

Evaluating Women Entrepreneurs in the Informal Sector: The Effect of Entrepreneurial Competencies on Women Entrepreneurs' Sustainable Performance

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Abstract:

Entrepreneurship is a thought-provoking career field. Many women have submitted to entrepreneurship, but not all are successful. Entrepreneurial competencies are a significant component that women entrepreneurs need to own because more capable and effective entrepreneurs can compete more successfully. Hence, this study examines the influence of entrepreneurial competencies (i.e., conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies) on women entrepreneurs' sustainable performance (i.e., social, economic, and environmental) in the informal economy. This study adopts a survey method using a questionnaire as a research instrument. The sample consists of 384 women entrepreneurs selected using a purposive sampling technique. The data analysis method is structural equation modelling (SEM) to test the effect of entrepreneurial competencies dimensions on business performance. The structured model shows that conceptual and relationship, business and management, entrepreneurial, and human relations competencies significantly predict economic performance. Then, conceptual and relationship, business and management, entrepreneurial, and human relations competencies significantly predict environmental performance. Next, only entrepreneurial and human relations competencies significantly predict social performance. This study is expected to create entrepreneurial ideas, programs, and activities to upsurge entrepreneurial competencies among women entrepreneurs.

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INTRODUCTION

The number of women involved in business in Malaysia and abroad has increased yearly. Women micro and small entrepreneurs are now growing to comprise 21 percent of small and medium enterprises (SMEs) in Malaysia, with approximately 241,767 businesses operated by this group (Halina, 2025). Despite the encouraging development, there is still a significant gender gap. Malaysia has set a target to achieve a 60 percent female workforce participation rate (Labour Force Survey Report-LFPR) by 2033. The latest female LFPR shows a low increase of 56.3 percent, while the male LFPR is at 82.9 percent, indicating that the gender gap is still significant despite the increase in participation of the group (Halina, 2025). The government delivers various aid and sustenance to support women who are concerned about entrepreneurship. For example, MADANI Wanita is a Bank Simpanan Nasional (BSN) loan scheme under the 2025 Budget for female entrepreneurs to finance working capital, purchase assets for business purposes, and renovate business premises. The Ministry of Entrepreneurship and Cooperatives Development continues its commitment to empowering women's entrepreneurship. This commitment is translated through establishing the Women's Entrepreneurship Main Committee, a platform that supports the agenda to empower entrepreneurship specifically for cooperatives/communities of women entrepreneurs from various categories, including the small (informal) hawker category (Looi & Maritz, 2021).

Islam and Mamun (2022) specified that an entrepreneur can take on duties, obligations, and endeavors to establish, accomplish, and take risks in business. Ratten (2023) demarcated an entrepreneur as continually driven to establish resources, labor, goods, and other assets to generate goods or services that have higher utility than before. Entrepreneurship is a dynamic process of creating wealth through the willingness to bear risks, time, and career commitment in delivering products or services with high added value (Ratten, 2023). Many women in developing economies also have been revealed to work in the informal sector (Madichie et al., 2021). The influence of employment in the informal sector on the country's labor market is significant and cannot be undervalued (Afful et al., 2025).

The informal sector is defined as creating goods or services to produce jobs and income (Dell'Anno, 2022). The main principles for the informal sector are organizations not registered with any agency, such as the Companies Commission of Malaysia (CCM), professional bodies, and local authorities. According to a Department of Statistics Malaysia report, 1,383,084 individuals or entrepreneurs from the informal sector and micro-industries were verified in 2021 (Bernama, 2022). The scenery of the work sector, including the informal sector, is also pretentious because of the prevalent use of digital technology. The inadequate employment opportunities in the formal urban sector have led to alternative economic actions being sought to confirm endurance (Sultana et al., 2022). Income production through the informal sector is the most frequently chosen option by urban residents. Naturally, this sector is measured as a last resort, only ventured by poor urban residents confronted with various difficulties. Despite this, the informal sector is still one of the main income bases for urban households. The upsurge in hawkers arriving in this sector, the rise of new locations and hawkers, and the capability of old hawkers to endure make this sector one of the contributors to the urban job market (Nouhessèwa Hounyonou, 2025).

Research by Recchi (2021) shows that women in slums, a group of urban poor households, run small businesses to support their families. Running grocery stores, food stalls, raw goods stalls, taking care of children, sewing, and being agents for various types of goods are examples of the informal sector run by women. The Ministry of Entrepreneurship and Cooperative Development has launched the Informal Entrepreneur Formalization Plan. This document plans strategic steps to support and ease the formalization of informal entrepreneurs as registered businesses. The execution of this Plan can aid the government in recognizing resources that can be established to catalyze economic growth performance and prevent leakage in national income generation. Mukherjee (2023) found that the causes of low performance or failure of women entrepreneurs are the absence of clear business direction, failure to conduct business research, deficiency of management and communication skills, failure to recognize opportunities, and lack of capability to make sound business decisions. According to Kitole and Genda (2024), one of the reasons for business failure is the deficiency of entrepreneurial competencies among the founders or owners. The deficiency of skills and abilities among those holding imperative positions in the organization is also a cause of organizational failure (Soomro et al., 2025). Baawain et al. (2025) and Keane and McNaughton (2025) added that management skills and competencies are the causes that deter the performance of a woman's business.

Previous studies have shown that entrepreneurs necessitate high entrepreneurial competencies to attain a certain level of success (Kovid et al., 2025; Noor et al., 2024a; Soomro et al., 2025). The notion of competency was first used by McClelland in 1973, who denoted it as the necessity for knowledge, skills, abilities, and motivation to accomplish tasks. Spencer and Spencer (1993) mention entrepreneurial competencies as the internal characteristics that individuals influence, such as motivation, self-awareness, attitudes, values, knowledge, and skills, because these attributes can differentiate excellent people from normal people. Developing pertinent competencies among entrepreneurs is central to formulating a business to compete sustainably (Chahal et al., 2025; Noor & Omar, 2024).

Most of the literature on competencies is based on the viewpoint of large businesses, and studies concentrating on women entrepreneurs' competencies in informal business are inadequate (e.g., Guerola-Navarro et al., 2024; Jaboob et al., 2025). Consequently, the researchers want to further scrutinize the role of entrepreneurial competencies as an independent variable that affects business performance from the standpoint of women entrepreneurs in informal business in Malaysia. The study focuses on women entrepreneurs in the informal sector as the respondents, since there is a scarcity of research

that studies the important competencies for achieving sustainable performance of women entrepreneurs. Furthermore, very little research has been conducted that focuses on the issues of women entrepreneurship in the informal sector. Thus, the existing entrepreneurship models are still not comprehensive. The formal and informal sectors are the two main divisions in a country's economy. The formal sector refers to organized jobs with employment contracts, legal protection, and regular wages. In contrast, the informal sector encompasses jobs that are less organized, have no contracts, and may not have legal protection, with uncertain incomes (Dell'Anno, 2022). This requires a niche and specialised entrepreneurship model. Besides, this study also investigates business performance from several outlooks, namely, social, economic, and environmental performance, that may permit comprehensive, thoughtful, and avoid deceptive conclusions about the determining factor of business performance. Succeeding the Triple Bottom Line (TBL) notion, the business's emphasis has shifted from focusing on financial profit to becoming socially and environmentally responsible. John Elkington first presented this concept in 1994, pointing to the success of the business not only in terms of profit but also in terms of its influence on society and the environment. The following research objectives guide this study:

RO1. To assess the influence of conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies on the social performance of women entrepreneurs in the informal economy.

RO2. To assess the influence of conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies on the economic performance of women entrepreneurs in the informal economy.

RO3. To assess the influence of conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies on the environmental performance of women entrepreneurs in the informal economy.

The discussion of this paper is continued with a review of the work, study methodology, findings, and discussion. The paper ends with conclusions and policy implications.

LITERATURE REVIEW

The Triple Bottom Line (TBL) and Business Performance

Business performance is one of the key significant concepts in management studies and entices the attention of practitioners and academics. Business performance is an organizational phenomenon, and external and internal influences predispose it (Noor & Omar, 2024). Researchers recognize that business performance is a multifaceted construct with numerous dimensions; business performance may be determined by financial results, sales, market share, or customer satisfaction (Salehi & Arianpoor, 2021). Characteristically, business performance is measured using return on investment (ROI), increase in sales, and profit.

There is a conversation about measuring business performance in organizational research, namely, whether to measure objectively or subjectively. Anwar and Shah (2021) contend that business performance can be measured in both objective and subjective ways. First, subjective measures emphasize overall performance (e.g., overall performance or success), while objective measures use specific financial indicators (e.g., return on assets). Second, subjective measures frequently ask respondents to compare their company's performance with that of opposing businesses, while objective measures use absolute indicators. However, most businesses use inadequate methods for gauging performance due to the deficiencies of the necessary human and time resources, and they are more likely to practice subjective performance measurement (Cupertino et al., 2023). Crous et al. (2022) recommended the usage of subjective measurement since it is more flexible and valuable. This is because most owners are cautious or disinclined to reveal the actual performance of their companies.

The Triple Bottom Line, or TBL, is a concept presented by John Elkington in 1994. This concept expands the way we look at business success from just financial aspects into three main dimensions: Profit, People, and Planet. With TBL, a business is predicted to focus on economic profit and its influence on society and the environment (Yip & To, 2021). Profit is the first constituent in TBL and is traditionally the foremost indicator of business accomplishment. However, within the outline of TBL, profit is measured from income and profit, and how the profit is used to generate more value for many stakeholders. The second component is People. This comprises how the business donates to the community's well-being, delivering employment, fair trade practices, or contributing to the local community (Pereira & Martins, 2021). Appreciating employees, guaranteeing fair working environments, and supporting social initiatives exemplify how businesses can consider this aspect. The planet is the third factor of TBL, and it emphasizes the influence of business on the environment. This comprises efforts to decrease the carbon footprint, waste management, and efficient use of resources (Jum'a et al., 2022). Businesses that care about the environment help our planet and attract more environmentally conscious consumers. Applying the TBL has pros that are exceptionally connected to its implications for business profits. Among the benefits are preserving sales because consumers are gradually paying attention to social and environmental problems, minimizing negative campaigns by the public and avoiding lawsuits, upsurge retention, for example, by ensuring job security and safety, and decreasing recruitment and training due to low turnover (Pereira & Martins, 2021).

Entrepreneurial Competencies and Business Performance

Entrepreneurs are considered special, and these individuals have specific characteristics that support their efforts to succeed. Entrepreneurs allegedly have exceptional characteristics, profiles, and entrepreneurial competencies, namely the ability and skills to carry out entrepreneurial functions effectively (Soomro et al., 2025). The experience and knowledge owned by entrepreneurs permit them to see, analyze, and seize business opportunities that others cannot see (Noor et al., 2024a). Entrepreneurial competencies are influenced by behavioral practices resulting from a person's life values, attitudes, or internal pressure to complete tasks exceptionally (Kovid et al., 2025). Through entrepreneurial competencies, a person will be more talented and effective in working with others. Among competencies are taking the initiative, seeing and seizing opportunities, persevering, finding information, accenting high-quality work, commitment to work agreements, persistence, doing systematic planning, solving problems creatively, being confident, assertive, and convincing others (Baawain et al., 2025).

Past studies have established that the competencies possessed by an individual have a positive association with performance achievement (Keane & McNaughton, 2025). According to resource-based view (RBV) theory, if a business can obtain numerous valuable, rare, inimitable, and intangible resources to initiate and implement strategic initiatives uniquely, it will generate a competitive advantage and outperform competitors in the market (Barney et al., 2021). Hence, from the RBV perspective, competencies can be denoted as inimitable or intangible resources and can be used to progress and implement plans that competitors may not implement simultaneously (Barney, 2021).

Entrepreneurs need conceptual skills to recognize potential answers to problems or creative approaches rationally and abstractly (Pulka et al., 2021). It includes understanding and envisaging complex circumstances to get to an innovative response. Thus, conceptual skills are proficiencies that help entrepreneurs come up with answers or approaches, usually through abstract thinking (Ismail, 2022). They also need the aptitude to create and preserve healthy and worthwhile relationships with diverse individuals and groups (Klyver & Arenius, 2022). This comprises communicating clearly, listening enthusiastically, collaborating, fighting inappropriate social compression, negotiating conflict constructively, and looking for and offering help when required. Business owners with superior human skills can carry out good, efficient, and effective leadership responsibilities.

Every entrepreneur must be able to communicate effectively. Whether they are a solo entrepreneur or must run a company that operates internationally, it is important to communicate effectively with all stakeholders they deal with as an entrepreneur. It is significant for an entrepreneur to communicate with employees, investors, customers, creditors, colleagues, and mentors (Škare et al., 2022). If an entrepreneur cannot convey the value of their business to others through effective communication, it will not be easy to grow that business positively (Abaci, 2022). Conquering all forms of communication is imperative, including one-on-one and face-to-face conversations, group conversations, written communication, and email or online messaging.

Entrepreneurs gain significantly from grasping negotiation skills. It aids them in getting better deals, evading conflict, and resolving problems quickly. Effective negotiations improve an entrepreneur's status, expand the value of their investment, and foster win-win situations (Finn, 2021). Overall, negotiation skills are indispensable for entrepreneurs, permitting them to raise more money, solve problems efficiently, and build strong relationships. Actively listening to others delivers opportunities for learning and development, permitting entrepreneurs to gain valuable understanding and information (Finn, 2021).

Next, business management skills are imperative skills that an entrepreneur needs. Business management skills refer to a person's ability to plan, organize, lead, and control available resources. This includes making sound decisions, solving problems, and leading employees toward achieving set goals. Effective entrepreneurs must possess various skills to ensure the organization's success, including technical, interpersonal, and conceptual skills (Mohd Noor et al., 2024b). All these skills are essential to ensure the smooth operation of the business. Financial management skills, for example, comprise the capability to examine the current market, comprehend the benefits and risks of investments, budget effectively, and identify factors or incidents that negatively impact financial health (Llados-Masllorens & Ruiz-Dotras, 2022).

In addition, knowledge about taxes, taxation, and other legal aspects is vital. Considering these aspects, they can make smarter business pronouncements and evade legal problems. The most significant aspects of a successful business are efficient and smart financial management and tactics (Noor et al., 2024b). Many entrepreneurs go bankrupt because they fail to manage their finances well, and some even fail to differentiate between their personal and business finances, causing business capital to vanish. Eventually, the business must close (Trombetta, 2023).

Innovation is the key to success in the business world (Noor, 2025). Entrepreneurs must think creatively and create new ideas to differentiate their business from competitors (Amini Sedeh et al., 2022). The journey in the business world always involves risk. Entrepreneurs must have the courage to take risks and step out of their comfort zone (Crovini et al., 2021). However, the risks must be well calculated and based on mature research and understanding. According to Shukla et al. (2021), entrepreneurs must have a high level of ICT skills and be able to obtain various knowledge and skills regarding business through the capacity to access information through information mediums such as the Internet, magazines, and newspapers. Next, time management is a significant aspect of every successful entrepreneur's life. By understanding and practicing this important aspect, entrepreneurs can manage their time well, achieve business goals, and run business operations more effectively (Brecht et al., 2023).

Finally, entrepreneurs need to have human relations skills that include the ability to communicate ideas clearly and listen actively, understand and sympathize with others' feelings, provide support when they face challenges, manage and resolve disagreements by finding solutions that satisfy all parties involved and negotiating to reach consensus and agreement in situations that require discussion and agreement (Jaboob et al., 2025; Krieger et al., 2021). The image of a business depends on customer service. The absence of a customer-friendly attitude will make customers dislike and hate a business. Customers will not return unless they receive professional and courteous service. An excellent customer service reputation is built on trust and a sense of responsibility (Guerola-

Navarro et al., 2024). The business world will continue to evolve, and an entrepreneur must have good learning abilities. They must be open to learning new things, grow their business, and continue improving their industry and market knowledge (Chahal et al., 2025). These attitudes help an entrepreneur face challenges and build a successful business. However, it is important to remember that these attitudes can be developed and strengthened through experience, training, and a willingness to continue learning and adapting (Mohd Noor et al., 2024a). Therefore, based on the above discussion, the following hypotheses have been proposed:

H1: Conceptual and relationship competencies are significantly related to (a) social, (b) economic, and (c) environmental performance of women entrepreneurs in the informal economy.

H2: Business and management competencies are significantly related to (a) social, (b) economic, and (c) environmental performance of women entrepreneurs in the informal economy.

H3: Entrepreneurial competencies are significantly related to (a) social, (b) economic, and (c) environmental performance of women entrepreneurs in the informal economy.

H4: Human relations competencies are significantly related to (a) social, (b) economic, and (c) environmental performance of women entrepreneurs in the informal economy.

Figure 1 shows the conceptual framework for this study.

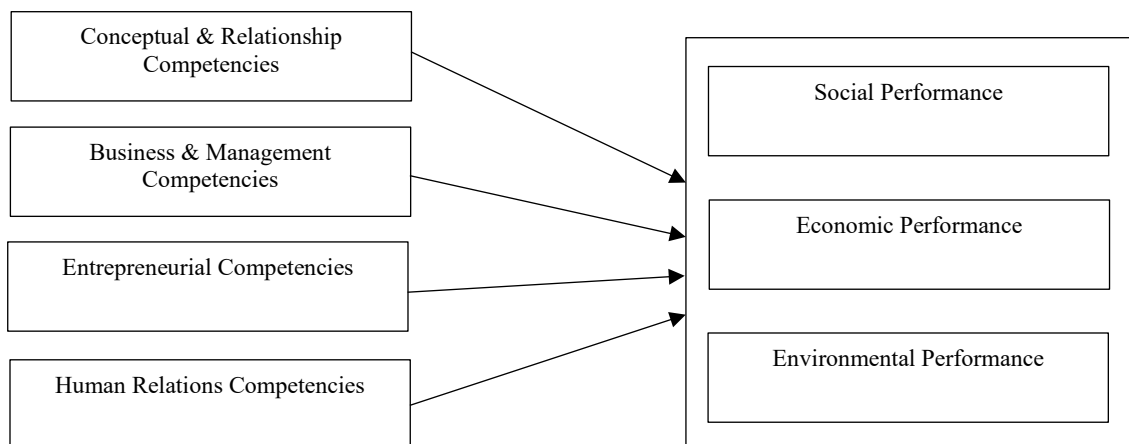


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

This study adopts the method of a questionnaire to gather research data. The study population includes women entrepreneurs working in the informal economy in five areas: Selangor, Kuala Lumpur, Negeri Sembilan, Johor, and Melaka. The official report disclosed that 73.7% of the informal sector workforce are urban residents and 25% are from the state of Selangor (Ministry of Entrepreneur and Cooperatives Development, 2023). There are many urban areas in Malaysia, including cities and towns. Kuala Lumpur is the capital and largest city. A metropolitan area usually includes a central urban area and surrounding areas tied to the urban center through employment or commerce. These may include Johor Bahru (Johor), Seremban (Negeri Sembilan), and Ayer Keroh (Melaka). The informal business sector is an economic activity that does not have an official business permit, is not bound by labor regulations, and is not taxed like the formal sector (Dell'Anno, 2022). The informal business sector includes street vendors, grocery stalls, freelancers,

and other service and home production jobs. Determining the number of samples is conducted using the Krejcie and Morgan (1970) table; for a population of 1,000,000 and above, the sample size is 384. Thus, 384 women entrepreneurs are selected. Moreover, Bentler and Yuan (1999) mentioned that a minimum of 60 samples is acceptable for Structural Equation Modeling (SEM) analysis. The study employed purposive sampling, where a group of subjects with specific characteristics was selected as study respondents based on the researchers' knowledge and specific research objectives. The questionnaire items were modified to meet the needs of the researchers' study.

Entrepreneurial competencies include four dimensions: conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies. The entrepreneurial competencies items were adapted from Mitchelmore and Rowley's (2013) studies. This questionnaire used a 5-point Likert scale to help researchers conduct the study. The multidimensional sustainable business performance measurement is adapted from Lee and Roh (2023) and Agrawal et al. (2022). These dimensions include social performance, economic performance, and environmental performance. Table 1 shows the measurement items for each variable.

SEM analysis was used using two levels of structured modeling suggested by Anderson and Gerbing (1984) to determine the effect of entrepreneurial competencies on sustainable business performance. The first level involved testing Confirmatory Factor Analysis (CFA) to test the measurement items' unidimensionality, validity, and reliability, while the second level involved testing structural modeling. This study used IBM® SPSS® software version 27 to analyze the initial data and IBM® Amos version 26 to test the hypothesis of structured modeling. Several indices of fit have been proposed to test the hypothesized model, and the assessment of model fit is subject to various criteria, including absolute fit and relative fit. However, there is no agreement on a universal fit index to follow. Hair et al. (2010) suggest that at least one suitability index is referenced from each category model fit. The three categories of model fit index are Absolute Fit, Incremental Fit, and Parsimonious Fit. This study uses the root mean square error index of approximation (RMSEA) for the Absolute Fit category, the comparative fit index (CFI) for Incremental Fit, and the Chi-Square/df for the Parsimonious Fit category.

Table 1: Measurement of Variables

Variable	Items
Conceptual and Relationship Competencies	1. Interpersonal skills. 2. Oral communication skills. 3. Self-confidence. 4. Political competence. 5. Being active. 6. Desire to succeed.
Business and Management Competencies	1. Budgeting skills. 2. Business operational skills. 3. Development of operational systems. 4. Planning business activities. 5. Managing finance.
Entrepreneurial Competencies	1. Innovation skills. 2. Product innovation. 3. Creativity. 4. Willingness to take risks. 5. Risk-taking.
Human Relations Competencies	1. Human relations management skills. 2. Hiring skills. 3. Leadership skills. 4. Motivate others.
Social Performance	1. Stakeholders are satisfied with my business's sustainable business practices. 2. My business reduces social and reputation risks to the public. 3. My business improves health and safety. 4. My business is aware of the community's needs and rights. 5. My business always tries to comply with any legal requirement.
Economic Performance	1. My business's profit increases every year.

	2.	My business's return on investment (ROI) is improving every year.
	3.	My business's sales volume increases every year.
	4.	My business increases shareholder value.
	5.	My business is increasing productivity.
Environmental Performance	1.	My business reduces the emission of greenhouse gases.
	2.	My business reduces waste generation.
	3.	My business decreases environmental incidents.
	4.	My business reduces the consumption of hazardous materials.
	5.	My business makes more careful and efficient use of natural resources.

FINDINGS

Demographic Analyses

Three hundred forty questionnaires were returned from 384 distributed to respondents, with a response rate of 88.5%. Out of 340 respondents, most women entrepreneurs are 31-35 years old, with 115 respondents (33.8%). This followed with age groups of 36-40 (n=100, 29.4%), 18-20 years old (n=15, 4.4%), 41-45 (n=40, 11.8%), 21-25 (n=36, 10.6%), 26-30 (n=29, 8.5%), and more than 45 years old (n=5, 1.5%). Next, most of the respondents are from Negeri Sembilan, with 100 respondents (29.4%). This was followed by Kuala Lumpur (n=75, 22.1%), Selangor (n=62, 18.2%), Melaka (n=61, 17.9%), and Johor (n=42, 12.4%). Subsequently, most women entrepreneurs have obtained *Sijil Pelajaran Malaysia* (SPM) academic qualification (n=169, 49.7%). Finally, most respondents operate online businesses, with 230 respondents (67.6%). Table 2 shows the demographic distribution of respondents.

Table 2: Demographic Profiles (n=340)

Profile	Frequency (n)	Percentage (%)
1. Age		
18-20 years old	15	4.4
21-25	36	10.6
26-30	29	8.5
31-35	115	33.8
36-40	100	29.4
41-45	40	11.8
More than 45 years old	5	1.5
2. States		
Kuala Lumpur	75	22.1
Selangor	62	18.2
Johor	42	12.4
Negeri Sembilan	100	29.4
Melaka	61	17.9
3. Academic Qualifications		
<i>Peperiksaan Menengah Rendah</i> (PMR)	5	1.5
<i>Sijil Pelajaran Malaysia</i> (SPM)	169	49.7
<i>Sijil Tinggi Pelajaran Malaysia</i> (STPM)	32	9.4
Foundation	25	7.4
Diploma	88	25.9
Bachelor's degree	21	6.1
Post-graduate	0	0
Others	0	0
4. Mode of Business		
Online	230	67.6
Offline	10	2.9
Hybrid (Offline + Online)	100	29.4

Confirmatory Factor Analysis (CFA)

Hair et al. (2010) proposed that a model meets the characteristics of a suitable model if it achieves at least one fit index. The suggested value for the Root Mean Square Error of Approximation (RMSEA) fit index is less than 0.08, the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Goodness of Fit Index (GFI) values are more than 0.90, and the Chi-Square/df value must be less than 5.0. The CFA results are shown in Figure 2. Looking at the evaluation value of alternative criteria, Chi-Square/df (2.491) and RMSEA (0.071) have good fit values. The values of TLI (0.827), CFI (0.843), and GFI (0.788) have met the good fit criteria. Overall, this model can be said to have a good enough fit to be studied further.

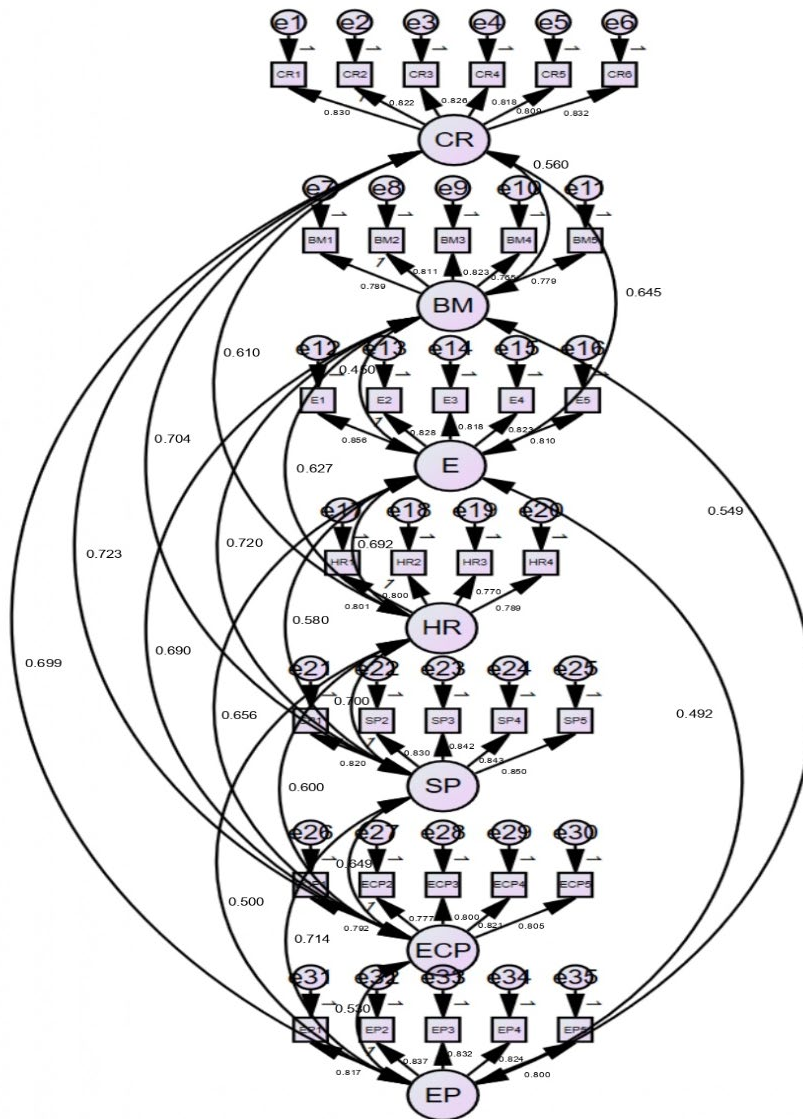


Figure 2: CFA Model

Factor analysis calculations are performed to see the magnitude of the factor loading. An indicator is declared valid to form a factor based on the convergent validity test if it has a factor loading ≥ 0.50 or, ideally, ≥ 0.70 (Hair et al., 2010). Meanwhile, the AVE value exceeding 0.50 indicates that the items contain more variance, as explained by the error variance comparison factor (Hair et al., 2010). Examining the CR value, it was found that all CR values were above the minimum level of 0.70. According to Hair et al. (2010), a high CR value indicates that all observed variables consistently measure the same latent variable. Reliability testing uses Cronbach's alpha.

When the alpha value of the instrument is greater than or equal to 0.60, it is considered reliable (Hair et al., 2010). The assumptions of validity and reliability are achieved based on the CR, AVE, and Cronbach's Alpha, as shown in Table 3.

Table 3: Composite Reliability (CR), Average Variance Extracted (AVE), and Cronbach's Alpha Results

Variable	Items	Item Loadings	AVE	CR	α
Conceptual and Relationship Competencies	CR1	0.830***	0.677	0.926	0.790
	CR2	0.822***			
	CR3	0.826***			
	CR4	0.818***			
	CR5	0.809***			
	CR6	0.832***			
Business and Management Competencies	BM1	0.789***	0.629	0.894	0.811
	BM2	0.811***			
	BM3	0.823***			
	BM4	0.765***			
	BM5	0.779***			
Entrepreneurial Competencies	E1	0.856***	0.684	0.915	0.845
	E2	0.828***			
	E3	0.818***			
	E4	0.823***			
	E5	0.810***			
Human Relations Competencies	HR1	0.801***	0.624	0.869	0.800
	HR2	0.800***			
	HR3	0.770***			
	HR4	0.789***			
Social Performance	SP1	0.820***	0.700	0.921	0.760
	SP2	0.830***			
	SP3	0.842***			
	SP4	0.843***			
	SP5	0.850***			
Economic Performance	ECP1	0.792***	0.638	0.898	0.860
	ECP2	0.777***			
	ECP3	0.800***			
	ECP4	0.821***			
	ECP5	0.805***			
Environmental Performance	EP1	0.817***	0.675	0.912	0.728
	EP2	0.837***			
	EP3	0.832***			
	EP4	0.824***			
	EP5	0.800***			

Source: Authors' calculations

The results of the discriminant validity analysis are shown in Table 4. All correlation values between subconstructs are smaller than the square root of AVE. In addition, the correlation value between subconstructs does not exceed 0.90. This situation indicates that the factors in the measurement model are different and thus meet the prerequisites of discriminant validity (Hair et al., 2010).

Table 4: Discriminant Validity for the Variables

No.	Variable	1	2	3	4	5	6	7
1	Conceptual and Relationship Competencies	0.822						
2	Business and Management Competencies	0.560**	0.793					
3	Entrepreneurial Competencies	0.645**	0.450**	0.827				
4	Human Relations Competencies	0.610**	0.627**	0.692**	0.789			
5	Social Performance	0.704**	0.720**	0.580**	0.700**	0.836		
6	Economic Performance	0.723**	0.690**	0.656**	0.600**	0.694**	0.798	
7	Environmental Performance	0.699**	0.549**	0.492**	0.500**	0.714**	0.530**	0.821

Note: Values in the diagonal show the square root of AVE

Source: Authors' calculations

Hypothesis Testing

From Table 5, the results first show that conceptual and relationship competencies ($\beta=0.006$, $p>0.05$) and business and management competencies ($\beta=0.013$, $p>0.05$) insignificantly predict social performance. Thus, H1(a) and H1(b) were rejected. Next, entrepreneurial competencies ($\beta=0.412$, $p<0.001$) and human relations competencies ($\beta=0.600$, $p<0.001$) significantly predict social performance. Thus, H1(c) and H1(d) were accepted.

Next, the analyses showed conceptual and relationship competencies ($\beta=0.499$, $p<0.001$), business and management competencies ($\beta=0.507$, $p<0.001$), entrepreneurial competencies ($\beta=0.499$, $p<0.001$), and human relations competencies ($\beta=0.360$, $p<0.001$) significantly predict economic performance. Thus, H2(a), H2(b), H2(c), and H2(d) were accepted.

Finally, the results revealed that conceptual and relationship competencies ($\beta=0.530$, $p<0.001$), business and management competencies ($\beta=0.292$, $p<0.001$), entrepreneurial competencies ($\beta=0.395$, $p<0.001$), and human relations competencies ($\beta=0.641$, $p<0.001$) significantly predict environmental performance. Hence, H3(a), H3(b), H3(c), and H3(d) were accepted. Figure 3 portrays the final model of the study.

Table 5: Assessment of the Structural Model

Path	β	S.E.	p-value	Remarks
DV: Social Performance				
Conceptual and Relationship Competencies	0.006	0.067	0.070	H1(a) rejected
Business and Management Competencies	0.013	0.038	0.089	H1(b) rejected
Entrepreneurial Competencies	0.412	0.073	0.000	H1(c) accepted
Human Relations Competencies	0.600	0.054	0.000	H1(d) accepted
DV: Economic Performance				
Conceptual and Relationship Competencies	0.410	0.050	0.000	H2(a) accepted
Business and Management Competencies	0.507	0.039	0.000	H2(b) accepted
Entrepreneurial Competencies	0.499	0.080	0.000	H2(c) accepted
Human Relations Competencies	0.360	0.063	0.000	H2(d) accepted
DV: Environmental Performance				
Conceptual and Relationship Competencies	0.530	0.067	0.000	H3(a) accepted
Business and Management Competencies	0.292	0.038	0.000	H3(b) accepted
Entrepreneurial Competencies	0.395	0.073	0.000	H3(c) accepted
Human Relations Competencies	0.641	0.054	0.000	H3(d) accepted

Note: ***Paths are significant at the 1% level ($p < 0.01$).

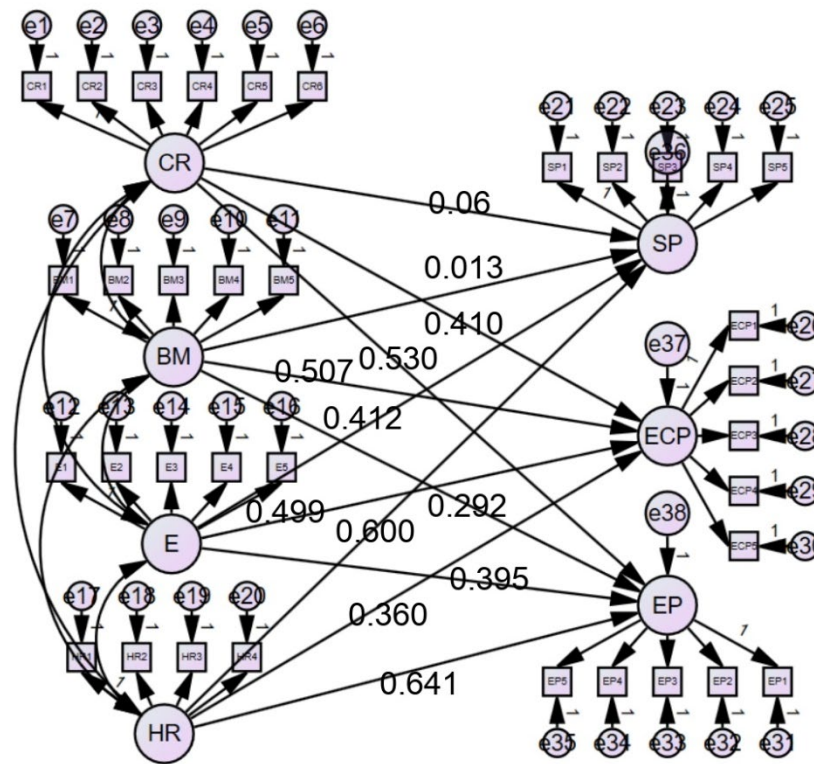


Figure 3: Final Model

DISCUSSION

This study proposes to examine the effect of entrepreneurial competencies (i.e., conceptual and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies) on women entrepreneurs' sustainable performance (i.e., social, economic, and environmental) in the informal economy. This study is predicted to contribute to forming entrepreneurial ideas, programs, and actions to increase entrepreneurial competencies among women entrepreneurs. First, this study contributes to the women's entrepreneurship literature by presenting an empirical examination of entrepreneurship and performance that narrates entrepreneurial competencies as an independent variable.

Studies on the role of entrepreneurial competencies on business performance are still insufficient, and most of the competency-related literature is studied from a large business viewpoint (e.g., Anwar & Shah, 2021). In contrast, studies emphasizing small women's businesses are inadequate (Ismail, 2022). Third, previous studies on entrepreneurial competencies have engrossed more in conceptual deliberations, and this study can further improve empirical studies related to entrepreneurial competencies of women entrepreneurs in the informal sector. This study is also expected to provide more ideas for women entrepreneurs to strengthen themselves regarding self-preparation, management methods, and business strategies to improve their performance. Academics and policymakers benefit from the outcomes of this study for use in planning training and policies connected to improving the performance of women entrepreneurs, which will be key catalysts in growth towards attaining a high-income and inclusive nation by 2020.

The structured model displays that entrepreneurial competencies have substantial relationships and influence business performance. These results are consistent with competency theory, which emphasizes that competence is not just an ability but also includes how a person applies their knowledge and skills effectively in various work situations. McClelland (1985) also explains that individuals who emphasize self- or organizational competence will try their best to use good information or management methods to improve the overall level of organizational competence.

Competency-oriented individuals will use the information obtained to improve their level of competence. They will always carry out tasks through sound and systematic planning (McCelland, 1985). The insignificant results of conceptual and relationship competencies and business and management competencies on social performance have shown that entrepreneurs need higher entrepreneurial and human relations competencies in achieving higher social performance. Successful businesses can improve the community's standard of living by providing quality goods and services, employment opportunities, and contributions to community development. Entrepreneurs can also be examples and inspiration to the community to achieve success in the business field. Thus, entrepreneurs must understand how to interact with employees, customers, and other stakeholders. Good human resource management can increase productivity and achieve business goals. The community around the business is an important stakeholder that the business needs to perceive. Therefore, businesses can take suitable actions to uphold good stakeholder relations and warrant their support. The experience or insight of stakeholders can shape the business's reputation. For example, stakeholders like customers feel pleased by good products or service quality. This will contribute to the positive image of the business through word of mouth or social media (Baawain et al., 2025). On the other hand, a bad customer experience can harm a business's reputation if the customer shares the experience with others (Guerola-Navarro et al., 2024).

As an implication, entrepreneurs can deliver many incentives and assistance to their stakeholders. For example, customers can be given a bonus or gift with every purchase. This can inspire customers to buy more and increase sales. Other than that, it offers customers a loyalty card to become members. This is one of the best ways to retain loyal customers. Every time customers buy, they can collect reward points. They can redeem them for discounts or prizes when they reach a certain amount. Next, an interesting contest, such as a photo or video contest, can be generated with a theme linked to the store.

Variations in the business atmosphere affect the growth and endurance of a business (Ratten, 2023). This necessitates that every entrepreneur continuously strives to advance their entrepreneurial competencies to endure in the business world. Entrepreneurs need accurate training to advance their entrepreneurial competencies and confirm that their businesses are more energetic and growing (Pulka et al., 2021). Consequently, the government must conduct demeanor training and analyze it carefully to obtain accurate information before planning and implementing any entrepreneurial training program. This is very noteworthy in boosting training effectiveness and improving resource usage (Krieger et al., 2021).

Entrepreneurship courses and training formed need to aid women entrepreneurs in advancing their knowledge and skills in the ground of entrepreneurship, increase entrepreneurs' income through new market spaces being discovered, increase the use of e-commerce platforms among entrepreneurs in marketing their products, and educate entrepreneurs to be more aware of current technological developments (Keane & McNaughton, 2025). Several studies have shown that entrepreneur training programs can increase the entrepreneurial competencies of an entrepreneur through increased knowledge, skills, and capabilities (Krieger et al., 2021; Pulka et al., 2021). However, the effectiveness of an entrepreneur training program depends significantly on the analysis of training needs and the accuracy of the information obtained. Guidance services through a coaching and mentoring method from experts knowledgeable in entrepreneurship, including industry players, academics, and corporate members, could guide and grow entrepreneurs and screen the business's performance (Ratten, 2023; Soomro et al., 2025). With direction, encouragement, and sustenance from a reliable and knowledgeable mentor, mentees can benefit from a diversity of personal and professional benefits, eventually resulting in improved performance in the business (Škare et al., 2022).

CONCLUSION

Globalization influences the business environment through improved competition, changing consumer tastes, demand for quality products, and the supply of products at relatively low prices. This alteration is positive and delivers a new injection into the business world. However, from another perspective, this phenomenon has become a contest for

entrepreneurs because they must endeavor to enhance their competencies to face increasingly fierce competition. Hence, entrepreneur growth programs must play an active role in increasing entrepreneurial competencies. This is significant in safeguarding women entrepreneurs so they can be dynamic in the business field and subsequently have an evocative influence on national development. This study proposes to examine the influence of entrepreneurial competencies on the sustainable performance of women entrepreneurs in the informal economy. The findings show that entrepreneurial competencies significantly influence business performance, excluding conceptual and relationship competencies, business and management competencies, and social performance. This study is predicted to contribute to forming entrepreneurial ideas, programs, and activities to increase entrepreneurial competencies among women entrepreneurs. This study is not devoid of limitations. First, the sample size of this study is limited to women entrepreneurs in selected states, which did not pave the way for generalizing the research findings. Thus, future studies need to expand to other areas or sample groups. The limitation of this study also lies in the chosen method of conducting the research (i.e., a cross-sectional survey). Cross-sectional studies are designed to provide correlated data that can be used to draw conclusions about population groups. Suppose there is a causal relationship in the population. In that case, the cross-sectional study cannot provide any information about the relationship, but can only make the researchers see that the relationship exists for several reasons. This study suggests that future research should conduct a longitudinal survey to enhance understanding of the phenomenon and establish the basis for generalizing the results. Finally, the current studies only focus on direct relationships. Hence, future studies are encouraged to expand the study by including the mediation or moderation variables such as personality traits, knowledge, social influence, and demographic factors.

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REFERENCES

- Abaci, N. I. (2022). Relationship between entrepreneurship perception and communication skill: A structural equation model. *The International Journal of Management Education*, 20(3), 100725. <https://doi.org/10.1016/j.ijme.2022.100725>
- Afful, S. L., Bentum-Ennin, I., & Bondzie, E. A. (2025). Financial development and informal economy in Ghana: Exploring the nexus and implications for economic growth and formalization. *Development and Sustainability in Economics and Finance*, 5, 100038. <https://doi.org/10.1016/j.dsef.2024.100038>
- Agrawal, R., Wankhede, V. A., Kumar, A., Upadhyay, A., & Garza-Reyes, J. A. (2022). Nexus of circular economy and sustainable business performance in the era of digitalization. *International Journal of Productivity and Performance Management*, 71(3), 748–774. <https://doi.org/10.1108/IJPPM-12-2020-0676>
- Amini Sedeh, A., Pezeshkan, A., & Caiazza, R. (2022). Innovative entrepreneurship in emerging and developing economies: the effects of entrepreneurial competencies and institutional voids. *The Journal of Technology Transfer*, 47(4), 1198-1223. <https://doi.org/10.1007/s10961-021-09874-1>
- Anderson, J. C., & Gerbing, D. W. (1984). The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis. *Psychometrika*, 49(2), 155-173. <https://doi.org/10.1007/BF02294170>
- Anwar, M., & Shah, S. Z. (2021). Entrepreneurial orientation and generic competitive strategies for emerging SMEs: Financial and nonfinancial performance perspective. *Journal of Public Affairs*, 21(1), e2125. <https://doi.org/10.1002/pa.2125>

- Baawain, A. M., Laachach, A., Jaboob, A. S., & Kankaew, K. (2025). Uncovering the catalysts of sustainable business performance: Digital orientation, entrepreneurial competency, and strategic change. *Business Strategy & Development*, 8(1), e70070. <https://doi.org/10.1002/bsd2.70070>
- Barney, J. B. (2021). The emergence of resource-based theory: A personal journey. *Journal of Management*, 47(7), 1663–1676. <https://doi.org/10.1177/01492063211015272>
- Barney, J. B., Ketchen Jr, D. J., & Wright, M. (2021). Resource-based theory and the value creation framework. *Journal of Management*, 47(7), 1936-1955. <https://doi.org/10.1177/01492063211021655>
- Bentler, P. M., & Yuan, K. H. (1999). Structural equation modeling with small samples: Test statistics. *Multivariate Behavioral Research*, 34(2), 181–197. <https://doi.org/10.1207/S15327906Mb340203>
- Bernama (2022). *Malaysia's informal sector workforce numbered 3.5 million in 2021*. <https://www.malaymail.com/news/money/2022/12/30/stats-dept-malaysias-informal-sector-work-force-numbered-35-million-in-2021/47742>
- Brecht, S., Le Loarne-Lemaire, S., Kraus, S., & Maalaoui, A. (2023). The role of time management of female tech entrepreneurs in practice: Diary and interview results from an innovative cluster. *Journal of Business Research*, 163, 113914. <https://doi.org/10.1016/j.jbusres.2023.113914>
- Chahal, J., Dagar, V., & Shoukat, M. H. (2025). Sustainable entrepreneurship: Examining stimulus-organism-response to the nexus of environment, education, and motivation. *Management Decision*, 63(5), 1391–1416. <https://doi.org/10.1108/MD-04-2024-0845>
- Crous, C., Battisti, E., & Leonidou, E. (2022). Non-financial reporting and company financial performance: A systematic literature review and integrated framework. *EuroMed Journal of Business*, 17(4), 652–676. <https://doi.org/10.1108/EMJB-12-2020-0134>
- Crovini, C., Santoro, G., & Ossola, G. (2021). Rethinking risk management in entrepreneurial SMEs: Towards the integration with the decision-making process. *Management Decision*, 59(5), 1085-1113. <https://doi.org/10.1108/MD-10-2019-1402>
- Cupertino, S., Vitale, G., & Taticchi, P. (2023). Interdependencies between financial and non-financial performances: A holistic and short-term analytical perspective. *International Journal of Productivity and Performance Management*, 72(10), 3184-3207. <https://doi.org/10.1108/IJPPM-02-2022-0075>
- Dell' Anno, R. (2022). Theories and definitions of the informal economy: A survey. *Journal of Economic Surveys*, 36(5), 1610-1643. <https://doi.org/10.1111/joes.12487>
- Finn, P. (2021). Organising for entrepreneurship: How individuals negotiate power relations to make themselves entrepreneurial. *Technological Forecasting and Social Change*, 166, 120610. <https://doi.org/10.1016/j.techfore.2021.120610>
- Guerola-Navarro, V., Gil-Gomez, H., Oltra-Badenes, R., & Soto-Acosta, P. (2024). Customer relationship management and its impact on entrepreneurial marketing: A literature review. *International Entrepreneurship and Management Journal*, 20(2), 507-547. <https://doi.org/10.1007/s11365-022-00800-x>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective* (7th Ed.). New Jersey, NJ: Pearson Educational Inc.
- Halina, Md. N. (2025). *Kekangan Masa Cabaran Utama Usahawan Wanita*. <https://www.utusan.com.my/gaya/2025/05/kekangan-masa-cabaran-utama-usahawan-wanita/>
- Islam, N., & Mamun, M. (2022). *Entrepreneurship development: An operational approach-text and cases with special reference to Bangladesh*. Available at SSRN 4158502.
- Ismail, I. J. (2022). Entrepreneurs' competencies and sustainability of small and medium enterprises in Tanzania. A mediating effect of entrepreneurial innovations. *Cogent Business & Management*, 9(1), 2111036. <https://doi.org/10.1080/23311975.2022.2111036>

- Jaboob, M., Iqbal, S., & Hameed, S. F. (2025). How do emotional intelligence and psychological well-being affect decision-making in Omani SMEs? Mediating role of entrepreneurial intention?. *Current Psychology*, 1–15. <https://doi.org/10.1007/s12144-024-07186-9>
- Jum'a, L., Zimon, D., Ikram, M., & Madzik, P. (2022). Towards a sustainability paradigm: The nexus between lean green practices, sustainability-oriented innovation, and Triple Bottom Line. *International Journal of Production Economics*, 245, 108393. <https://doi.org/10.1016/j.ijpe.2021.108393>
- Keane, D., & McNaughton, R. B. (2025). Entrepreneurial competencies. In *Technology Entrepreneurship in Theory and Practice* (pp. 17–30). Routledge.
- Kitole, F. A., & Genda, E. L. (2024, May). Empowering her drive: Unveiling the resilience and triumphs of women entrepreneurs in rural landscapes. In *Women's Studies International Forum* (Vol. 104, p. 102912). Pergamon. <https://doi.org/10.1016/j.wsif.2024.102912>
- Klyver, K., & Arenius, P. (2022). Networking, social skills, and launching a new business: A 3-year study of nascent entrepreneurs. *Entrepreneurship Theory and Practice*, 46(5), 1256-1283. <https://doi.org/10.1177/1042258720967063>
- Kovid, R. K., Bhati, B., & Sharma, G. M. (2025). Entrepreneurial competencies, institutional voids and performance of small and medium enterprises: Evidence from an emerging economy. *Vision*, 29(1), 81–90. <https://doi.org/10.1177/09722629211058809>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample sizes for research activities. *Educational and Psychological Measurement*, 607-610. <https://doi.org/10.1177/001316447003000308>
- Krieger, A., Stuetzer, M., Obschonka, M., & Salmela-Aro, K. (2021). The growth of entrepreneurial human capital: origins and development of skill variety. *Small Business Economics*, 1-20. <https://doi.org/10.1007/s11187-021-00555-9>
- Lee, M. J., & Roh, T. (2023). Unpacking the sustainable performance in the business ecosystem: Coopetition strategy, open innovation, and digitalization capability. *Journal of Cleaner Production*, 412, 137433. <https://doi.org/10.1016/j.jclepro.2023.137433>
- Llados-Masllorens, J., & Ruiz-Dotras, E. (2022). Are women's entrepreneurial intentions and motivations influenced by financial skills? *International Journal of Gender and Entrepreneurship*, 14(1), 69-94. <https://doi.org/10.1108/IJGE-01-2021-0017>
- Looi, K. H., & Maritz, A. (2021). Government institutions, entrepreneurship education, and entrepreneurship education programmes in Malaysia. *Education+ Training*, 63(2), 271-291. <https://doi.org/10.1108/ET-07-2020-0217>
- Madichie, N. O., Gbadamosi, A., & Rwelamila, P. (2021). Entrepreneurship and the informal sector: Challenges and opportunities for African business development. *Journal of African Business*, 22(4), 441–447. <https://doi.org/10.1080/15228916.2021.1893055>
- McClelland, D. C. (1987). Biological aspects of human motivation. In F. Halisch, & J. Kuhl (Eds.). *Motivation, Intention, and Volition*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-70967-8_2.
- Ministry of Entrepreneur and Cooperatives Development (2023). *Pelan pemformalan usahawan informal*. <https://www.kuskop.gov.my/admin/files/med/image/portal/PDF/PELAN%20PEMFORMALAN%20USAHAWAN%20INFORMAL.pdf>
- Mitchelmore, S., & Rowley, J. (2013). Entrepreneurial competencies of women entrepreneurs pursuing business growth. *Journal of Small Business and Enterprise Development*, 20(1), 125–142. <https://doi.org/10.1108/14626001311298448>
- Mohd Noor, N. H., Omar, N., Mohamad Fuzi, A., Md Zaini, S., & Mohd Beta, R. M. D. (2024a). Advocating women entrepreneurs' success in a developing country: An explanatory analysis. *Journal of Emerging Economies & Islamic Research*, 12(1). <https://doi.org/10.24191/jeeir.v12i1.591>
- Mohd Noor, N. H., Yaacob, M. A., & Omar, N. (2024b). Do knowledge and personality traits influence women entrepreneurs' e-commerce venture? Testing on the multiple mediation model. *Journal of Entrepreneurship in Emerging Economies*, 16(1), 231–256. <https://doi.org/10.1108/JEEE-01-2023-0023>

- Mukherjee, S. (2023). The business model canvas of women-owned micro enterprises in the urban informal sector. *Journal of Enterprising Communities: People and Places in the Global Economy*, 17(2), 398–418. <https://doi.org/10.1108/JEC-05-2021-0068>
- Noor, N. H. M. (2025). An Investigation of Innovation Mindset, Entrepreneurial Knowledge, and Success of Small Businesswomen. In *The Future of Small Business in Industry 5.0* (pp. 57–84). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-7362-0.ch003>
- Noor, N. H. M., & Omar, N. (2024). Menangani ketaksamaan gender dalam keusahawanan: Cabaran usahawan wanita dari kumpulan berpendapatan rendah (B40): Addressing gender inequality in entrepreneurship: Challenges of women entrepreneurs from low-income groups (B40). *Sains Insani*, 9(1), 34–46. <https://doi.org/10.33102/sainsinsani.vol9no1.615>
- Noor, N. H. M., Zaini, S. M., Omar, N., Beta, R. M. D. M., & Wei, C. L. (2024a). Entrepreneurial competencies for managing business in informal economy: A study of B40 women entrepreneurs in Malaysia. *Journal of Accounting, Business and Management (JABM)*, 32(1), 293–307. <https://doi.org/10.31966/jabminternational.v32i1.1460>
- Noor, N. H. M., Zaini, S. M., Omar, N., Beta, R. M. D. M., & Wei, C. L. (2024b). Assessing financial literacy of female entrepreneurs in informal economy: Empirical evidence from micro business in Malaysia. *Information Management and Business Review*, 16(3), 1036–1049. [https://doi.org/10.22610/imbr.v16i3\(I\)S.4135](https://doi.org/10.22610/imbr.v16i3(I)S.4135)
- Nouhessèwa Hounyonou, Q. (2025). How does the informal economy affect SDGs in developing countries? *International Journal of Sustainable Development & World Ecology*, 1–29. <https://doi.org/10.1080/13504509.2025.2515963>
- Pereira, T. H. M., & Martins, H. C. (2021). People, planet, and profit: A bibliometric analysis of triple bottom line theory. *Journal of Management & Sustainability*, 11, 64. <http://dx.doi.org/10.5539/jms.v11n1p64>
- Pulka, B. M., Ramli, A., & Mohamad, A. (2021). Entrepreneurial competencies, entrepreneurial orientation, entrepreneurial network, government business support, and SME performance. The moderating role of the external environment. *Journal of Small Business and Enterprise Development*, 28(4), 586–618. <https://doi.org/10.1108/JSBED-12-2018-0390>
- Ratten, V. (2023). Entrepreneurship: Definitions, opportunities, challenges, and future directions. *Global Business and Organizational Excellence*, 42(5), 79–90. <https://doi.org/10.1002/joe.22217>
- Recchi, S. (2021). Informal street vending: A comparative literature review. *International Journal of Sociology and Social Policy*, 41(7/8), 805–825. <https://doi.org/10.1108/IJSSP-07-2020-0285>
- Salehi, M., & Arianpoor, A. (2021). The relationship among financial and non-financial aspects of business sustainability performance: Evidence from Iranian panel data. *The TQM Journal*, 33(6), 1447–1468. <https://doi.org/10.1108/TQM-08-2020-0175>
- Shukla, A., Kushwah, P., Jain, E., & Sharma, S. K. (2021). Role of ICT in emancipation of digital entrepreneurship among new generation women. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(1), 137–154. <https://doi.org/10.1108/JEC-04-2020-0071>
- Škare, M., Blanco-Gonzalez-Tejero, C., Crecente, F., & Del Val, M. T. (2022). Scientometric analysis on entrepreneurial skills-creativity, communication, leadership: How strong is the association? *Technological Forecasting and Social Change*, 182, 121851. <https://doi.org/10.1016/j.techfore.2022.121851>
- Soomro, R. B., Memon, S. G., & Soomro, M. (2025). Impact of entrepreneurial knowledge, skills, and competencies on MSME performance: An evidence from a developing country. *Asia Pacific Journal of Innovation and Entrepreneurship*, 19(1), 42–72. <https://doi.org/10.1108/APJIE-04-2023-0071>
- Spencer, L. M., & Spencer, S. M. (1993). *Competence at work*. John Wiley & Sons.
- Sultana, N., Rahman, M. M., & Khanam, R. (2022). The effect of the informal sector on sustainable development: Evidence from developing countries. *Business Strategy & Development*, 5(4), 437–451. <https://doi.org/10.1002/bsd2.217>

- Trombetta, M. (2023). Accounting and finance literacy and entrepreneurship: An exploratory study. *Journal of Accounting and Public Policy*, 42(2), 107078. <https://doi.org/10.1016/j.jaccpubpol.2023.107078>
- Yip, W. S., & To, S. (2021). A critical analysis of sustainable micro-manufacturing from the perspective of the triple bottom line: A social network analysis. *Environmental Impact Assessment Review*, 90, 106628. <https://doi.org/10.1016/j.eiar.2021.106628>