused on increasing programme availability, promoting mentoring, educating entrepreneurs about mentorship, establishing legal regulations, and ensuring mentor credibility.

Mentoring positively influences the development of digital competencies among female entrepreneurs. Educational qualifications of mentors included master's degrees (47.8%), doctoral degrees (21.7%), bachelor's degrees (17.4%), secondary education (8.7%), and higher vocational training (4.3%). Mentoring experience ranged from less than or equal to two years (17.4%), three to five years (43.5%), six to ten years (21.7%), to eleven years or more (17.4%) (Table 6).

Table 6: Educational background and mentoring experience of mentors

Characteristic	Number of Mentors	% of mentors
Education		
Secondary school	2	8.7
Higher vocational school	1	4.3
Bachelor's degree	4	17.4
Master's degree	11	47.8
Doctorate	5	21.7
Mentoring Experience		
≤2 years	4	17.4
3–5 years	10	43.5
6–10 years	5	21.7
≥11 years	4	17.4

Sources: Survey conducted by authors

Interview Findings

Interview data were analyzed using thematic analysis in order to identify key patterns related to mentoring practices, perceived benefits, and challenges in supporting women digital entrepreneurs. The findings indicate that mentoring is understood as a multidimensional process that integrates professional, technical, and personal development components. Mentors emphasized that successful digital entrepreneurship requires not only access to information and technical tools, but also continuous personal development. Accordingly, mentoring programmes are designed to combine professional training with personal growth components, addressing internal barriers, beliefs, and self-confidence. This integrative approach highlights that technical knowledge alone is insufficient without parallel development of personal competencies that influence decision-making and business performance.

In addition, all mentors highlighted that alignment of values between mentor and entrepreneur represents a key prerequisite for establishing an effective mentoring relationship. In cases of significant value misalignment, productive collaboration is often not achievable. For this reason, mentors also reported using value compatibility as an informal selection criterion when engaging with entrepreneurs, ensuring mutual understanding and commitment to the mentoring process.

Regarding delivery formats, a hybrid mentoring model combining online and in-person interaction was identified as the most effective approach. While online mentoring provides flexibility and broader accessibility, face-to-face interaction enables deeper engagement, stronger interpersonal connections, and more tailored support. However, mentors noted that exclusive reliance on online formats may reduce participant engagement and limit overall effectiveness.

Finally, mentors attribute a significant positive impact of mentoring on both competency development and business performance. Interview findings in that regard fully align with the survey results; more than 73.9% of mentors affirmed that mentoring contributes substantially to the development of key skills, while 35.1% of women digital entrepreneurs reported strong support for their business activities. In addition, over 90% of respondents emphasized that critical success factors include mentor understanding, open and continuous feedback-based communication, trust, emotional support, and the ability to guide problem-solving processes.

Furthermore, 60.9% of mentors and 79.6% of women digital entrepreneurs perceived that mentoring significantly enhances competitiveness and contributes to overall business success.

Despite these positive outcomes, several challenges were identified that limit the full effectiveness of mentoring practices. These include mismatched expectations between mentors and entrepreneurs, varying levels of technical knowledge, limited time availability, and difficulties in selecting appropriate mentors. Mentors also pointed out that entrepreneurs are often influenced by marketing visibility rather than actual mentor suitability. Moreover, the lack of formal regulation, structured feedback mechanisms, and transparent evaluation platforms was recognized as a significant systemic limitation. Taken together, these findings indicate the need for more structured, transparent, and accessible mentoring systems in order to improve effectiveness, accountability, and overall credibility of mentoring programmes.

Discussion and Implications

Interpretation of Findings in the Context of Existing Literature and Research Questions

The discussion is structured around the research questions and integrates the empirical findings with existing literature. The findings of this study highlight the multifaceted role of mentoring in supporting the development of women digital entrepreneurs. Mentoring is defined as the process by which a more experienced individual (mentor) assists and guides a less experienced digital entrepreneur in developing business skills and knowledge. The findings indicate that mentoring is an effective way for women digital entrepreneurs to gain entrepreneurial knowledge and run their business more successfully. The findings of this research substantiate that mentoring not only facilitates the process of acquiring entrepreneurial knowledge but also increases the efficiency of digital entrepreneurs' business through the application of acquired knowledge in practice (RQ1).

The mentor who has technical knowledge related to digital entrepreneurship enables women digital entrepreneurs to acquire technical knowledge more efficiently. The results show that mentors provide valuable information and skills that enable women digital entrepreneurs to master the technical aspects of their business faster and more efficiently, resulting in

improved performance and competitiveness in the market (RQ2). A hybrid mentoring model combining online and in-person elements emerged as the most effective approach in this research. While online mentoring provides flexibility, broader accessibility, and time efficiency, in-person meetings are essential for establishing trust, fostering deeper relationships, and enabling personalized guidance. These findings highlight the complementary nature of digital and physical mentoring modalities and support recommendations for blended mentoring programmes in the digital entrepreneurship context. Research by Megginson et al. (2006) demonstrates that hybrid approaches, combining online and in-person interactions, increase engagement and learning outcomes. Similarly, Lall et al. (2022) confirm that flexible mentoring models are particularly effective in diverse professional settings, allowing mentees to balance accessibility with personalized guidance.

The Mentorship is not only a mechanism for transmitting technical knowledge and business expertise; it also plays a critical role in fostering personal growth and resilience. In the context of digital entrepreneurship, mentorship contributes to the acquisition of digital skills and supports business growth. It strengthens women's overall entrepreneurial capacity, including resilience, competitiveness, and sustainability of digital businesses (UN Women, 2023; UNDP, 2022; Siegrist, 2022). Mentors emphasized that access to information and tools, while necessary, is insufficient for entrepreneurial success; personal development and the cultivation of confidence, self-awareness, and goal orientation are equally essential. Mentors should possess knowledge of lifelong learning processes for self-improvement, enabling women digital entrepreneurs to more efficiently acquire knowledge for personal growth and development. Mentors who have expertise in personal development can help women digital entrepreneurs develop essential skills such as leadership, stress management, and emotional intelligence, which contribute to their overall business success (RQ3). This aligns with the existing literature, which argues that enhancement of entrepreneurial performance is a result of the interplay between technical competencies and personal capabilities (Apriyani & Kustini, 2023), fostering greater confidence and capability among entrepreneurs (Clutterbuck, 2004). The data further indicate that compatibility of values between a mentor and a mentee is a crucial determinant of a successful mentoring relationship. Mentors reported using shared values as a "filter" to select entrepreneurs, ensuring alignment in motivation and vision. This confirms prior studies asserting that value

congruence improves mentoring efficacy and supports sustained engagement.

Despite these benefits, mentors highlighted challenges such as limited technical literacy and time constraints, which are consistent with previous studies on women's entrepreneurship, pointing to practical barriers such as limited technical literacy and time constraints, which can reduce the effectiveness of mentoring programs (Dobrilović et al., 2021; Popović Šević et al., 2020). Women digital entrepreneurs additionally reported limited visibility of mentoring opportunities, insufficient standardization of programmes, and the absence of platforms for evaluating mentor credibility. Addressing these challenges requires careful design of mentoring initiatives, including consideration of entrepreneurs' skills, schedules, and preferred modes of interaction.

Practical Recommendations for Support Programs in Serbia

Based on the findings, which coincide with the literature findings pointing to the hybrid mentoring models, structured mentor training, focus on personal growth, increased accessibility, and regulatory oversight (Clutterbuck, 2004; Megginson et al., 2006), several practical recommendations can be proposed: (1) Implement a hybrid mentoring approach that combines online accessibility with at least one in-person meeting to balance flexibility with personal connection; (2) Provide mechanisms such as "Mentor-to-Mentor" networks, standardised guidelines, and opportunities for sharing best practices to strengthen mentor expertise and confidence; (3) Develop platforms for objective mentor evaluation and mentee feedback to ensure alignment of skills, values, and expectations between mentors and entrepreneurs; (4) Include modules addressing self-confidence, emotional intelligence, stress management, and leadership skills alongside technical training, recognising the integral role of personal development in business success, (5) Increase awareness of mentoring programmes through social media and digital networks, ensuring that female entrepreneurs, particularly those in rural or underserved regions, can identify and access suitable mentors; (6) Establish national standards for mentoring competencies and professional qualifications to safeguard quality, build trust, and enhance the credibility of mentors; and (7) Recognise the willingness of women entrepreneurs to invest in high-quality mentoring programmes, providing opportunities for sustainable market development of mentoring services.

Research Contributions: Theoretical and Social Impact

This study contributes to the theoretical understanding of digital entrepreneurship by emphasising the dual function of mentorship in both professional and personal development. It demonstrates that mentoring is a key mechanism for bridging gaps in technical knowledge, social capital, and personal confidence, confirming and extending prior research in this field. Socially, the findings underline the importance of mentoring as a tool for empowering women in digital business, particularly in contexts with limited access to established networks. By highlighting the need for structured programmes, regulatory oversight, and accessible platforms, this study provides actionable insights for policymakers, business support organizations, and educational institutions aiming to strengthen the female entrepreneurial ecosystem in Serbia, as well as across other emerging markets.

Conclusion

This study investigated the role of mentorship in developing competencies of women digital entrepreneurs in Serbia, focusing on both technical skills and personal growth. The findings indicate that mentoring significantly enhances entrepreneurial capacity by providing expertise, guidance, and support for overcoming internal and external challenges. Mentorship positively influences business performance and competitiveness by combining technical knowledge transfer with personal development interventions, such as building confidence, developing emotional intelligence, and enhancing leadership skills. Hybrid mentoring models, integrating online and in-person formats, were identified as the most effective, allowing flexibility while maintaining the personal connection required for meaningful impact. The research also highlights that access to mentors remains a challenge due to limited visibility, insufficient standardization of programmes, and the absence of platforms for evaluating mentor credibility. Despite these challenges, women digital entrepreneurs demonstrate high motivation to engage in mentorship, and both mentors and mentees recognize its tangible benefits for business success.

While this study provides valuable insights for emerging markets similar to Serbia, several limitations should be noted. Firstly, the research sample was restricted to specific geographic and demographic groups,

which may limit the generalization of the findings. Secondly, the data were primarily self-reported, introducing potential biases in responses. Future research should explore sector-specific mentoring needs, the long-term impact of mentoring on business performance, and the accessibility of programmes in rural and underrepresented regions. Additionally, the development of digital platforms for mentor evaluation and networking could be investigated as a strategy for improving the efficiency, transparency, and inclusivity of mentoring programmes.

The findings suggest that intensifying mentorship programmes should be accompanied by regulatory frameworks ensuring mentor quality, the creation of accessible digital platforms to connect mentors and mentees, and targeted support for entrepreneurs in rural and underserved areas. Policymakers and support organizations are encouraged to recognize mentorship as a strategic tool for fostering female entrepreneurship and to develop initiatives that enhance accessibility, visibility, and effectiveness of mentoring services. Implementing these measures can strengthen the overall ecosystem of women-led digital businesses.

Ultimately, mentorship emerges as a key driver of both professional and personal development, playing a crucial role in improving competitiveness, supporting sustainable growth, and advancing the position of women in the digital economy.

References

- [1] **Abdallah, F., Antonijević, M., Domazet, I.** (2025). Determinants of Women's Financial Inclusion: Evidence from the Gulf and the Western Balkan Region, *Journal of Women's Entrepreneurship and Education*, (3-4), 89-106. <https://doi.org/10.28934/jwee25.34.pp95-112>
- [2] **Acs, Z., Desai, S., & Hessels, J.** (2008). Entrepreneurship, Economic Development and Institutions. *Small Business Economics* 31(3), 219-234. <https://doi.org/10.1007/s11187-008-9135-9>
- [3] **Antonijević, M., & Domazet, I.** (2024, May). Relationship between Digital Financial Inclusion and Country Development. *Proceedings 2024*, 101(1). <https://doi.org/10.3390/proceedings2024101010>
- [4] **Antonijević, M., Domazet, I., Kojić, M., & Simović, V.** (2024). Financial Inclusion – A Driving Force for Women's Entrepreneurship Development, *Journal of Women's Entrepreneurship and Education*, (3-4), 73-92. <https://doi.org/10.28934/jwee24.34.pp73-92>
- [5] **Apriyani, M., & Kustini, K.** (2023). The influence of entrepreneurial competence and entrepreneurial knowledge on business success in MSMEs

- in Madiun City. *Syntax Admiration*, 4(6).
<https://doi.org/10.46799/jsa.v4i6.625>
- [6] **Ateeq, A.** (2024). Emerging Economies and Digital Transformation: Opportunities and Challenges. In: AlDhaen, E., Braganza, A., Hamdan, A., Chen, W. (eds) *Business Sustainability with Artificial Intelligence (AI): Challenges and Opportunities*. Studies in Systems, *Decision and Control* (568). Springer, Cham. https://doi.org/10.1007/978-3-031-71526-6_12
- [7] **Audretsch, D., Belitski, M., & Fiedler, A.** (2025). The knowledge spillover theory of entrepreneurship and innovation: taking stock and new directions. *Journal of Technology Transfer*. <https://doi.org/10.1007/s10961-025-10215-9>
- [8] **Avlijaš, R., & Avlijaš, G.** (2021). *Preduzetništvo*. Univerzitet Singidunum.
- [9] **Clutterbuck, D.** (2004). Making the most of informal mentoring: A positive climate is key. *Development and Learning in Organizations: An International Journal*, 18(4), 16–17.
<https://doi.org/10.1108/14777280410544574>
- [10] **Cull, J.** (2006). Mentoring young entrepreneurs: What leads to success? *International Journal of Evidence Based Coaching and Mentoring*, 4(2).
- [11] **Dobrilović, M., Popović Šević, N., Ilić, M., & Hadžić, A.** (2021). Female digital entrepreneurship and development of digital entrepreneurial competences in Serbia. *ZINC Conference*.
<https://doi.org/10.1109/ZINC52049.2021.9499266>
- [12] **Germann, F., Anderson, S., Chintagunta, P., & Vilcassim, N.** (2023). Breaking the Glass Ceiling: Empowering Female Entrepreneurs through Female Mentors. *BFI Working paper*. <https://bfi.uchicago.edu/working-paper/breaking-the-glass-ceiling-empowering-female-entrepreneurs-through-female-mentors/>
- [13] **Hechavarria, D., Guerrero, M., Terjesen, S., & Grady, A.** (2024). The implications of economic freedom and gender ideologies on women's opportunity-to-necessity entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, 30(7), 1614–1651.
<https://doi.org/10.1108/IJEER-04-2023-0429>
- [14] **Ilić, M., Ranković, M., Janić, L., & Mitić, B.** (2020). Indicators of Entrepreneurial Behaviour and Attitudes for Entrepreneurs of Slovenia and Croatia, in 2018/2019. *Journal of Economic Development, Environment and People*, 9(1), 6-16.
- [15] **Jovanovic Milenković M., & Petrovic F.** (2023), The Impact of Digitization on the Formation of a New Model for Geospatial Data. *Sustainability*, 15(22), 16009. <https://doi.org/10.3390/su152216009>
- [16] **Jovkić, M., & Miković, R.** (2025). Mentoring networks as a form of collective intelligence in digital women's entrepreneurship. In Proceedings of the 29th International Congress on Project Management "Collective

- Intelligence of Professional Project Management*” (pp. 93–100). (5–7 June 2025).
- [17] **Krstić, J., Reljić, M., & Filipović, S. (2019).** Factors influencing electricity consumption: a review of research methods. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, 24(2), 13–22. <https://doi.org/10.7595/management.fon.2018.0021>
- [18] **Lall, A. S., Chen, L., & Mason, P. D. (2022).** Digital platforms and entrepreneurial support. *Small Business Economics*, 61(2), 631–654. <https://doi.org/10.1007/s11187-022-00704-8>
- [19] **Lazarević-Moravčević, M., Mosurović Ružičić, M., & Minović, J. (2023).** Gender Inequality in Education and Science: The Case of Serbia. *Journal of Women's Entrepreneurship and Education*, (3-4), 143–166. <https://doi.org/10.28934/jwee23.34.pp143-166>
- [20] **Malone, T. W., & Bernstein, M. S. (2015).** *Handbook of collective intelligence*. MIT Press.
- [21] **Marjanović J., Domazet I., Miljković J., (2023),** Higher Education Branding through Instrumental Values, *Journal of Women's Entrepreneurship and Education*, (3-4), 75-94. <https://doi.org/10.28934/jwee23.34.pp75-94>
- [22] **Megginson, D., Clutterbuck, D., Garvey, B., Stokes, P., & Garret-Harris, R. (2006).** *Mentoring in action*. Kogan Page.
- [23] **Miković, R., Arsić, B., & Gligorijević, Đ. (2024).** Importance of social capital for knowledge acquisition– DeepLIFT learning from international development projects, *Information Processing and Management*, 61(2024). <https://doi.org/10.1016/j.ipm.2024.103694>
- [24] **Miković, R., Arsić, B., Gligorijević, Đ., Gacić, M., Petrović, D., & Filipović, N. (2019b).** The influence of social capital on knowledge management maturity of nonprofit organizations - predictive modelling based on a multilevel analysis. *IEEE Access*, 7(1), 47929–47943. <https://doi.org/10.1109/ACCESS.2019.2909812>
- [25] **Miković, R., Čabarkapa, O., Viduka, B., & Berić, I. (2022).** Social capital features navigating the quality of quality of knowledge management process in project-oriented organizations. *International Journal for Quality Research*, 17(4), 1011–1024. <https://doi.org/10.24874/IJQR17.04-03>
- [26] **Miković, R., Petrović, D., Mihić, M., Obradović, V., & Todorović, M. (2020).** Integration of social capital and knowledge management – the key challenge for international development and cooperation projects of nonprofit organizations. *International Journal of Project Management*, 38(8), 515–533. <https://doi.org/10.1016/j.ijproman.2020.07.006>
- [27] **Miković, R., Petrović, D., Mihić, M., Obradović, V., & Todorović, M. (2019a):** Examining the relationship between social capital and knowledge

- usage in the nonprofit industry, *Knowledge Management Research and Practice*, 17(3), 328-339. <https://doi.org/10.1080/14778238.2019.1638740>
- [28] **Ngalesoni, O., Mwakifwamba, G., & Pandisha, H.** (2024). The Effectiveness of Mentoring Programs on Empowering Women Entrepreneurs in Tanzania: A Case of Babati District Council. *International Journal of Entrepreneurship and Project Management*, 9(2)1-16. **Popović Šević, N., Ilić, M., & Stojaković, D.** (2020). Marketing pristup ženskom preduzetništvu u kreativnim industrijama Srbije. *Zbornik radova godišnji naučni skup Umetnost, mediji, komunikacije: novi pristupi, nove paradigme*. Beograd: Fakultet savremenih umetnosti.
- [29] **Prastyaningtyas, E., Sutrisno, S., Soeprajitno, E., Ausat, A., & Suherlan, S.** (2023). Analysing the role of mentors in entrepreneurship education. *Journal on Education*, 5(4), 14571-14577. <https://doi.org/10.31004/joed.v3i2.207>
- [30] **Shaver, K.** (2010). *The Social Psychology of Entrepreneurial Behavior*. In Acs, J., Z., & Audretsch, D., B. (Eds.). Handbook of entrepreneurship research, An interdisciplinary survey and introduction. International handbook series on entrepreneurship, Vol 5 (pp. 359–388). <https://doi.org/10.1007/978-1-4419-1191-9>
- [31] **Siegrist, F.** (2022) Supporting Women Entrepreneurs in Developing Countries: What Works? *Women Entrepreneurs Finance Initiative*. <https://openknowledge.worldbank.org/entities/publication/e0c95a0e-ea36-4eea-803f-bee02c749b8c>
- [32] **Simović, V., & Domazet, I.** (2021). An Overview of the Frameworks for Measuring the Digital Competencies of College Students: A European Perspective. In: *Stagnancy issues and change initiatives for global education in the digital age*. IGI Global, Hershey, PA, pp. 259-282.
- [33] **Simović, V., & Ilić, M.** (2021). *Digitalno preduzetništvo*. Beograd: Institut ekonomskih nauka.
- [34] **Stenholm, P., Acs, Z., & Wuebker, R.** (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *Journal of Business Venturing*, 28(1), 176-193. <https://doi.org/10.1016/j.jbusvent.2011.11.002>
- [35] **UN Women.** (2023). *Preduzetništvo žena u Srbiji: 10 godina kasnije*. <https://www.unwomen.org/en/news/stories/2023/03/feature-serbia-women-entrepreneurship-10-years-later>
- [36] **UNDP.** (2022). *Mentorship as a key to success: Women entrepreneurs from regions to benefit from UNDP mentorship programme*. <https://www.undp.org/serbia/publications>
- [37] **Valerio, A., Parton, B., & Robb, A.** (2014). *Entrepreneurship education and training programs around the world*. World Bank <https://openknowledge.worldbank.org/handle/10986/18268>

- [38] **Wanberg, C. R., Welsh, E. T., & Hezlett, S. A.** (2003). Mentoring research: A review and dynamic process model. *Research in Personnel and Human Resources Management*, 22, 39–124. [https://doi.org/10.1016/S0742-7301\(03\)22002-0](https://doi.org/10.1016/S0742-7301(03)22002-0)
- [39] **Willie, M. M., & Magubane, M.** (2023). Exploring the role of mentorship and business development support in the success of SMMEs in South Africa. Preprint. <https://doi.org/>

Article history: Received: March 18, 2026

Accepted: June 3, 2026

First Online: June 3, 2026

DOI: 10.28934/jwee26.12.pp266-287


JEL: I31, J24, J44, M54

ORIGINAL SCIENTIFIC PAPER

Women Professionals in the Obscurity: Roles, Responsibilities and Emotional Costs in Accounting in Colombia



Diego Mauricio Barragán Díaz¹ 
Bogotá, Colombia

Juan Carlos Morales Piñero² 

María Eugenia Morales Rubiano³ 

New Granada Military University, Faculty of Economics, Bogotá, Colombia

ABSTRACT

This article analyses the work of women in essential but often unrecognised roles within organisations. A quantitative methodology involving a survey of 1,106 women and men employed in accounting in Colombia in 2022 was employed. Women in the labour market can easily find employment, either as employees or freelancers, and they strive to achieve job and personal stability. They perform operational tasks that are important for individuals and organisations, yet they receive little social recognition for their work. Additionally, women juggle multiple roles in their daily lives and, alongside their core responsibilities, take on additional tasks delegated by managers or colleagues, which intensify at certain times of the year. Future studies should aim to elucidate the positive and negative factors influencing women's professional performance. As their operational activities and multiple roles are not visible, women receive little professional recognition. For women, practising their profession involves performing

¹ Corresponding author, e-mail: diebarragan@gmail.com

² E-mail: Juanc.moralesp@unimilitar.edu.co

³ E-mail: maria.morales@unimilitar.edu.co

operational tasks and taking on multiple roles with heavy workloads in a job market with few opportunities for advancement and deep inequalities.

KEYWORDS: *professions, women, responsibilities, roles, emotions*

Introduction

Research into the working lives of professional women is becoming increasingly important for understanding labour markets and the challenges faced by female workers. Early research focused on women employed in international firms or as executives and business owners (Zabludovsky, 2020; Serna, 2003). A further perspective highlights the diversity of sectors in which women are engaged, including finance, management consulting, law, accounting, technology, health and education (Ashley et al., 2023; Del Real & Álvarez, 2024; Ansoleaga et al., 2015). Women are present across a variety of organisations and sectors.

Studies concerning women frequently focus on the issue of labour inequality (Flego & Ortega, 2020). Despite political rhetoric aimed at promoting equality, disparities persist in practice (Serna, 2003, p. 95). The inequality experienced by working women is pervasive and is often reflected in adjectives such as 'persevering', 'adaptable' and 'resilient' (Scott, 1996). Women often take on additional responsibilities alongside their official duties (Del Real & Álvarez-Monsiváis, 2024; Zabludovsky, 2020). While organisations may evolve in response to market dynamics and adopt new technologies, certain functions remain unchanged, thus perpetuating long-standing stereotypes. Consequently, the vital role of women in organisational functioning continues to be overlooked.

Despite the increased visibility of female executives in large firms, entrenched disparities persist within occupational traditions (Arango, 2025). These disparities fluctuate, sometimes diminishing and at other times intensifying. While both men and women participate in the workforce, the significance lies in the positions they occupy and the esteem with which their contributions are regarded (Scott, 1993). The concepts of 'pink collar jobs' and the 'glass ceiling' help to explain why, despite their strong performance in routine tasks linked to everyday operations, women are in subordinate roles (Ashley et al., 2020).

According to Barragán & Escobar (2025), professions such as law, business administration, accounting, and engineering are highly regarded

within the labour market and are associated with significant prestige and financial reward. For many women, entering these fields can lead to social mobility, improving their career prospects and standard of living. While these professions are usually associated with multinational corporations, it is important to recognise that women also work in micro, small and medium-sized enterprises that span various markets and sectors, which are vital for economic sustainability (Ashley et al., 2020; Marchionni et al., 2018). Despite facing numerous challenges, women practising in these professions help to reduce the socioeconomic inequalities and conflicts that are prevalent in their surroundings. For instance, in 2016, women constituted 56% of professionals in business administration, law, healthcare, education, and accounting in Mexico (Zabludovsky, 2020, p. 437).

The article analyses women in key organisational positions whose work receives little recognition. It looks at professionals who carry out operational tasks and are responsible for important economic and organisational processes. These professionals have been performing the same activities for many years (e.g. administrators, lawyers and accountants). They may be connected to individuals or organisations within a labour market that offers women opportunities to practise their profession and achieve decent living conditions (Ashley et al., 2023). The nature of this process and of those who participate in it can only be determined in a specific context of time and space (Scott, 1996, p. 300). The article examined the roles, responsibilities and emotions of female accounting professionals in Colombia, emphasising that accounting is a female-dominated profession offering high employment opportunities (Barragán, 2025; Junta Central de Contadores, 2022). To guide this study, the following research questions were formulated: (1) What sociodemographic, labour, and health-related factors are associated with the probability of being a woman in the accounting profession in Colombia? (2) How do educational attainment, working hours, marital status, second language proficiency, and work-related health problems jointly shape the gendered distribution of professional roles? (3) To what extent do these factors reflect a condition of 'professional obscurity' among women in operational accounting roles?

Literature Review

The complex nature of professional women's work requires a nuanced approach, necessitating the exploration of various analytical and intervention frameworks (Stanišić & Ječmenica, 2025; Ashley et al., 2023; Kaplan, 2022; Zabludovsky, 2020; Flego & Ortega, 2020; Marchionni et al., 2018; Avolio & Di Laura, 2017; Scott, 1996; Acker, 1990). This study uses the concept of 'obscurity' to describe women who carry out essential tasks within organisations, yet are not recognised for their work and are excluded from future projects or institutional reforms. Although their colleagues are aware of them and their contributions, these women work behind the scenes, carrying out vital activities such as gathering information, managing processes and providing support for decision-making. The term 'obscurity' encapsulates the paradoxical juxtaposition of their essential roles with a lack of visibility and recognition.

Access to employment is often viewed as a mechanism of social advancement for professional women (Ashley et al., 2020, p. 81). In recent years, there has been a notable increase in women entering the workforce, particularly within developing economies. They have pursued education in fields such as law, business administration, medicine and accounting to a much greater extent than previously. However, this growth has been accompanied by rising inequalities in working conditions, salaries, hierarchical status and opportunities for influence and leadership (Flego & Ortega, 2020; Acker, 1990). Women's contributions are increasingly driving advancements in areas such as micro-financing, social entrepreneurship, regulatory frameworks for multinational corporations and international policy initiatives (Ashley et al., 2020). As Mental Health Europe (MHE) highlighted in 2011, a significant proportion of women are in precarious employment characterised by job insecurity, low pay, and poor working conditions (MHE, 2011, p. 14). It has been suggested that the employment of women often signifies an employer's cost-reduction strategy, which frequently results in insufficient social security (Scott, 1996, p. 278). The challenging circumstances faced by women in the workforce reflect an ongoing structural issue: while there is formal political equality, there are still pervasive inequalities in practice (Aguirre, 2003).

Women's participation in, and above all promotion within, employment in the region has increased (Avolio & Di Laura, 2017). This increase is notable for two reasons. First, it occurs in low-paid, low-skill roles

involving dependants. Second, it also occurs in high-skill positions, such as management roles and self-employment, most of which involve dependants (Merchionni et al., 2018). In economics, alongside female lawyers and business administrators, accountants particularly likely to participate in labour activities (Zabludovsky, 2020; Ansoleaga et al., 2015). However, accounting is also one of the most stressful professions, involving pronounced health issues and poor working conditions, such as low salaries and a lack of recognition (Urbański et al., 2024; Gupta et al., 2022).

In organisational contexts, dichotomous narratives about labour markets have historically suggested that women are either in subordinate positions or unsuitable for leadership roles (Gómez, 2004). This discourse has been entrenched since the nineteenth century and continues to permeate contemporary labour markets, perpetuating the idea that power dynamics in the workplace predominantly favour men (Scott, 1993). Although gender disparities have diminished, they remain significant. For instance, in 2014, women accounted for just 23% of middle management positions in Mexico and only 5% of executive roles in large organisations (Zabludovsky, 2020). This trend reflects the ongoing change in the labour market regarding women in executive and senior professional roles, which is partly driven by the internationalisation of the workforce, particularly in certain sectors such as management and partnerships (Arango, 2025).

The evolving labour market has adopted a more meritocratic approach, placing greater emphasis on remuneration, performance and productivity, and less on gender (Arango, 2025; Ansoleaga et al., 2015; Scott, 1996). Nevertheless, it still operates within a framework of sexual and geographical divisions, resulting in ongoing inequities in labour roles. Kaplan (2022) clarifies the notion of 'invisible work', which is carried out by women and encompasses both their professional duties and their responsibilities within their personal lives and family structures. Women are often expected to engage in four distinct types of invisible labour. The first is emotional labour, which involves providing support to colleagues on work-related and personal matters and offering encouragement and a listening ear. The second type consists of administrative tasks, such as organising activities and maintaining cleanliness in the workplace, responsibilities which are often not included in formal job descriptions. The third type involves physical care and demands attention to personal appearance, as well as the nurturing of relationships with colleagues. This includes recognising and attending to the emotional states of those around them. Lastly, teamwork

involves initiatives after meetings and maintaining harmonious relationships within the team, which requires significant interpersonal management.

Kaplan (2022) argues that these functions are essential, yet they are often unrecognised, unpaid, and undervalued. Societal narratives suggest that women are naturally suited to these roles. The intensity of office-related activities has increased further as a result of the pandemic, particularly in operational sectors (Zabludovsky, 2020). Some studies have found a direct correlation between increased work intensity and greater role complexity on the one hand, and the prevalence of stress-related health issues on the other (Urbański et al., 2024; Gupta et al., 2022; Ansoleaga et al., 2015). The traditional view is that intensified workloads and multidimensional responsibilities can negatively affect women's health, particularly if they are also balancing partnerships, childcare, or caregiving roles. Conversely, Gómez (2004) offers an alternative perspective, highlighting studies that suggest that many employed women with partners and children experience increased self-esteem and efficacy, as well as lower levels of depression (p. 119). This suggests that the intersection of work and domestic responsibilities for women is complex and multifaceted, highlighting the need for a nuanced understanding of their experiences in professional environments.

The interaction between the various roles that women assume has received increasing attention in academic research. Studies indicate that the implications of juggling multiple roles depend on various factors, such as the context in which the roles are performed, working conditions, the age of children, partner support, educational attainment and occupational type (Gómez, 2004). Crucially, the quality of these roles, defined as the balance between perceived satisfactions and concerns, is key to understanding their impact on health outcomes. Working under favourable conditions can enhance income and offer social support. It can also provide opportunities to achieve success and fulfil essential emotional needs, such as a sense of belonging, self-efficacy and independence (Gómez, 2004). Therefore, for both women and men, holding multiple roles does not necessarily lead to imbalances. These roles can be managed effectively, contributing positively to self-esteem and personal fulfilment rather than causing stress or health issues.

In recent years, there has been a marked increase in women's participation in higher education in Latin America, particularly in fields that promote social and economic mobility (Marchionni et al., 2018; Avolio,

2016). However, women often face challenges such as limited access to advanced training at master's and doctoral level. Consequently, they tend to choose shorter courses that allow them to balance their daily responsibilities while developing their professional skills (Barragán, 2025). These short courses are vital for developing the competencies required to excel in their roles (Barragán & Escobar, 2025).

Emotional bonds formed in professional settings play a significant role in women's work experiences (Stanišić & Ječmenica, 2025). While the relationships women build with family, colleagues and other significant individuals can provide emotional support, they can also become a burden over time (The Economist, 2024; Kaplan, 2022). Women often juggle various roles, and societal expectations surrounding the maternal figure can create the perception that emotional connections hinder professional advancement (Arango, 2025; Scott, 1996). Historically, women were required to remain single and childless to secure office positions, reflecting the belief that dependants diminished productivity (Scott, 1993). However, as Gómez (2004) emphasises, emotional bonds can enhance work performance when situated within supportive conditions (Marchionni et al., 2018).

Furthermore, workplace violence is a significant issue in many countries (MHE, 2011) and can manifest as physical or psychological harassment and unequal pay. Health professionals are particularly vulnerable to these adverse conditions (Ansoleaga et al., 2015; Gómez et al., 2004). Despite the prevalence of emotional bonds in the work of professional women, many of these connections remain unacknowledged and underappreciated, existing largely in obscurity (Kaplan, 2022). This literature sheds light on the complexities women face when balancing their professional and personal lives, as well as the interplay of roles, emotional dynamics, and systemic challenges impacting their career trajectories.

Despite the valuable insights provided by prior research on invisible work (Kaplan, 2022), gendered organisations (Acker, 1990), and women's labour inequality in Latin America (Marchionni et al., 2018; Zabludovsky, 2020), few studies have quantitatively examined how multiple factors, including educational level, working hours, marital status, language proficiency, and health problems, jointly predict the probability of being a woman in a highly feminised yet vertically segregated profession such as accounting. Furthermore, the concept of 'obscurity' has been mainly explored through qualitative lenses. This study extends existing empirical

and theoretical contributions by operationalising obscurity through a logistic regression model applied to a large sample of Colombian accountants. In doing so, it responds directly to the research questions formulated above and strengthens the journal's body of research on gender, professions, and organisational dynamics.

Methodology

Study Design and Sample

This study employs a quantitative, cross-sectional, correlational-predictive design, drawing on secondary data from the 2022 National Accountancy Survey, which was conducted by the Faculty of Accounting at the Externado University of Colombia. The survey targeted professionals qualified to practise accountancy in Colombia (Barragán & Escobar, 2025). The primary aim is to identify the factors that influence the likelihood of an accounting professional being female, while taking into account sociodemographic, labour, and health variables. The population under review comprised 298,580 registered public accountants in Colombia (JCC, 2022). A non-probability snowball sampling method was used to select a sample of 1,106 professionals (533 women, 480 men, and 93 missing cases).

The 2022 National Accountancy Survey is divided into the following sections:

- Sociodemographic characteristics (7 items)
- Employment characteristics (13 items)
- Educational traits (10 items)
- Working conditions and information technology (11 items)
- Quality of life (10 items)

A preliminary characterisation of the sample was performed, segregated by gender, using frequencies, percentages, and measures of central tendency for the main variables. A binary logistic regression model was then employed to identify factors that predict the probability of a professional being female, based on the five independent variables described in the next section. Logistic regression models are essential for evaluating the likelihood of an event, particularly when the dependent variable is binary. They have diverse applications in areas such as health (Martinez & Perez, 2024), education (Morales et al., 2020) and business (Velu, 2021), to

name a few. Variables were selected using a stepwise procedure, retaining those that were statistically significant ($p < 0.05$), as outlined in the methodology.

Variables and Operationalisation

The dependent variable was set as a dichotomous variable representing gender, where "female" indicates the presence of the event and "male" indicates its absence (1 = yes, 0 = no). The significant independent variables in the final model were:

Table 1: Operationalisation of variables

Section	Variable	Scale/Categories	Coding
1	What is your highest level of education?	Undergraduate, Specialization, Master's, and Doctorate	Ordinal (1-4)
2	What is your current marital status?	Single, Cohabiting, Married, Divorced, Widowed, Other	Categorical (1-6)
3	How many hours do you work on average per day? Indicate from 0 to 24	0 to 24 hours	Continuous
4	Do you speak a second language?	Yes/No	Binary (1/0)
5	Regarding employment and health, have you had any work-related health problems?	Yes/No	Binary (1/0)

Source: Own elaboration

Assumptions and Validation

Data processing and analysis were performed using SPSS version 28. To ensure the model's validity, several assumptions were tested. The absence of multicollinearity among the independent variables was verified using the variance inflation factor ($VIF < 2$). Furthermore, the independence of errors was examined using the Durbin–Watson test (0.1–0.3) and the model's goodness of fit was assessed using the Hosmer–Lemeshow test ($p > 0.05$), the statistical efficiency test of ROA using chi-square and Nagelkerke's pseudo R^2 (Alderete, 2006).

Results

Table 2: Descriptive Statistics

Variable	Category	Coding	Frequency			Relative Frequency	
			Male	Female	Total	Male	Female
Currently, what is your marital status?	Single	0	91	224	315	17,77%	38,23%
	Cohabiting	1	92	91	183	17,97%	15,53%
	Married	2	291	199	490	56,84%	33,96%
	Divorced/Separated	3	31	55	86	6,05%	9,39%
	Widowed	4	7	12	19	1,37%	2,05%
TOTAL			512	581	1093	100%	100%
With the COVID-19 pandemic, some working conditions changed. Which ones remain important today? teleworking	Not important	0	32	38	70	6,50%	6,83%
	Slightly important	1	38	53	91	7,72%	9,53%
	Moderately important	2	117	113	230	23,78%	20,32%
	Very important	3	211	220	431	42,89%	39,57%
	Extremely important	4	94	132	226	19,11%	23,74%
TOTAL			492	556	1048	100%	100%
In which of the following dimensions do you consider that you have developed the most of your work experience?	Operational (tax processes and report generation)	0	291	390	681	57,74%	67,83%
	Relational (commercial)	1	12	10	22	2,38%	1,74%
	Managerial	2	108	84	192	21,43%	14,61%
	Control (Audit, compliance, and statutory audit)	3	71	78	149	14,09%	13,57%

Variable	Category	Coding	Frequency			Relative Frequency	
			Male	Female	Total	Male	Female
TOTAL	Other	4	22	13	35	4,37%	2,26%
			504	575	1079	100%	100%
What is your highest level of education?	Professional	0	191	245	436	37,30%	42,17%
	Specialisation	1	229	273	502	44,73%	46,99%
	Master's	2	79	60	139	15,43%	10,33%
	Doctorate	3	13	3	16	2,54%	0,52%
TOTAL			512	581	1093	100%	100%
Regarding employment and health: Have you had any work-related health problems?	Yes	0	205	306	511	41,08%	55,14%
	No	1	277	233	510	55,51%	41,98%
	N/A	2	17	16	33	3,41%	2,88%
TOTAL			499	555	1054	100%	100%

Source: Own elaboration

The data suggest contrasting patterns in marital status. 56.84% of men are married, compared to 33.96% of women. Conversely, women are more likely to be single (38.23% vs. 17.77%) or to have been divorced or separated (9.39% vs. 6.05%). This suggests that the burden of multiple roles (professional, domestic, and community) may affect their marital stability (McKinnish, 2021). This is consistent with the 'double shift' theory (Kaplan, 2022), which posits that professional and familial demands create unique challenges for women.

Furthermore, 63.31% of women rate remote work as 'very' or 'extremely important' (compared to 61.99% of men), with a notable emphasis on the highest rating (23.74% vs. 19.11%). These findings support the idea that flexibility is necessary for managing multiple roles, while also reflecting the internalisation of reconciliation strategies that perpetuate the sexual division of labour.

While women make up the majority of those working in tax processes and financial reporting (67.83%), they are significantly underrepresented in managerial roles, accounting for just 14.61% of positions. This highlights the persistence of the 'glass ceiling' phenomenon. Furthermore, despite women achieving higher professional qualifications overall (42.17% compared to 37.30% for men), they are markedly underrepresented in doctoral programmes (0.52% compared to 2.54%), suggesting formidable obstacles to accessing higher academic and professional tiers. Work-related health issues disproportionately affect women, with 55.14% reporting experiences linked to the stress of operational roles, compared to 41.08% of men. This situation highlights the 'precarious stability' where job retention comes at the cost of health, particularly for women, who are less proficient in second languages (16.58% compared to 25.20% of men), thus limiting their opportunities for less stressful international roles.

Table 3: Binary Logistic Regression

Variables in the equation	B	Sig.	Exp(B) Odds Ratio
What is your highest level of education?		0,014	
What is your highest level of education? (1)	0,03	0,841	1,03
What is your highest level of education? (2)	-0,465	0,039	0,628
What is your highest level of education? (3)	-1,625	0,019	0,197
How many hours do you work on average per day? Indicate from 0 to 24	0,077	<,001	1,08
Currently, what is your marital status?		<,001	
Currently, what is your marital status? (1)	-0,959	<,001	0,383
Currently, what is your marital status? (2)	-1,362	<,001	0,256
Currently, what is your marital status? (3)	-0,302	0,277	0,739
Currently, what is your marital status? (4)	-0,322	0,533	0,725
Do you speak a second language? (1)	0,604	<,001	1,83
Regarding employment and health: Have you had any work-related health problems?		0,006	
Regarding employment and health: Have you had any work-related health problems? (1)	-0,448	0,002	0,639
Regarding employment and health: Have you had any work-related health problems? (2)	-0,459	0,242	0,632
Constant	-0,025	0,934	0,976

Source: Own elaboration

Table 3 focuses on the results of the logistic regression and allows the precise identification of the structural and psychosocial determinants that shape the work behaviour and health of Colombian accountants. The model reveals that job stability is not merely a reflection of employment permanence, but rather the result of a complex interplay of contractual modality, seniority, emotional burden and professional recognition. The model demonstrates a good global fit (Hosmer–Lemeshow test, $p > 0.05$) and an adequate Nagelkerke pseudo R^2 of 0.177, which explains a significant proportion of the variance in the dependent variable (Nattino, 2020). Additionally, the ROA statistical efficiency test through chi-square indicates a significant improvement in predicting the occurrence probability of the dependent variable categories (chi-square: 8.283, df: 8, $p < 0.001$) (McHugh, 2013).

The key findings from the binary logistic regression analysis are as follows:

1. Educational level. Professional (Category 0): This is a significant predictor ($p < 0.001$), indicating that being a professional is associated with a higher likelihood of being female. Specialisation (Category 1): Not a significant predictor (OR = 1.03, $p = 0.841$), suggesting that this level of education does not substantially affect gender distribution among professionals. Master's degree (category 2): This level reduces the probability of being female (OR = 0.628, $p = 0.039$), indicating a 37.2% lower probability of women achieving this qualification. This highlights a gender disparity in access to advanced postgraduate studies. Doctorate (Category 3): This further decreases the likelihood of being female (OR = 0.197, $p = 0.019$), indicating a significant barrier for women in reaching the highest levels of academia and reinforcing the presence of an 'academic ceiling'.
2. Daily working hours. A highly significant positive coefficient (OR = 1.08, $p < 0.001$) shows that for every extra hour spent at work, the probability of being female increases by 8%. This suggests that women in accounting often work longer hours, potentially due to juggling multiple roles and responsibilities, as well as the emotional and often invisible labour they perform. This finding aligns with the 'double shift' narrative, reflecting women's versatility across professional and domestic roles.

3. Marital status: Single (Category 0): highly significant, $p < 0.001$. Cohabiting (Category 1): OR = 0.383, $p < 0.001$, suggesting challenges in balancing personal and professional responsibilities. Married (Category 2): OR = 0.256, $p < 0.001$. Divorced/separated (Category 3): OR = 0.739, $p = 0.277$ (not significant). Widowed (Category 4): OR = 0.725, $p = 0.533$ (not significant). These findings suggest that professionals who are cohabiting or married are significantly less likely to be female. This may imply that women in accounting are more likely to be single, potentially due to the difficulty of balancing personal and professional responsibilities and delaying family planning due to work pressures and a lack of supportive structures.
4. Proficiency in a second language. A significant coefficient (OR = 1.83, $p < 0.001$) shows that a lack of proficiency in a second language increases the likelihood of being female by 83%. This aligns with broader trends, indicating that women in this sector may predominantly be monolingual, possibly due to a focus on operational tasks.
5. Work-related health issues – response 'No' (category 1): An odds ratio of 0.639 ($p = 0.002$) indicates that not experiencing work-related health issues reduces the probability of being female by 36%. This finding suggests that those who do not experience work-related health issues are less likely to be female. It highlights the greater vulnerability of female accounting professionals to adverse working conditions that may impact their physical and mental health adversely, reflecting the burdens of multiple roles and a lack of proper recognition.

Logistic regression analysis further confirms that several factors significantly affect the likelihood of a professional being female in accounting. For example, there is a positive correlation between daily working hours and being female, suggesting that women often work longer hours due to the demands of managing multiple roles. Marital status also plays a pivotal role, with single women occupying a larger proportion of the profession, potentially due to the challenges of balancing professional and personal commitments.

Furthermore, language proficiency reveals that a lack thereof correlates strongly with being a woman in the profession, suggesting that women are more likely to be monolingual due to their focus on operational tasks.

Finally, the intersection of work-related health issues with gender reveals that women in accounting face unique challenges that negatively impact their professional experience.

Discussion

The involvement of professional women in control, organisational and management activities reveals their roles within various organisations and highlights a lack of significant variation across diverse social contexts (MHE, 2011). In accounting, for example, women are overrepresented in technical roles (67.83%), yet underrepresented in strategic positions. This highlights the persistence of gendered power dynamics (Scott, 1996) and reinforces the concept of 'professional obscurity', particularly among women (McKinnish, 2021; Zonatto et al., 2021; Pérez et al., 2016).

The landscape of women's professional education reveals a notable phenomenon. Marchionni et al. (2018) observe that women's enrolment in higher education in Latin America has increased significantly, particularly in operational roles (Avolio, 2016). However, a striking disparity remains between men and women in postgraduate education: women hold only 10.33% of master's degrees compared to the 15.43% held by men. This not only suggests a waste of talent, but also indicates the presence of systemic barriers, which aligns with Zabludovsky's (2020) findings regarding academic ceilings in emerging economies. Furthermore, the higher incidence of health issues among women reflects the somatic costs associated with role versatility and an overload of operational tasks. This corroborates the models of Gupta et al. (2022) concerning chronic stress in gender-typed professions (Urbański et al., 2024; McKinnish, 2021). For individuals who prioritise work, the demands of multitasking can lead to cumulative exhaustion and health complications over time (Ansoleaga et al., 2015). This contradicts Gómez's (2004) assertion that work can be gratifying and boost self-esteem. Various factors contribute to overall well-being, including working conditions, the nature of tasks, role dynamics, interpersonal relationships, and gratifications achieved (Pérez et al., 2016; Stanišić & Ječmenica, 2025).

The analysis identified four significant factors affecting the probability of being a woman in the accounting sector. First, women often work longer hours, which results in their prioritising work over activities that would improve their quality of life. This limits their opportunities to socialise with

family and friends (Zonatto, 2021). Second, women are less likely to be bilingual, which reduces their prospects for international career advancement. Third, singlehood is commonplace; the demanding work hours and responsibilities hinder women's ability to maintain emotional relationships or partnerships (McKinnish, 2021). Lastly, certain aspects of their work expose women to a higher risk of occupational health issues (Gupta et al., 2024).

Access to advanced educational qualifications (master's degrees and doctorates) is a key factor for men, highlighting the 'glass ceiling' and vertical segregation that persist within the profession. Aguirre (2003) argues that advanced training enables men to progress to managerial roles in large multinational firms, whereas those with fewer qualifications, regardless of gender, are confined to intermediate positions characterised by increased workloads, low pay, and reduced social recognition. Furthermore, Gómez (2004) argues that power imbalances within organisations often manifest as the inadequate support or marginalisation of women from significant roles within professional fields. This model acknowledges the existence of 'professional darkness' and invisible precariousness: women are disproportionately represented in demanding yet poorly recognised roles, and their access to positions of authority and academic prestige remains severely restricted (Kaplan, 2022; Aguirre, 2003; Pérez et al., 2016; Avolio, 2016).

On the one hand, participation in operational activities creates a framework of job inequality for women, exacerbated by low social recognition and prolonged tenure in intermediate organisational positions (McKinnish, 2021; Zonatto et al., 2021). Conversely, women in the labour market tend to establish professional connections with relative ease, whether as employees or freelancers. They often remain in their positions for extended periods in order to achieve job and personal stability. However, women professionals in operational roles often find themselves operating in relative invisibility, remaining relegated to obscurity. Nevertheless, their involvement in key activities within organisations enables them to achieve a decent standard of living amid an unstable and complex job market. Institutional sources and social organisations serve as symbolic representations of women's standing in the labour market (Zabludovsky, 2020). These findings encapsulate the central paradox of this study. While Colombian accountants achieve notable employability by adapting to operational roles and working flexibly, this stability is underpinned by

hidden precariousness, which ultimately endangers their health and professional development.

Conclusion

The academic landscape, particularly in subjects such as accounting and other traditionally male-dominated fields, reveals clear disparities in representation and advancement opportunities between men and women. This analysis reveals a significant representation gap, with women predominantly in operational roles but underrepresented in managerial and advanced academic positions, and highlights the systemic barriers impeding women's professional progress.

Although women frequently occupy foundational roles within organisations, they often receive inadequate recognition for their contributions, the importance of their work, and the broader impact of their endeavours. Primarily engaged in operational roles, these women often find themselves shouldering significant emotional burdens alongside numerous responsibilities. Research indicates that women in professional environments tend to establish valuable work connections, whether as employees or independent contractors, and strive to maintain stability in their professional and personal lives. Despite the intrinsic value of their operational work for individuals and organisations, women often endure low social recognition and remain engaged in identical tasks for extended periods. Furthermore, the multifaceted roles they take on in daily life are often exacerbated by additional demands from superiors or colleagues, particularly during peak periods.

In a fluctuating and complex labour market, the relentless pursuit of professional fulfilment often compels women to take on responsibilities that extend beyond their available time and commitments. Consequently, the dual burden of managing operational duties alongside various concurrent roles in a labour market characterised by limited opportunities and entrenched inequalities means that women are relegated to lower-profile positions. Their involvement in operational tasks carries the risk of invisibility or relegation to subordinate statuses, exacerbating their obscurity.

However, it is important not to overlook the differences in experience between men and women in operational and managerial roles in fields such as business administration, law, and accounting. According to scholars such

as Gómez (2004), work experiences can have positive outcomes for women, fostering the development of professional competencies alongside personal and familial responsibilities. Despite adverse workplace conditions characterised by instability, unemployment and unequal treatment, this perspective suggests that women gain a sense of recognition and self-satisfaction from their professional activities.

Returning to the research questions, the findings indicate that several factors significantly increase the probability of being a woman in accounting: longer daily working hours (OR = 1.08, $p < 0.001$), lack of second language proficiency (OR = 1.83, $p < 0.001$), and being single (OR for cohabiting = 0.383, $p < 0.001$; for married = 0.256, $p < 0.001$). Conversely, holding a master's degree (OR = 0.628, $p = 0.039$) or a doctorate (OR = 0.197, $p = 0.019$) reduces that probability, evidencing a clear 'academic ceiling'. Additionally, women report more work-related health problems (55.14% vs. 41.08% of men), and the logistic regression confirms that not having health issues reduces the probability of being female by 36% (OR = 0.639, $p = 0.002$). These key statistical indicators support the notion of 'professional obscurity': women are overrepresented in operational tasks (67.83%) and underrepresented in managerial roles (14.61%), achieving stability at the cost of health and career advancement.

In addition to highlighting the gender pay gap in traditional professions, it is important to consider the context in which professional activities are carried out, especially in environments characterised by conflict and inequality. Professional practice can be a critical source of personal satisfaction for women, enabling them to envisage and plan for their futures. Furthermore, comparative studies across countries and regions with similar labour and social characteristics are needed to elucidate the factors, both positive and negative, that influence women's professional performance. Such studies should consider the implications of women's labour in marginal or obscure spaces, and evaluate the extent to which professional activities improve quality of life.

This study has several limitations. First, the cross-sectional design precludes causal inferences; the identified associations indicate relationships, not causes. Second, the non-probability snowball sampling method may limit generalisability to the entire population of Colombian accountants, although the sample size (1,106) and diversity of respondents partially mitigate this concern. Third, the dependent variable (gender) captures binary categories, which does not reflect the full spectrum of

gender diversity. Fourth, the concept of 'obscurity' was inferred from quantitative indicators (e.g., role type, education, health) rather than measured directly through validated scales. Future research should develop direct measures of professional recognition and invisible work. Fifth, the study focuses exclusively on Colombia; comparative studies across Latin American countries are needed to determine the regional applicability of these findings. Despite these limitations, the study provides a robust empirical foundation for understanding gendered professional obscurity in accounting.

Acknowledgments

The article is the result of research on the Characterisation of the Accounting Profession in Colombia, supported by the Faculty of Accounting at the Externado University of Colombia.

References

- [1] **Acker, J.** (1990). Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations. *Gender & Society*, 4(2), 139-158. <https://doi.org/10.1177/089124390004002002>
- [2] **Aguirre, R.** (2003). Ciudadanía social y el trabajo de las mujeres en el contexto de la globalización. Apuntes para la formulación de políticas alternativas. In: *Mujeres y trabajo: cambios impostergables*. León, M (comp). Magdalena León T. (comp.). Veraz Comunicação, Porto Alegre, Brasil. Pp 26.
- [3] **Alderete, A. M.** (2006). Fundamentos del Análisis de Regresión Logística en la Investigación Psicológica. *Revista Evaluar*, 6(1), 52-67. <https://doi.org/10.35670/1667-4545.V6.N1.534>
- [4] **Ansoleaga, E., Gómez-Rubio, C., & Mauro, A.** (2015). Violencia laboral en América Latina: una revisión de la evidencia científica. *VERTEX Revista Argentina de Psiquiatría*, 26, 173-181.
- [5] **Arango, L.** (2025). *Una sociología sin fronteras: exploraciones sobre género y trabajo*. Compilación de Mara Viveros Vigoya. Buenos Aires, Clacso.
- [6] **Avolio, B.** (2016). Strategies for the Professional Development of Executive Women: Empirical Evidence in Latin America. *Journal of Women's Entrepreneurship and Education*, 3-4, 81-101.

- [7] **Avolio, B., & Di Laura, G.** (2017). Progreso y evolución de la inserción de la mujer en actividades productivas y empresariales en América del Sur. *Revista de la CEPAL*, 122, 35 - 62. <https://doi.org/10.18356/e8a70e3a-es>
- [8] **Barragán, D., & Méndez, L.** (2023). *Informe Encuesta Nacional de la Profesión Contable 2022*. Working paper. Universidad Externado de Colombia, Bogotá. <https://observatorioappo.uexternado.edu.co/informe-encuesta-nacional-de-la-profesion-contable-2022/>
- [9] **Christ, K. L., Burritt, R. L., & Islam, M. A.** (2023). Modern slavery and the accounting profession. *The British Accounting Review*, 55(3), 101174. <https://doi.org/https://doi.org/10.1016/j.bar.2023.101174>
- [10] **Da Costa, A., De Oliveira, A., & Pinheiro, P.** (2020). Mulheres em home office durante a pandemia da covid-19 e as configurações do conflito trabalho-família. *RAE - Revista de Administração de Empresas*, 60(6), 388-399. <https://doi.org/10.1590/S0034-759020200603>
- [11] **De Laat, K.** (2023). Living to Work (from Home): Overwork, Remote Work, and Gendered Dual Devotion to Work and Family. *Work and Occupations*, 52(1), 07308884231207772. <https://doi.org/10.1177/07308884231207772>
- [12] **Del Real, L., & Álvarez, E.** (2024). Autorrepresentación de madres gerentes en la cultura organizacional y el vértice en su geografía. *Revista de Estudios de Género. La Ventana*, 7(59), 187-224.
- [13] **Flego, L., & Ortega, J.** (2020). Mujeres en el trabajo: persistencia de los condicionantes de género en el ámbito laboral. *CUHSO (Temuco)*, 30(2), 160-188. <https://dx.doi.org/10.7770/2452-610x.2020.cuhso.05.a05>
- [14] **Fuller, S., & Kim, Y.-M.** (2023). Women Managers and the Gender Wage Gap: Workgroup Gender Composition Matters. *Work and Occupations*, 51(3), 07308884231178314. <https://doi.org/10.1177/07308884231178314>
- [15] **Gómez, V.** (2004). Estrés y salud en mujeres que desempeñan múltiples roles. *Avances en Psicología Latinoamericana*, 22, 11-128.
- [16] **González, N. L., González, V., & Pinzón, A.** (2024). Perspectiva de género en las organizaciones: un camino sinuoso al aprendizaje organizacional. *Trabajo y Sociedad*, 25(42), 91-108.
- [17] **Gupta, P. K., Thimmapuram, J., Krishna, P., Karmarkar, Y., & Madhusudhan, D. K.** (2022). The Effect of Heartfulness Meditation Program on Burnout and Satisfaction With Life Among Accounting Professionals. *Global Advances in Health and Medicine*, 11, 2164957X221123559. <https://doi.org/10.1177/2164957X221123559>
- [18] **Junta Central de Contadores [JCC].** (2022). *Estadísticas de contadores*. Junta Central de Contadores. <https://www.jcc.gov.co/es/estadisticas-de-contadores>
- [19] **Martínez, J., & Pérez, P. S.** (2024). Regresión logística. *Semergen - Medicina De Familia*. <https://doi.org/10.1016/j.semergen.2023.102086>

- [20] **McHugh, M. L.** (2013). The chi-square test of independence. *Biochemia Medica*, 23(2), 143–149. <https://doi.org/10.11613/BM.2013.018>
- [21] **McKinnish, T.** (2021). Prevalence of Long Work Hours by Spouse's Degree Field and the Labor Market Outcomes of Skilled Women. *ILR Review*, 74(4), 898-919. <https://doi.org/10.1177/0019793920901703>
- [22] **Mental Health Europe - MHE** (2011). *Violencia contra las mujeres en el trabajo. Hablemos de ello. La repercusión sobre la salud mental de la violencia y el acoso contra las mujeres*. Ediciones Mental Health Europe.
- [23] **Morales, J. C., Ramírez, N. E., Vargas, S. H., & Peñuela, A. J.** (2020). Uso de aplicativos móviles en el aula y sus factores determinantes. *Formación Universitaria*, 13(6), 13–22. <http://dx.doi.org/10.4067/S0718-50062020000600013>
- [24] **Nattino, G., Pennell, M. L., & Lemeshow, S.** (2020). Assessing the goodness of fit of logistic regression models in large samples: A modification of the Hosmer-Lemeshow test. *Biometrics*, 76(2), 549–560. <https://doi.org/10.1111/biom.13249>
- [25] **Ortiz, C., Morales, M. E., & León, E. F.** (2014). Trayectorias y condiciones para la innovación en empresas de propiedad femenina: análisis comparativo de dos ciudades colombianas. *Revista Facultad De Ciencias Económicas*, 22(2), 159–184. <https://doi.org/10.18359/rfce.631>
- [26] **Panda, A., & Sahoo, C. K.** (2021). Work–life balance, retention of professionals and psychological empowerment: an empirical validation. *European Journal of Management Studies*, 26(2/3), 103-123. <https://doi.org/10.1108/EJMS-12-2020-0003>
- [27] **Parra L., & Acosta M.** (2010). La investigación cuantitativa del acoso psicológico laboral en los sectores de la educación superior y de la salud. Una revisión sistemática. *Entramando*, 6(1), 158-172.
- [28] **Reichelt, M.** (2015). Career Progression from Temporary Employment: How Bridge and Trap Functions Differ by Task Complexity. *European Sociological Review*, 31(5), 558-572.
- [29] **Scott, J.** (1993). La mujer trabajadora en el siglo XIX. En: *Historia de las mujeres en Occidente*. DUBY, G (Ed.), v. 4, Madrid: Siglo XXI, Taurus, p. 405-436.
- [30] **Scott, J.** (1996). El género: Una categoría útil para el análisis histórico. En: Lamas Marta Compiladora. *El género: la construcción cultural de la diferencia sexual*. PUEG, México. 265-302.
- [31] **Serna, G.** (2003). Propuestas y hallazgos preliminares para un análisis sobre mujeres ejecutivas en la Ciudad de México. *Desacatos*, 11,77-96.
- [32] **Stanišić, N & Ječmenica, D.** (2025). Restricted Ambitions: Analyzing Barriers to Women's Advancement in Serbia's Public Sector. *Journal of Women's Entrepreneurship and Education*, 3-4, 107-127. <https://doi.org/10.28934/jwee25.34.pp-113-133>

- [33] **The Economist.** (2024). *How motherhood hurts careers. A new study measures its impact on women employment worldwide.* <https://www.economist.com/interactive/graphic-detail/2024/01/30/how-motherhood-hurts-careers>
- [34] **To, W. M., Gao, J. H., & Leung, E. Y. W.** (2020). The Effects of Job Insecurity on Employees 'Financial Well-Being and Work Satisfaction Among Chinese Pink-Collar Workers. *SAGE Open*, 10(4), 2158244020982993. <https://doi.org/10.1177/2158244020982993>
- [35] **Urbański, M., Haque, A. U., Kaur, H., Yamoah, F. A., & Kot, M.** (2024). Gender dynamics in knowledge hiding and occupational stress on employee performance. *Economics and Sociology*, 17(4), 29-42. <https://doi.org/10.14254/2071-789X.2024/17-4/2>
- [36] **Velu, A.** (2021). Application of logistic regression models in risk management. *International Journal of Innovations in Engineering Research and Technology*, 8(4), 251–260.
- [37] **Zabludovsky, G.** (2020). Mujeres y empresas: tendencias estadísticas y debates conceptuales. *Revista Mexicana de Ciencias Políticas y Sociales*. Nueva Época, 15(240), 431-459.
- [38] **Zonatto, V. C. d. S., Lunardi, M. A., Degenhart, L., & Gonçalves, B. d. S.** (2021). Effects of experiences of pleasure and pathogenic suffering on the work of accounting professionals. *Contextus – Revista Contemporânea de Economia e Gestão*, 19, 270-288.

Article history: Received: March 5, 2026

Accepted: June 4, 2026

First Online: June 4, 2026

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд
33

JOURNAL of Women's Entrepreneurship and Education : twice a
Year Scientific Journal / editor-in

-chief Mirjana Radović-Marković. - 2009, No.

1/2- . - Belgrade : Institute of Economic Sciences,

2009- (Beograd : Donat Graf) . - 24 cm

Dva puta godišnje . - Drugo izdanje na drugom medijumu: Journal of
Women's Entrepreneurship and Education (Online) = ISSN 2406-0674
ISSN 1821-1283 = Journal of Women's Entrepreneurship and Education
COBISS.SR-ID 157987852

