

Optimizing Women's Entrepreneurship to Enhance Family Domestic Income: A Case Study of Female Entrepreneurs in Batam

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Abstract

This study examines the role of women's entrepreneurship in enhancing domestic family income in Batam, a special economic zone with unique socio-economic characteristics. The study employs a mixed-methods approach, integrating quantitative and qualitative designs to understand the factors influencing women's entrepreneurship and to develop optimization strategies. Quantitative data were collected through questionnaires distributed to 200 female entrepreneurs across 12 districts in Batam, while qualitative data were obtained through in-depth interviews, focus group discussions (FGD), and participant observations. Data analysis was conducted using variance-based structural equation modeling (PLS-SEM) and NVIVO software to analyze the complex relationships between variables. The results of the study indicate that women's education level, access to capital, and family support are critical factors influencing the success of entrepreneurship. Access to capital is proven to be a significant challenge, with barriers such as high interest rates and complex procedures. Additionally, the increase in family income derived from women's businesses contributes to improving family welfare, including children's education, health, and financial stability. Based on these findings, the study recommends the need for improved access to capital, the development of relevant entrepreneurial training programs, and supportive government policies to strengthen the role of women's entrepreneurship in Batam. This study is expected to contribute meaningfully to the literature on women's entrepreneurship and provide a foundation for the development of more effective policies in the future.

Keywords: Domestic Family Income; Women Entrepreneurship; Family Income Level; Education Level of Women; Women's Entrepreneurial Capital Access

INTRODUCTION

Women's entrepreneurship has played an important role in improving the economic and social well-being of many countries. According to economists, entrepreneurship is a vital mechanism for economic growth and development (Hamdan et al., 2020; Ordeñana et al., 2020; Saberi & Hamdan, 2019). High entrepreneurial activities in a country tend to boost consumption and innovation (Galindo-Martín et al., 2019). Moreover, in countries that have historically faced gender inequality, entrepreneurship is seen as a critical tool for bringing significant social and economic changes, specifically empowering women (Zayadin et al., 2022; Khan et al., 2022; Yen et al., 2022) and reducing poverty (Dzingirai, 2021; Naminse et al., 2019; Xu et al., 2022).

Women represent a significant part of human resources that can substantially improve the overall economy. Women entrepreneurship is one of the fastest-growing areas of development, contributing significantly to poverty alleviation through innovation, wealth creation, and employment opportunities (Sarmah et al., 2021). In developing countries, the impact of women entrepreneurship tends to be more beneficial in improving household welfare. Women are more likely to allocate spending on health, education, and nutrition (Adzo Seshie-Nasser & Daagye Oduro, 2018). Additionally, women-owned businesses tend to employ more women, creating a ripple effect in the context of women's empowerment, especially in developing countries (Adam et al., 2017).

Despite the significant potential of women entrepreneurship in enhancing economic and social welfare, in-depth research on women entrepreneurship in Indonesia, particularly in Batam, remains limited. Batam's

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economic and social characteristics may differ from other regions in Indonesia, making this study crucial to fill the literature gap. This research aims to examine women entrepreneurship in Batam and how this effort can enhance household domestic income.

Most previous studies on women entrepreneurship used simple and less in-depth analytical methods to explore the complex relationships between various variables. In this context, Structural Equation Modeling (SEM) and NVIVO software will be used to analyze these complex relationships, allowing for a more comprehensive understanding of the factors affecting the success of women entrepreneurs and their impact on family welfare.

Several studies related to women entrepreneurship have been conducted in various developing countries, highlighting the importance of understanding the motivations and challenges faced by women entrepreneurs (Borham et al., 2023; Bastian et al., 2018). However, studies focusing on the local socio-economic and cultural aspects of Batam are still rare. Additionally, there is no comprehensive research examining factors such as education level and access to capital and their impact on family welfare in Batam.

This research aims to explore and analyze women entrepreneurship in Batam, focusing on its impact on increasing household domestic income. The novelty of this research lies in its innovative methodological approach using SEM, specific local focus, and in-depth analysis of socio-economic and cultural factors. This study will also provide clear policy recommendations and practical intervention strategies to support women entrepreneurship in Batam. The scope of the research includes interviews with women SMEs, focus group discussions (FGD) with women SMEs, and participant observation with women SMEs. Using a quantitative methods approach, this research is expected to provide in-depth and holistic insights into women entrepreneurship in Batam and contribute valuable literature for the development of better entrepreneurship policies and practices.

The Indonesian special economic zone of Batam, a dynamic industrial and commercial hub, boasts a significant female population. These women play a crucial role in various facets of life, encompassing family, economic activity, and social spheres (Sharma, M., & Kota, H. B, 2019). However, despite their vital contributions, women in Batam continue to face numerous challenges. Data from Indonesia's Central Statistics Agency (BPS) reveals a gender disparity in labor force participation, with women at 49.2% compared to 50.8% for men (BPS, 2023). This indicates that a substantial portion of women in Batam lack access to decent employment opportunities.

Furthermore, BPS data underscores a gender gap in poverty within Batam. While 10.64% of the city's residents live in poverty, the proportion of women experiencing poverty is demonstrably higher than that of men (BPS, 2023). This disparity extends to the business sector as well. Although BPS data indicates that 48.7% of small and medium-sized enterprise (SME) entrepreneurs in Batam are women, micro-businesses owned by women in the city generate a significantly lower average monthly income of Rp 3.5 million compared to their male counterparts (BPS, 2023).

LITERATURE REVIEW

Domestic Family Income

Domestic family income is a crucial aspect of household financial stability. Various studies have explored the factors contributing to family income, with a particular focus on the role of women in entrepreneurial activities and their impact on household income. A 2022 study explored the role of women's entrepreneurship and innovative technologies in contributing to household income during the COVID-19 pandemic. The study used an ordered logit model to estimate the effects of various factors such as age, education, family size, income from other sources, time allocated to entrepreneurial activities, business size, and location (rural/urban) on the contribution of entrepreneurship to household income (Ge et al., 2022). The findings highlighted the significant impact of women's entrepreneurship on household income, emphasizing the need for innovative technologies to support female entrepreneurs amidst the pandemic crisis. Another study published in 2014 examined the contribution of cocoa agroforestry systems to family income and domestic consumption. The study aimed to identify strategies to intensify these systems to enhance

family income and improve domestic consumption (Cerda et al., 2014). The results indicated that cocoa agroforestry systems significantly impact family income and consumption, making them a vital component of household economic stability. A 2020 study investigated the relationship between economic development, family income, and health status in China. The research utilized hierarchical regression analysis and structural equation modeling to examine the moderating role of perceived environmental pollution on the relationship between economic development and health status. The findings revealed that economic development mediates health status through family income; however, higher levels of perceived pollution weakened this relationship (Chen, L et al., 2020). A qualitative study published in 2020 explored the role of fishermen's wives in increasing family income in Namlea Village, Buru Regency. The study found that fishermen's wives play a crucial role in generating additional income outside the home, such as selling fresh and processed fish. The results indicated that the domestic and public roles of fishermen's wives significantly contribute to family income (Fesanrey, W et al., 2020). Domestic family income is influenced by various factors, including gender roles in household chores, the type of domestic tasks performed, and the distribution of these tasks among family members. Research indicates that women's earnings are more negatively impacted by the time spent on domestic work compared to men, with women benefiting more from their partners' assistance (Shirley, C., & Wallace, M., 2004). The allocation of household tasks based on their types indicates that only the time spent on chores typically performed by women negatively impacts wages. This highlights the importance of an equitable distribution of household tasks to reduce the gender wage gap (Dewi, M. K., & Pratama, M. R. A., 2021). Research also reveals the intergenerational aspect of household task participation, indicating that mothers typically handle most household chores, even in dual-earner families. Additionally, girls tend to be assigned more chores than boys (Quadlin, N., 2022).

Women Entrepreneurship

When women launch their own businesses (women's entrepreneurship), it becomes a major driver of both family finances and economic growth for entire countries. Many studies have explored how women's business ventures contribute to household income and well-being, especially in developing nations. The success of women in starting businesses (women's entrepreneurship) is essential for both growing economies and creating equal opportunities for men and women around the globe. Research across many countries, including Nigeria, Romania, and India, shows how women entrepreneurs are key players in boosting economic activity and empowering themselves and others (Agarwal, S., & Lenka, U., 2018; Majumder, S., 2023; Sanjeevi, P., 2023). A 2021 study explored how women running small, unofficial businesses (informal entrepreneurship) affects their overall well-being. The research showed that these informal businesses significantly improve well-being for families, the economy, and society. This builds on our existing knowledge about how women's entrepreneurial income benefits both themselves and their families. It also highlights the positive ripple effect that comes from women entrepreneurs thriving (Muhammad, S et al., 2021). A 2021 study looked at how women running businesses from home (home-based entrepreneurship) affect their family's financial health. They found that several factors, like the woman's age, marital status, whether they own their home, if they live in a city or rural area, how many people live in the household, and how much their business earns, all play a significant role in their family's finances. This research reinforces the idea that women entrepreneurs have a major impact on their families' well-being, financially and otherwise, which is like the broader positive effects women bring to the world of business. The study research showed that microfinance is a powerful tool for empowering women in rural areas of developing countries. By providing access to loans, microfinance allows these women to start income-generating businesses. The study looked at the data using different methods (descriptive statistics, ANOVA, and regression analysis) and found strong evidence that microfinance significantly benefits women entrepreneurs (Rathnayake, R. M. D., 2017).

Family Income Level

Low-income families, driven by the necessity for supplementary income, may be more inclined to encourage female members to venture into entrepreneurship. Nevertheless, limited financial resources and other constraints can pose significant challenges. Family income is a pivotal factor influencing women's entrepreneurial endeavors, impacting their motivation, business success, and overall economic contributions.

Research indicates a positive correlation between women's entrepreneurship and increased household income, with substantial improvements observed in monthly financial gains (Amutha, D., 2014). A constellation of factors, including educational attainment, family composition, time devoted to entrepreneurial pursuits, and business scale, have been recognized as determinants shaping the extent to which entrepreneurial earnings contribute to household income (Ge, T et al., 2022). How much money a family makes (their income level) has a big impact on many parts of life, even for children. This includes a family's ability to bounce back from challenges (resilience), how a child's brain develops and their mental health, how happy and satisfied they feel with life, and even basic things like physical growth and how strong their immune system is. A Croatian study explored the link between family income and how well families cope with challenges (family resilience). They found that students from families with lower incomes were less likely to feel comfortable expressing all their emotions at home. In contrast, students from families with better incomes saw open communication and working together to solve problems as key factors in a strong family unit (Radetić-Paić, M., & Černe, K., 2020). Researchers in a developing country explored what makes people happy and content with their lives (happiness and life satisfaction). They found that family income is a big factor, but other things matter too, like having a good education, a steady job, and strong social connections (Sujarwoto, S et al., 2018). Studies have shown a connection between family income and the health of newborns (perinatal outcomes). However, research suggests that in some healthcare systems, like Spain's, family income might not be a major factor in a baby's health once other influences are considered. This suggests the healthcare system itself plays a big role in ensuring good health outcomes for newborns regardless of income level (Ballesta-Castillejos, A et al., 2020). Capital availability can vary significantly between income groups. While higher-income households may have more capital at their disposal, lower-income households may be driven to generate additional income by starting their own businesses.

Education Level of Women

Educational attainment significantly influences the entrepreneurial pursuits of women, impacting their business outcomes and overall success. A strong correlation exists between women's educational levels and the growth of female entrepreneurship. By providing greater access to education, we can empower women to start their own businesses, thereby improving both household and societal prosperity. Empirical studies suggest a positive correlation between higher levels of education and entrepreneurial performance. Female entrepreneurs with at least a bachelor's degree often exhibit superior firm performance (Rudhumbu, N et al., 2020; Demirbag, O et al., 2022). Studies in poorer countries (developing countries) have shown that economic problems, like unfair income distribution and lack of money (poverty), lead to fewer women completing high school (at least secondary education). This highlights the need to tackle these issues so that girls have the same chance as boys to get a good education (Kandemir, O., 2022). A Russian study explored how much education a woman has affects her place in society. They looked back in history to see how education has changed the roles women play and found that women in Russia have historically faced big obstacles in getting an education and finding good jobs (Guliyeva-kabaoğlu, S., 2022). Formal education, characterized by higher levels of attainment, may provide greater knowledge and skills. However, the contributions of informal learning should not be underestimated.

Women's Entrepreneurial Capital Access

For women who start businesses (women entrepreneurs), having access to financial resources (capital) is essential for their success. Many studies have examined how easy or difficult it is for women to get the money they need to run their businesses, especially in developing countries (Halabisky, D et al., 2023). A study in Pakistan investigated how women who run businesses (women entrepreneurs) leverage their social connections (social capital) to succeed (Rehman, T., & Basit, A., 2023). The research found that these connections play a key role in helping women access the male-dominated areas of the marketplace. This access helps their businesses survive and grow. Interestingly, the study also revealed that these women actively build relationships with men in business, but in ways that don't directly challenge traditional societal expectations (Khan, M. S., 2020).

Findings of Previous Research

This study builds upon the theoretical foundation established by prior research. Several previous studies have provided the rationale for the current investigation, and their findings are incorporated into the framework of this research.

- Impact of Women's Entrepreneurship on Household Income

Empirical evidence from various studies substantiates a positive correlation between female entrepreneurship and increased household income (Ge, T et al., 2022; Mashapure, R et al., 2022; Okolie, U. C et al., 2022; Hussain, J et al., 2022).

- Factors Influencing Women Entrepreneurship

The achievement of entrepreneurial success by women is demonstrably influenced by a confluence of factors, including access to financial resources, educational attainment, targeted training programs, and the availability of social safety net provisions (Khan, R. U et al., 2021; Rosca, E et al., 2020; Ogundana, O. M et al., 2021; Cho, Y et al., 2020).

- Policies and Programs that Support Women's Entrepreneurship

Governmental and non-governmental interventions, implemented through targeted policies and programs, can demonstrably contribute to the advancement of female entrepreneurship. Policy instruments may encompass initiatives that facilitate access to financial capital and skills-development training programs (Foss, L et al., 2019; Cardella, G. M et al., 2020; Hechavarría, D. M., & Ingram, A. E., 2019).

Local Contexts

A Review of Prior Research on Women's Entrepreneurship in Batam

- Women's Entrepreneurship in Indonesia

Indonesia is characterized by a flourishing female entrepreneurial landscape, with an estimated 60% of entrepreneurs being women. Nevertheless, these women entrepreneurs continue to grapple with various constraints, including limitations in accessing capital and market opportunities (Anggahegari, P et al., 2021; Setyaningrum, R. P et al., 2023; Hendratmi, A et al., 2022; Setini, M et al., 2020).

- Women's Entrepreneurship in Batam

Within the Indonesian archipelago, Batam, a city characterized by a significant presence of female entrepreneurs, exemplifies the multifaceted nature of female entrepreneurial engagement. Women entrepreneurs in Batam actively participate in a diverse range of sectors, including trade, manufacturing, and tourism (Setini, M et al., 2020; Singgalen, Y. A et al., 2022; Febriyantoro, M. T et al., 2019).

- Local Policies and Programs that Support Women Entrepreneurship in Batam

The Batam city government has demonstrably advanced female entrepreneurship through the implementation of targeted policies and programs. These interventions encompass initiatives that facilitate access to financial capital, skills-development training, and childcare services (Negara, S. D., & Hutchinson, F., 2020; Hati, S. W., & Syarifah, S., 2023).

METHODOLOGY

This study investigates the optimization of women's entrepreneurship as a strategy to enhance family domestic income, with a focus on female entrepreneurs in Batam, Indonesia. A mixed methods approach is employed, integrating quantitative and qualitative designs to achieve a comprehensive understanding of the factors influencing women's entrepreneurial endeavors and the development of optimization strategies (Shan, Y., 2022). To gain deeper insights into the personal experiences, challenges, and strategies of women entrepreneurs, qualitative methods will be integrated into the research design (Åkerblad, L et al., 2021). This qualitative research employed a multifaceted data analysis approach encompassing Coding, Thematic Analysis, Content Analysis, Discourse Analysis, Narrative Analysis, and Grounded Theory. (Lester, J. N et al., 2020;

Kiger, M. E., & Varpio, L., 2020; Charmaz, K., & Thornberg, R., 2021). The qualitative data analysis findings were processed and analyzed using the NVIVO software. Primary data quantitative were collected directly from the field through the distribution of questionnaires to 200 female entrepreneurs. The sample was geographically stratified across 12 clusters corresponding to the sub-districts within Batam. These clusters include Batam Kota, Batu Aji, Batu Ampar, Belakang Padang, Bengkong, Bulang, Galang, Lubuk Baja, Nongsa, Sagulung, Sei Beduk, and Sekupang. Secondary data for this research will be sourced from the Department of Cooperatives and Micro Enterprises of Batam City. To explore the hypothesized relationships between our research variables, this study employed partial least squares structural equation modeling (PLS-SEM). PLS-SEM is a variance-based technique particularly suited for complex models with reflective constructs and potentially smaller sample sizes compared to covariance-based SEM. This approach allows us to assess the overall fit of the hypothesized model, evaluate the path coefficients between variables, and determine their predictive power (Hair et al., 2012; Schlittgen et al., 2016; Maxwell et al., 2017).

Consistent with the research objectives and methodological approach established in the previous chapter, the initial PLS model for the current investigation is depicted as follows:

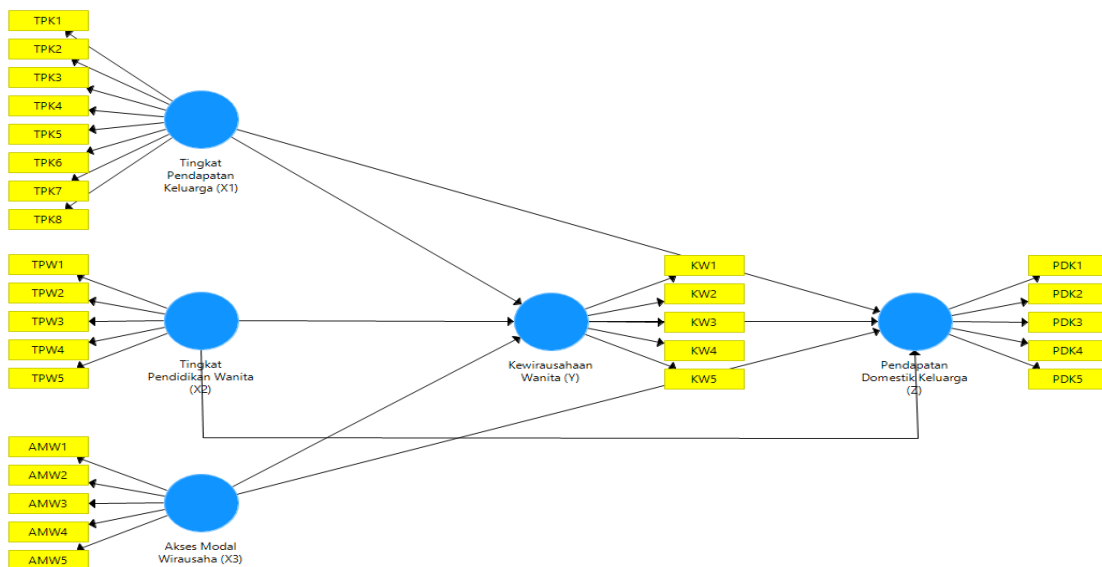


Figure 1. Research Building Construct

The framework serves as a guide for formulating research hypotheses

1. Family Income Level (TPK, (X1)) exerts a significant positive influence on Women Entrepreneurship (KW, (Y)).
2. Women Education Level (TPW, (X2)) demonstrates a substantial positive impact on Women Entrepreneurship (KW, (Y)).
3. Women Entrepreneurial Capital Access (AMW, (X3)) exhibits a remarkable positive influence on Women Entrepreneurship (KW, (Y)).
4. Women Entrepreneurship (KW, (Y)) manifest a noteworthy positive impact on Domestic Family Income (PDK, (Z)).
5. Family income level (TPK, (X1)) indirectly influences Domestic Family Income (PDK, (Z)), demonstrating a self-reinforcing relationship.
6. Women education level (TPW, (X2)) indirectly impacts Domestic Family Income (PDK, (Z)), highlighting the positive contribution of education to household well-being.

7. Access to entrepreneurial capital (AMW, (X3)) indirectly influences Domestic Family Income (PDK, (Z)) through its positive impact on women's entrepreneurial endeavors (KW, (Y)).

This study investigates two distinct structural models

1. Examines model of the influence of exogenous latent variables, X1, X2, and X3, on the endogenous latent variable Y.
2. Explores model of the effect of both the exogenous latent variables (X1, X2, and X3) and the endogenous latent variable Y on another endogenous latent variable, Z.

Collectively, these models incorporate five latent variables: X1, X2, X3, Y, and Z. Each latent variable is operationalized by one or more indicator variables.

RESULT

Quantitative Result

Reliability Validity

Validity and reliability analyses were conducted at the outer model stage with the PLS model.

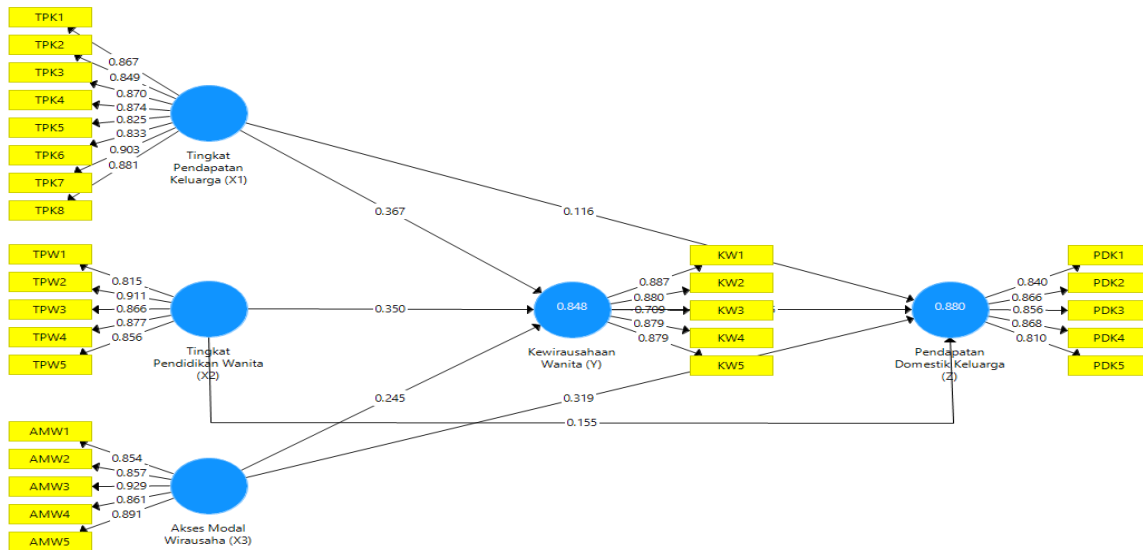


Figure 2. Reliability & Validity Construct

Outer Loading

Indicator reliability is assessed to evaluate the internal consistency of the measurement indicators for each latent variable. This assessment is typically conducted by examining the outer loading coefficients. An outer loading value exceeding 0.7 is generally considered indicative of good indicator reliability, signifying that the latent construct explains more than half of the variance in its indicators (Abdel-Tawab, M et al., 2023).

Table 1. Outer loading sheet

	Women Entrepreneurial Capital Access (X3)	Women Entrepreneurship (Y)	Domestic Family Income (Z)	Family Income Level (X1)	Education Level of Women (X2)
AMW1	0,854				
AMW2	0,857				
AMW3	0,929				
AMW4	0,861				
AMW5	0,891				

KW1		0,887			
KW2		0,880			
KW3		0,709			
KW4		0,879			
KW5		0,879			
PDK1			0,840		
PDK2			0,866		
PDK3			0,856		
PDK4			0,868		
PDK5			0,810		
TPK1				0,867	
TPK2				0,849	
TPK3				0,870	
TPK4				0,874	
TPK5				0,825	
TPK6				0,833	
TPK7				0,903	
TPK8				0,881	
TPW1					0,815
TPW2					0,911
TPW3					0,866
TPW4					0,877
TPW5					0,856

An examination of the outer loading values presented (Table 1) reveals that some indicator loadings exceed the 0.7 threshold, conventionally considered indicative of convergent validity. These loadings signify that the corresponding latent construct explains a substantial (>50%) portion of the variance in its indicators. Conversely, indicator loadings marked in red fall below the 0.7 threshold, suggesting potential issues with convergent validity for those specific indicators. It is important to acknowledge that a lower threshold of 0.6 might be acceptable in certain circumstances, provided that overall construct validity and reliability meet established benchmarks. Based on the current assessment of outer loadings, all indicators can be tentatively considered valid for the purposes of convergent validity. However, further evaluation using alternative validity assessment metrics might be warranted to strengthen the overall validity of the measurement model.

Inner Model

To assess the hypothesized relationships between the constructs and evaluate their strength and significance, path coefficients were estimated. Path coefficients range in value from -1 to +1. A coefficient closer to +1 signifies a stronger positive relationship between the two constructs, while a value closer to -1 indicates a negative relationship. The analysis of these path coefficients allows for the testing of the research hypotheses (Sarstedt, M et al., 2019).

The results of the analysis at the inner level (T value of the loading factor and t value of the path coefficient directs effects).

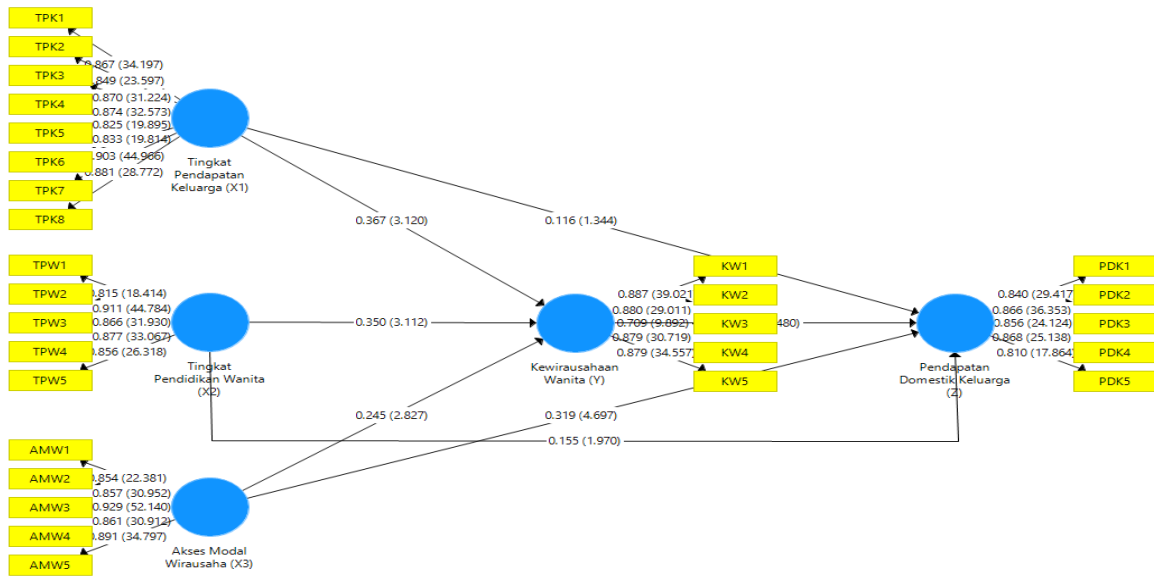


Figure 3. Bootstrapping Model T Value Construct

The results of the analysis at the inner level (P Value of the path coefficient directs effects).

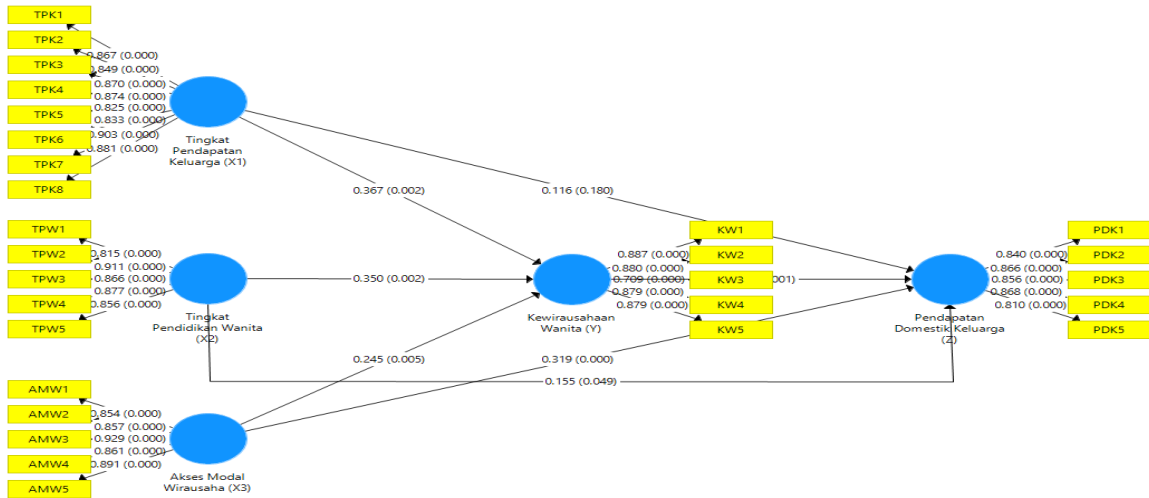


Figure 4. Bootstrapping P Value Path & Coefficient Direct Effects Construct

The following results show the direct effect based on the analysis of two constructs, each exogenous variable construct on endogenous variables:

Table 2. Path Coefficient sheet

	Original Sample (O)	Sampe Mean (M)	Standard Deviation (STDEV)	T Statistics (O /STDEV)	P Values	Conclusion
Women Entrepreneurial Capital Access (X3) -> Women Entrepreneurship (Y)	0,245	0,224	0,087	2,827	0,005	Accepted H1 (Significant)
Women Entrepreneurial Capital Access (X3) -> Domestic Family Income (Z)	0,319	0,330	0,068	4,697	0,000	Accepted H1 (Significant)
Women Entrepreneurship (Y) -> Domestic Family Income (Z)	0,395	0,383	0,114	3,480	0,001	Accepted H1 (Significant)

Family Income Level (X1) -> Women Entrepreneurship (Y)	0,367	0,366	0,118	3,120	0,002	Accepted H1 (Significant)
Family Income Level (X1) -> Domestic Family Income (Z)	0,116	0,119	0,086	1,344	0,180	Accepted H0 (Not Significant)
Education Level of Women (X2) -> Women Entrepreneurship (Y)	0,350	0,371	0,112	3,112	0,002	Accepted H1 (Significant)
Education Level of Women (X2) -> Domestic Family Income (Z)	0,155	0,153	0,079	1,970	0,049	Accepted H1 (Significant)

The path coefficient output table (Table 2) allows researchers to examine the magnitude and direction of the direct effects exerted by each exogenous latent variable on the endogenous latent variable.

Exemplifying this approach, the path coefficient for the influence of variable X1 on Y is 0.367. This value indicates a positive and statistically significant effect ($\beta = 0.367$, $t = 3.120$, $p = 0.002 < 0.05$), implying that an increase in X1 leads to a corresponding increase in Y. In other words, a one-unit rise in X1 is associated with a 36.7% increase in Y. The significance of this effect is further corroborated by bootstrapping procedures, where the resampled estimate for the path coefficient between X1 and Y remains at 0.366. This statistical significance ($p < 0.05$) validates hypothesis H1, signifying that the direct effect of X1 on Y is meaningful. An examination of the p-values associated with the direct effects in the table reveals that the direct effect of X1 on Y is statistically significant ($p < 0.05$). This conclusion is supported by the relatively low p-value, which indicates a strong likelihood that the observed relationship between X1 and Y is not merely due to chance.

Hypothesis Testing Summary

H1: The influence of X1 on Y is significant

Result: The p-value for the effect of X1 on Y is 0.002, which is less than the significance level of 0.05. This indicates that the observed relationship between X1 and Y is statistically significant, leading to the acceptance of H1. In other words, there is a strong likelihood that X1 has a meaningful impact on Y.

H0: The influence of X1 on Z is not significant.

Result: The p-value for the effect of X1 on Z is 0.180, which is greater than the significance level of 0.05. This suggests that the observed relationship between X1 and Z is not statistically significant, prompting the acceptance of H0. Therefore, there is insufficient evidence to conclude that X1 has a substantial influence on Z.

H1: The influence of X2 on Y is significant.

Result: The p-value for the effect of X2 on Y is 0.002, which is less than the significance level of 0.05. This implies that the observed relationship between X2 and Y is statistically significant, leading to the acceptance of H1. This suggests that X2 likely has a meaningful impact on Y.

H1: The influence of X2 on Z is significant.

Result: The p-value for the effect of X2 on Z is 0.049, which is less than the significance level of 0.05. This indicates that the observed relationship between X2 and Z is statistically significant, leading to the acceptance of H1. This suggests that X2 likely has a meaningful impact on Z.

H1: The influence of X3 on Y is significant.

Result: The p-value for the effect of X3 on Y is 0.005, which is less than the significance level of 0.05. This implies that the observed relationship between X3 and Y is statistically significant, leading to the acceptance of H1. This suggests that X3 likely has a meaningful impact on Y.

H1: The influence of X3 on Z is significant.

Result: The p-value for the effect of X3 on Z is 0.000, which is less than the significance level of 0.05. This indicates that the observed relationship between X3 and Z is statistically significant, leading to the acceptance of H1. This suggests that X3 likely has a meaningful impact on Z.

H1: The influence of Y on Z is significant.

Result: The p-value for the effect of Y on Z is 0.001, which is less than the significance level of 0.05. This implies that the observed relationship between Y and Z is statistically significant, leading to the acceptance of H1. This suggests that Y likely has a meaningful impact on Z.

Qualitative Result

The framework serves as a guide for formulating research hypotheses

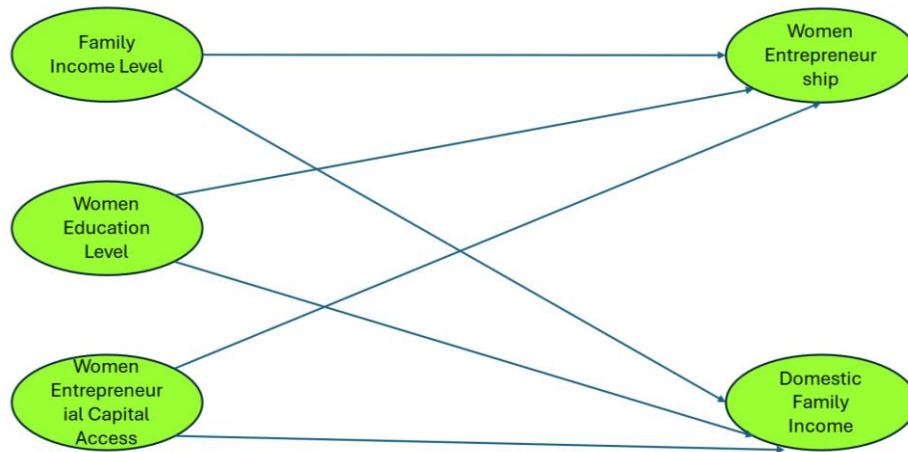


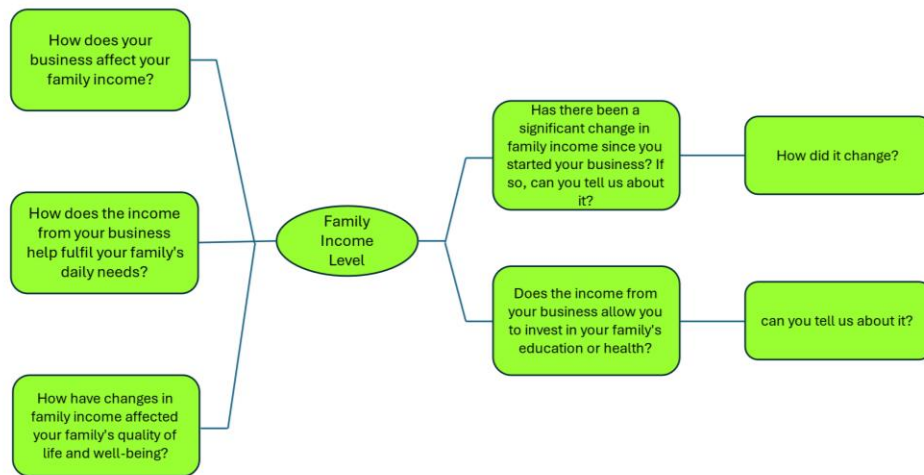
Figure 5. Research Building Construct

The word cloud analysis revealed statistically significant patterns in the occurrence of key terms associated with exogenous, endogenous, and intermediary variables, providing an initial overview of the conceptual framework of each variable.



Figure 6. Word Cloud

Family Income Level



Five research questions were employed to measure this variable

How does your business affect your family income?

How does the insurance from your business help fulfill your family's daily needs?

How have changes in family income affected your family's quality of life and well being?

Has there been a significant change in family income since you started your business? If yes, can you tell us about it?

Does the income from your business allow you to invest in your family's education or health? can you tell us about it?

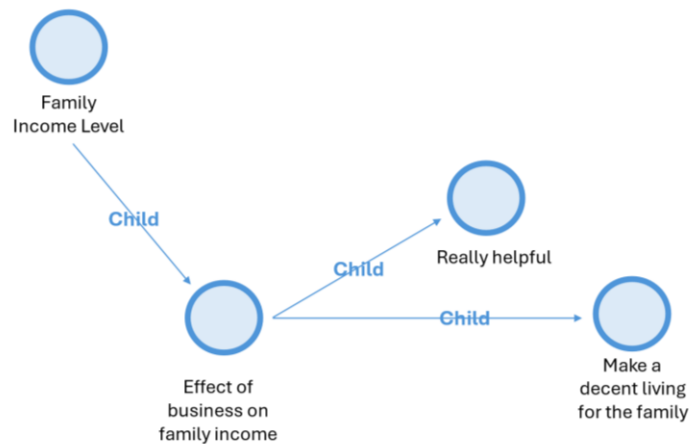


Figure 7. Mapping Business Impact on Family Income

As illustrated in Figure 7, respondents indicated that their entrepreneurial endeavors significantly contributed to household income. Moreover, the data suggests that these women perceived an improvement in their family's overall living conditions post-business initiation.

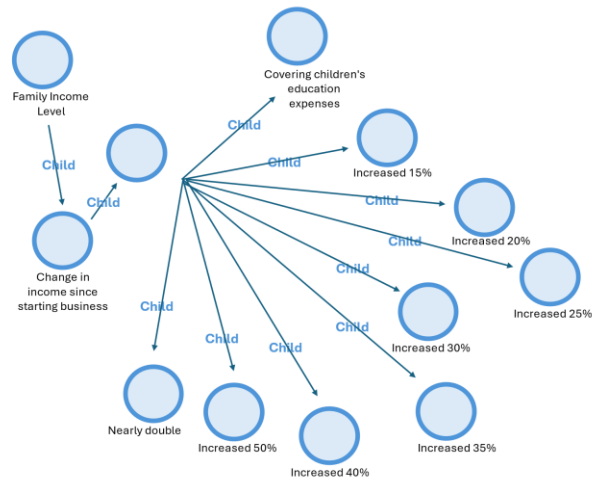


Figure 8. Mapping Family Income Changes from Business Activities

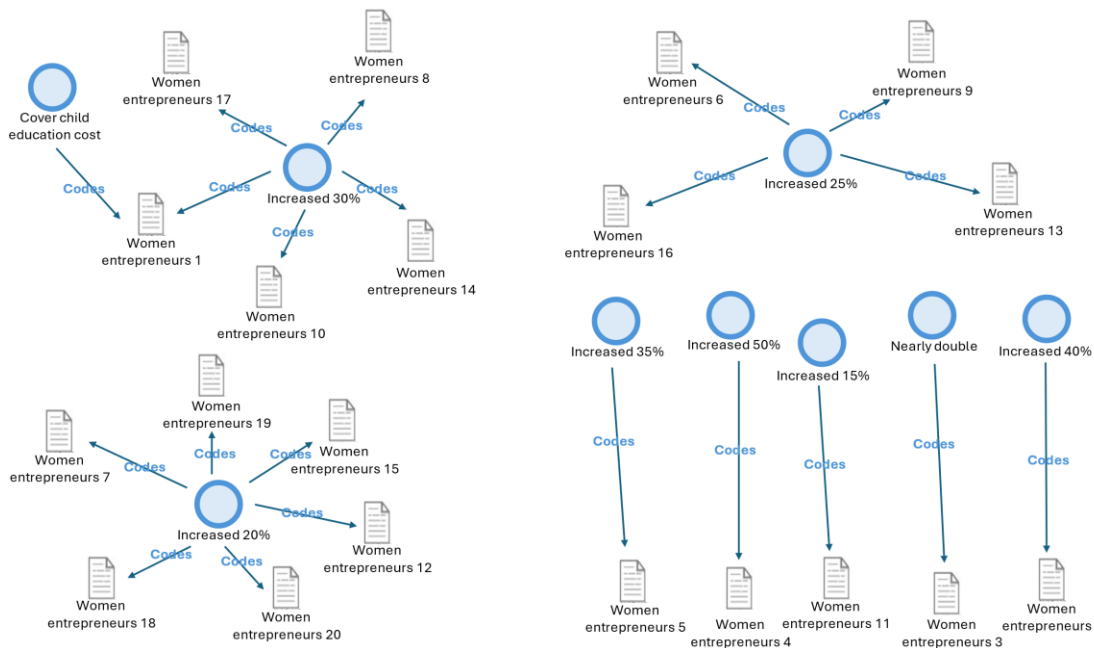


Figure 9. Mapping Family Income Shifts Linked to Women-Owned Businesses

A consistent finding across all women entrepreneurs was a substantial increase in family income post-business inception. The reported income augmentation ranged from 20% to 50%, with several participants indicating a doubling of their financial resources. Most respondents experienced a 20-30% income uplift, while a smaller subset reported increases of 40% and 25%. Specifically, five individuals attained a 40% income growth, four achieved a 25% increase, and six reported a 20% rise in family income.

A more granular analysis revealed a surge in establishments such as cafes, restaurants, gift shops, salons, and floral retailers.

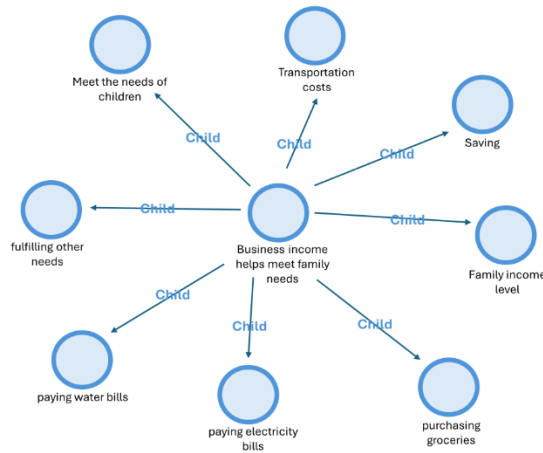


Figure 10. Mapping Business Income for Daily Needs

The revenue generated from these women's entrepreneurial ventures is primarily allocated towards fulfilling essential household expenditures. These include grocery purchases, educational costs for children, utility bill payments (electricity, water), transportation expenses, and other miscellaneous needs. Additionally, a portion of the income is dedicated to savings.

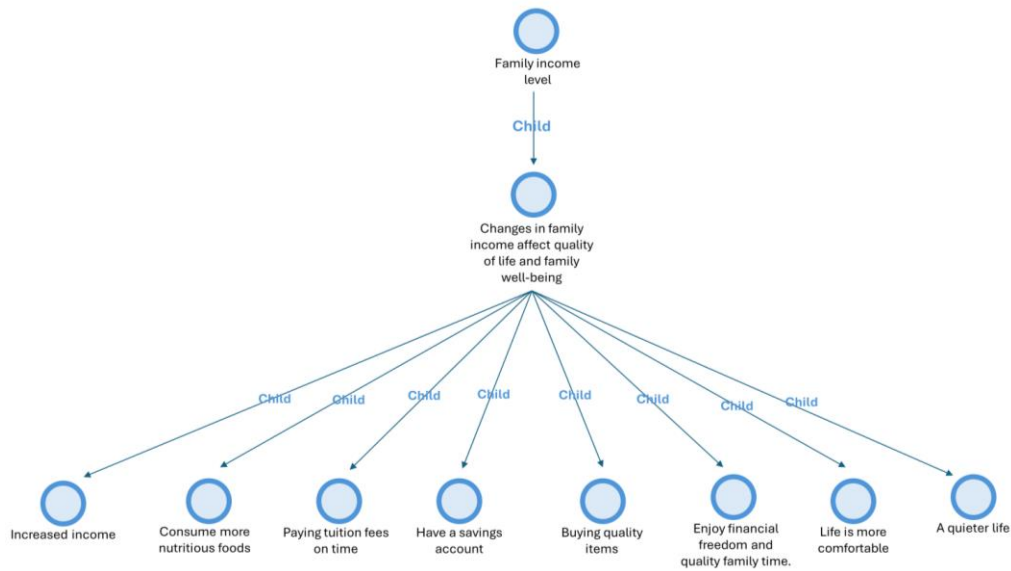


Figure 11. Mapping Quality of Life and Family Welfare Shifts Driven by Business Outcomes

The resource person's entrepreneurial activity resulted in a demonstrably improved household income level. This translated into a tangible enhancement in the family's overall well-being. The financial security fostered by the increased income yielded a greater sense of comfort and stability. Tangible enhancements in participants' well-being were evidenced by increased access to nutrient-rich food, timely coverage of child education costs, the creation of financial reserves, the acquisition of superior consumer goods, and the capacity to engage in financially unconstrained family leisure pursuits such as vacations.

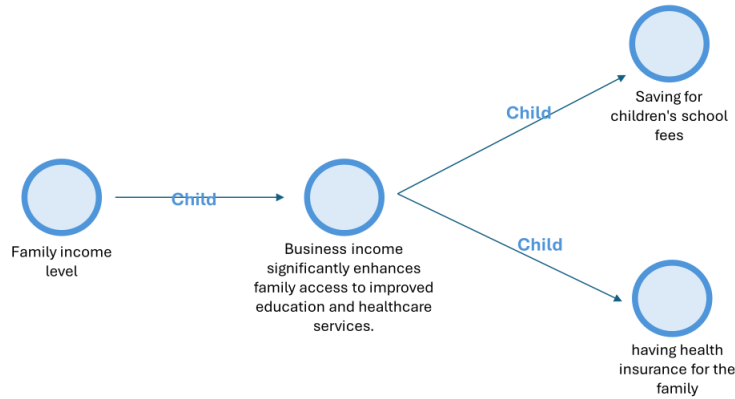


Figure 12. Mapping Income Changes for Savings and Insurance

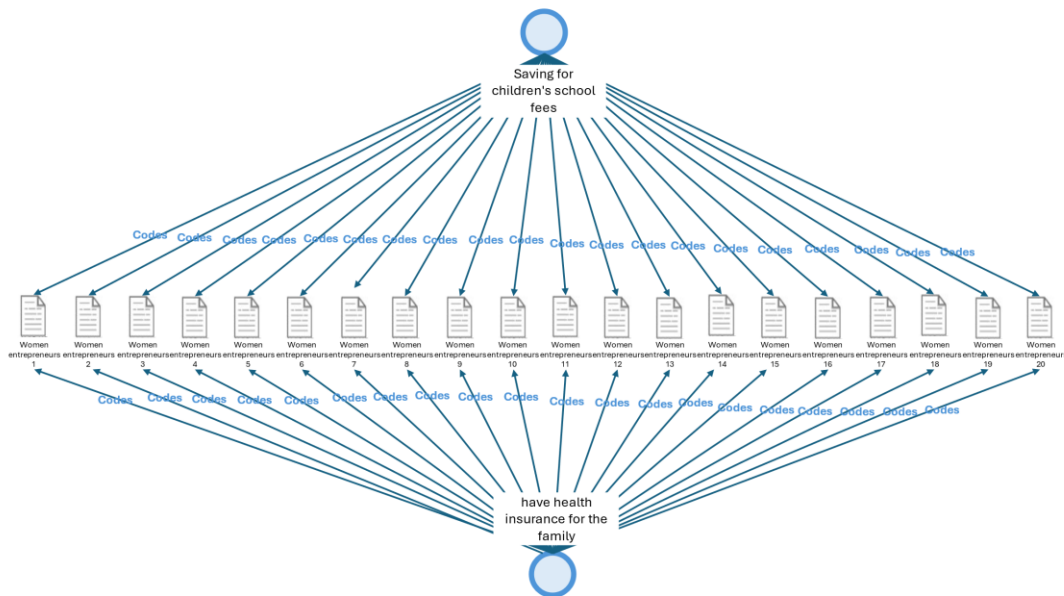
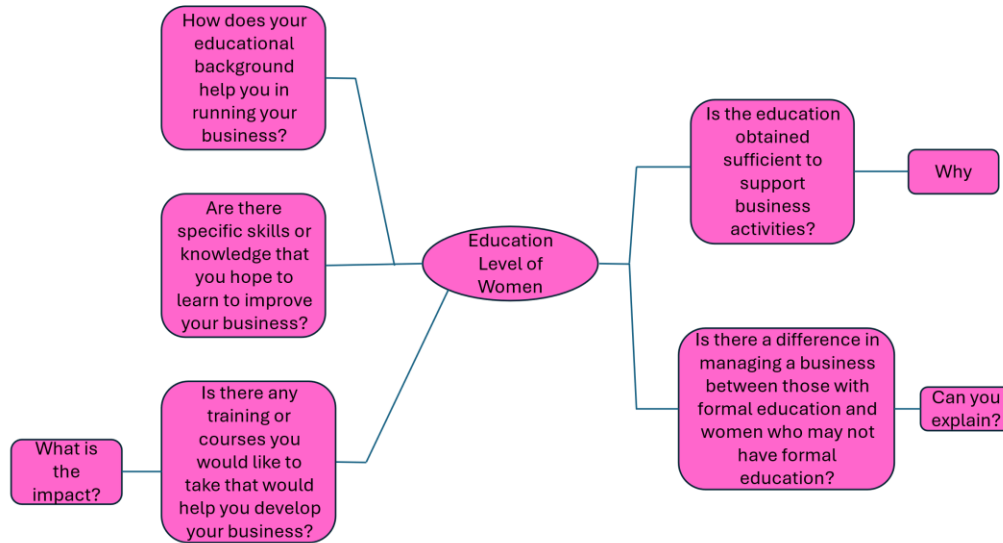


Figure 13. Mapping Income Changes for Savings and Insurance Among Women Entrepreneurs

Data analysis revealed that all respondents reported an increase in household financial capacity because of additional business income, which was utilized to improve family quality of life through health insurance programs and education savings.

Education Level of Women



Five research questions were employed to measure this variable

How does your educational background help you in running your business?

Are there specific skills or knowledge that you hope to learn to improve your business?

Is there any training or courses you would like to take that would help you develop your business?

What is the impact?

Is the education obtained sufficient to support business activities? Why

Is there a difference in managing a business between those with formal education and women who may not have formal education? Can you explain?

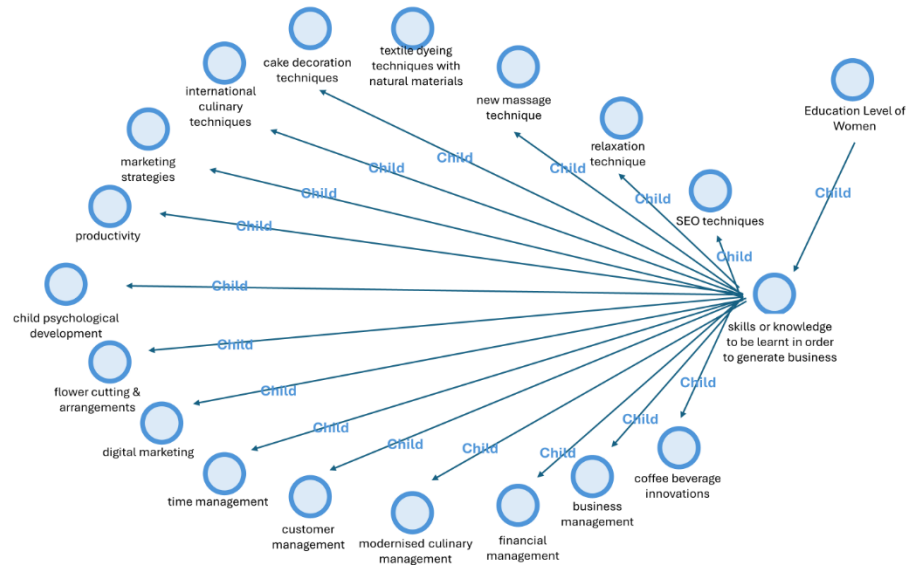


Figure 14. Mapping Women Entrepreneurs' Background

Participants exhibited a diverse range of educational backgrounds, which correlated with their respective business ventures. Their educational profiles included environmental education (applied to business operations), management (focused on overall business administration), business management (emphasizing business operation), marketing (concentrating on sales strategies), beauty education (specialized in

professional salon services), urban agricultural education (involving fresh flower business management), creative arts (centered on souvenir production and design), jewelry arts (focused on jewelry business operations), arts and crafts (specialized in recycled material handicrafts), textile arts (involving batik design and production), and culinary arts (centered on recipe development).

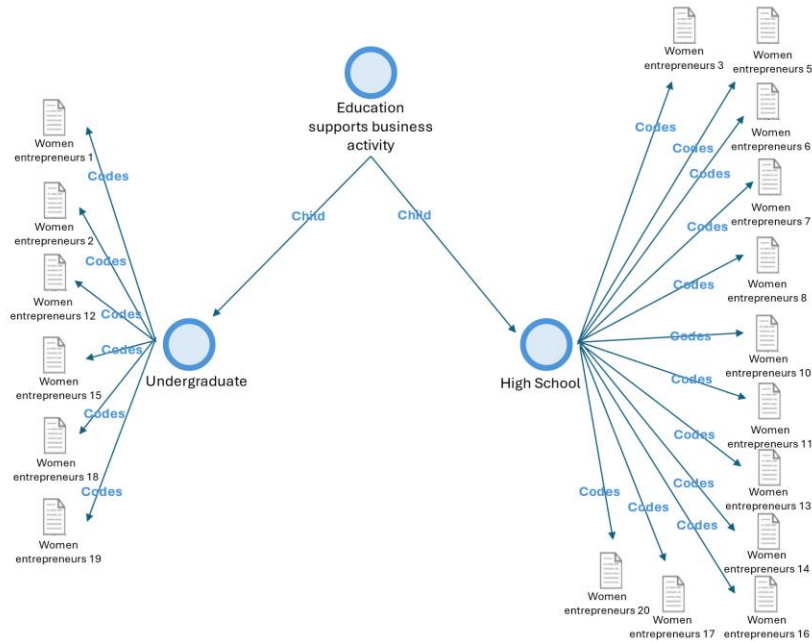


Figure 14. Mapping Comparison High School vs Undergraduate

The educational attainment of women entrepreneurs significantly influences the long-term viability of their enterprises. Among the sampled female entrepreneurs, a higher proportion possessed a high school diploma compared to a bachelor's degree. The sample comprised twelve high school graduates and eight bachelor's degree holders.

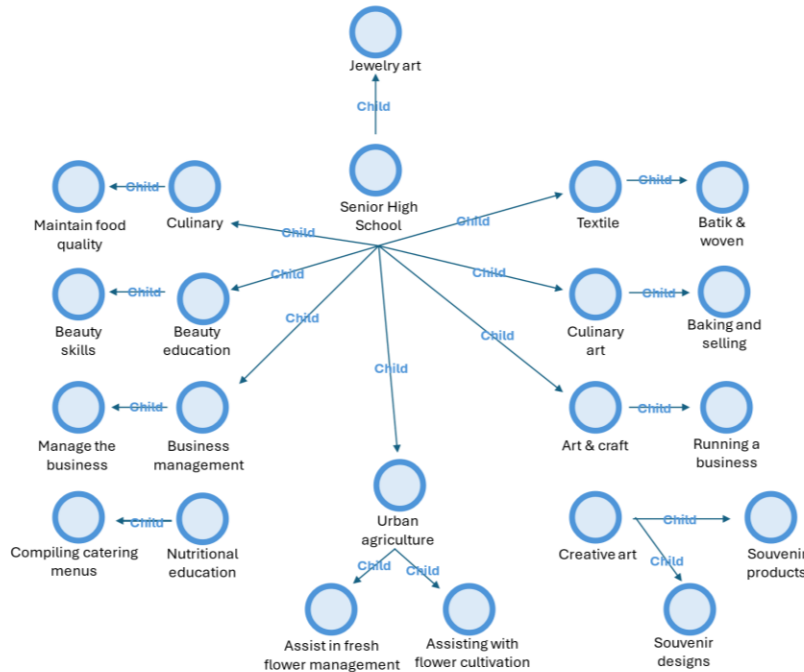


Figure 15. Mapping Educational Programs Supporting Enterprises (Senior High School)

The study population comprised businesswomen with a maximum educational attainment of high school, graduating from vocational schools. Their primary fields of study included: culinary arts (focused on food quality maintenance), business management (emphasizing business operation), nutrition education (specializing in catering menu development), beauty education (centered on skill acquisition), urban agriculture (involving flower cultivation and fresh flower management), creative arts (with a focus on souvenir design and production), jewelry arts (specializing in jewelry production), fine arts and crafts (emphasizing business operation), culinary arts (focused on cake production and sales), and textiles (specializing in batik and weaving design and production).

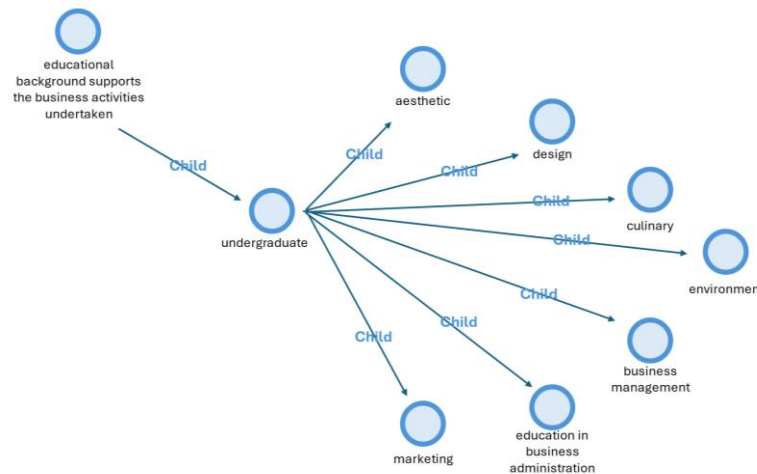


Figure 16. Mapping Undergraduate Programs Supporting Enterprises

Female entrepreneurs possessing a bachelor's degree were included in the study. Their primary fields of study encompassed design (with a focus on business management and design concept development), aesthetics, culinary arts (specialized in restaurant operations), environmental science (centered on sustainable cafe

management), business management, marketing (emphasizing marketing strategies), and business administration (focused on overall business management).

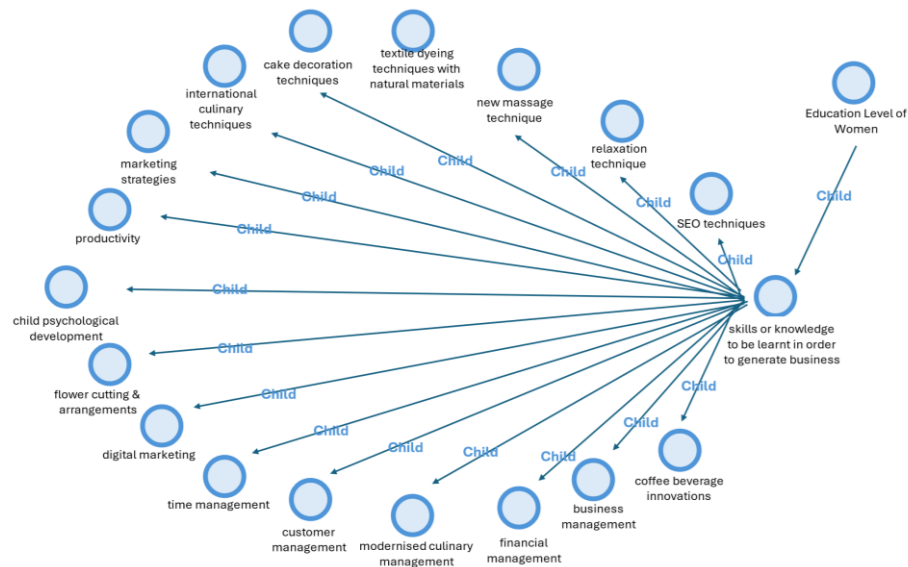


Figure 17. Mapping Learning Objectives

The desired knowledge and skills among women entrepreneurs exhibited variability, influenced by their specific business sectors and encountered challenges. Key learning areas identified included beverage innovation (particularly for traditional coffee shop owners), management (encompassing business, financial, culinary, customer, and time management for various business types), digital marketing (across multiple sectors), floral arrangement (for fresh flower businesses), child psychology (specific to children's toy stores), productivity enhancement, marketing strategies (applicable to diverse businesses), international culinary techniques, cake decorating, textile dyeing with natural materials, new massage techniques (relevant to salon and spa businesses), relaxation techniques (also for salon and spa businesses), and SEO techniques.

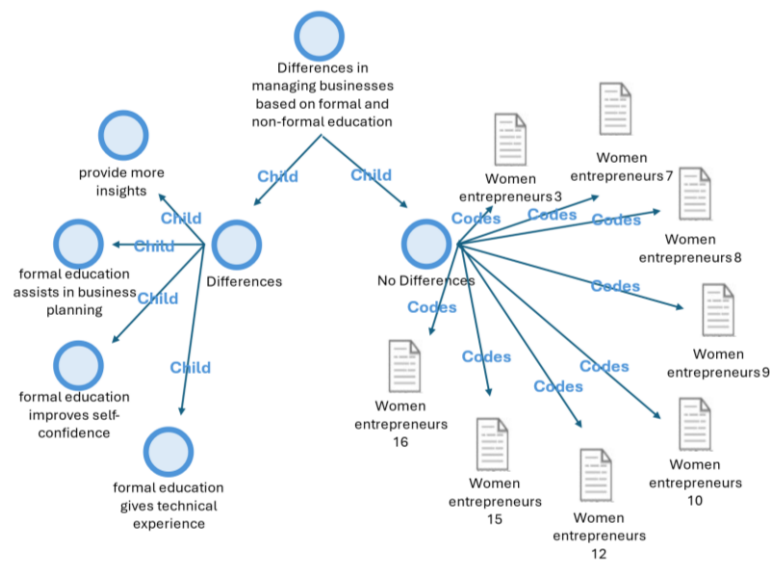


Figure 18. Mapping Formal vs. Non-formal Education

Eight respondents indicated no discernible disparity in business development between women with and without formal education. Conversely, twelve participants asserted that formal education significantly influenced entrepreneurial endeavors.

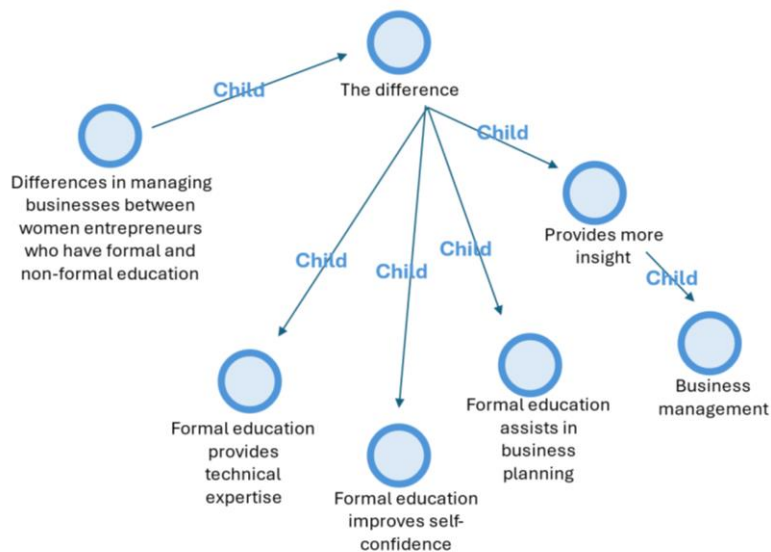


Figure 19. Mapping Impacts of Formal vs. Non-formal Education

A dozen participants reported that formal education significantly impacted their business management and development strategies. Key perceived benefits encompassed enhanced business acumen, facilitated strategic planning, and boosted self-assurance through validated competencies. Furthermore, formal education equipped entrepreneurs with technical proficiency, thereby streamlining business operations, particularly in sectors demanding specialized skills.

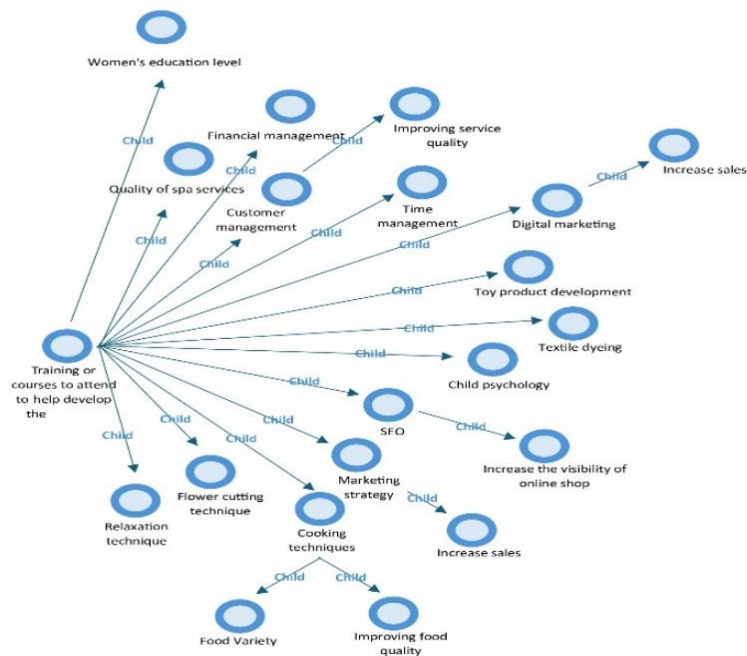
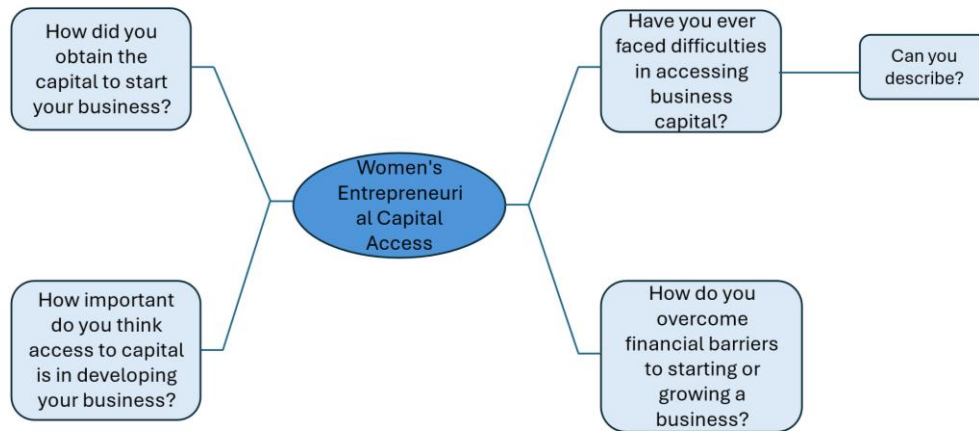


Figure 20. Mapping Completed Courses and Trainings

None of the participants had undertaken formal coursework or training related to their business operations. Nevertheless, several expressed a desire for specific training programs. Potential benefits identified by

participants included enhancing spa service quality and relaxation techniques for the salon and spa industry; improving financial management, customer relationship management, time management, digital marketing, sales, and marketing strategies across various business sectors; elevating service quality in service-oriented businesses; advancing children's toy product development and understanding child psychology for toy shops; acquiring textile dyeing expertise; optimizing online shop visibility through SEO; mastering culinary techniques, elevating food quality, and expanding dish offerings in the restaurant and culinary sector; and refining flower cutting techniques for the fresh flower business.

Women's Entrepreneurial Capital Access



Four research questions were employed to measure this variable.

How did you obtain the capital to start your business?

How important do you think access to capital is in developing your business?

Have you ever faced difficulties in accessing business capital? Can you describe?

How do you overcome financial barriers to starting or growing a business?

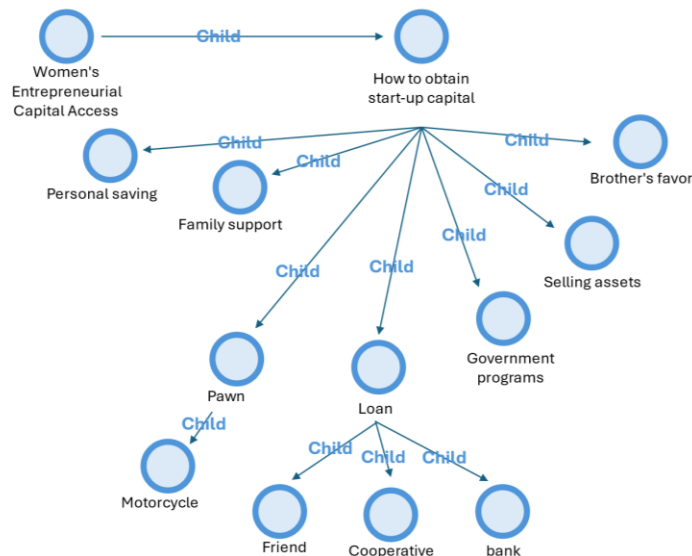


Figure 21. Mapping source of Start-up Capital

All women entrepreneurs utilized personal savings as the initial capital for their ventures, complemented by diverse funding sources. These additional sources included familial support, asset liquidation (e.g., motorcycles), and loans from various institutions such as banks, cooperatives, and government programs.

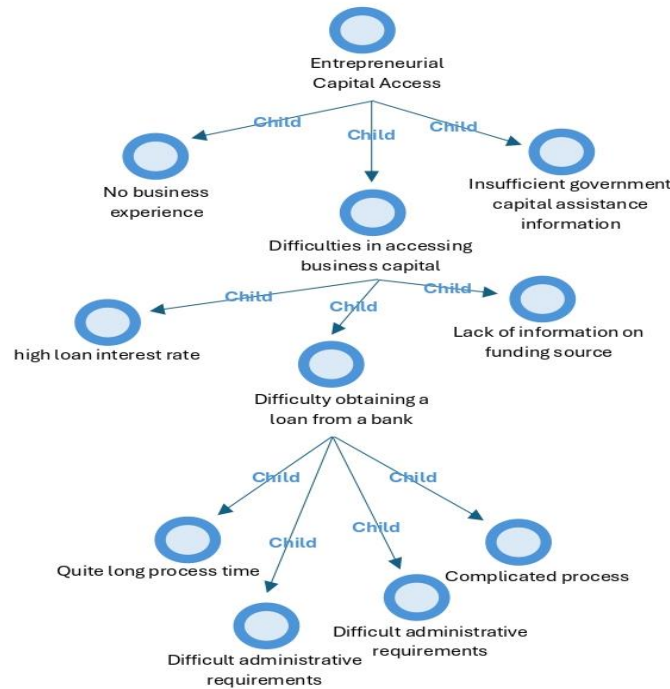


Figure 22. Mapping source of Start-up Capital

All women entrepreneurs encountered significant challenges in securing capital. These obstacles primarily stemmed from a dearth of business experience, exorbitant loan interest rates, and impediments associated with accessing bank loans. The latter included insufficient collateral, protracted processing times, burdensome administrative requirements, complex procedures, and a paucity of information regarding available funding options.

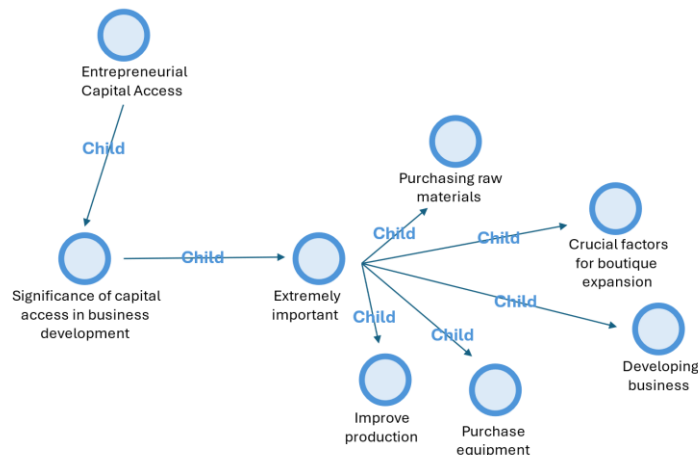


Figure 23. Mapping source of Start-up Capital

Access to capital is a critical determinant of entrepreneurial success. Capital is instrumental in acquiring raw materials, expanding business operations (including café expansion, product diversification, boutique

enlargement, inventory accumulation, and production scaling), purchasing equipment, and procuring products.

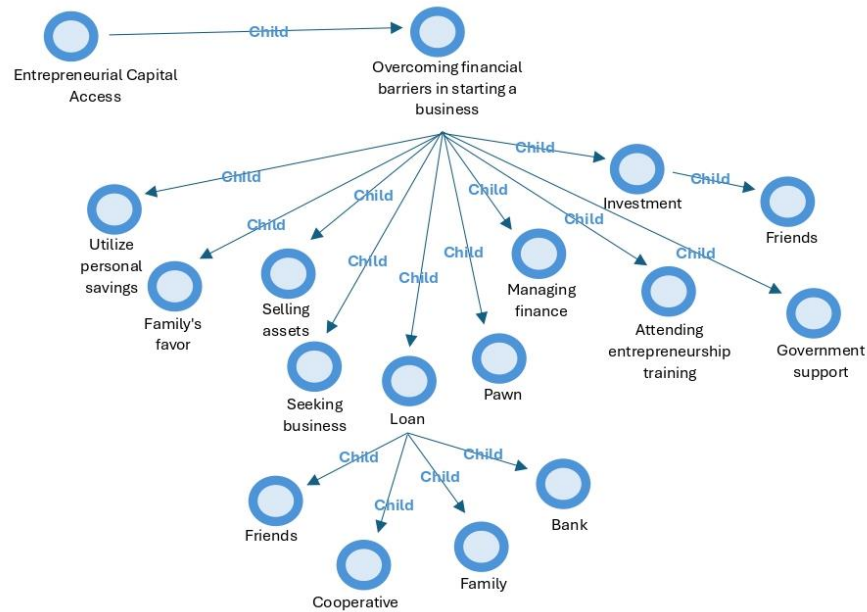
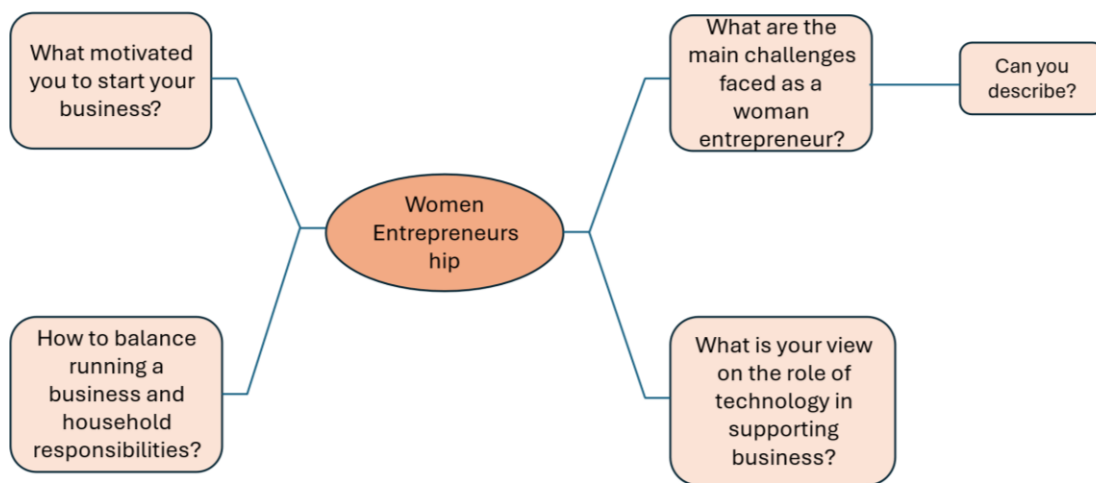


Figure 24. Mapping to overcome financial difficulties

To mitigate financial challenges, women entrepreneurs adopted various strategies. These included leveraging familial support, asset liquidation, peer investment, and personal savings. Additionally, they sought business partnerships, enhanced financial management skills through entrepreneurship training, and explored external financing options such as loans from banks, cooperatives, and government programs.

Women Entrepreneurship



Four research questions were employed to measure this variable.

What motivated you to start your business?

How to balance running a business and household responsibilities?

What are the main challenges faced as a woman entrepreneur? Can you describe?

What is your view on the role of technology in supporting business?

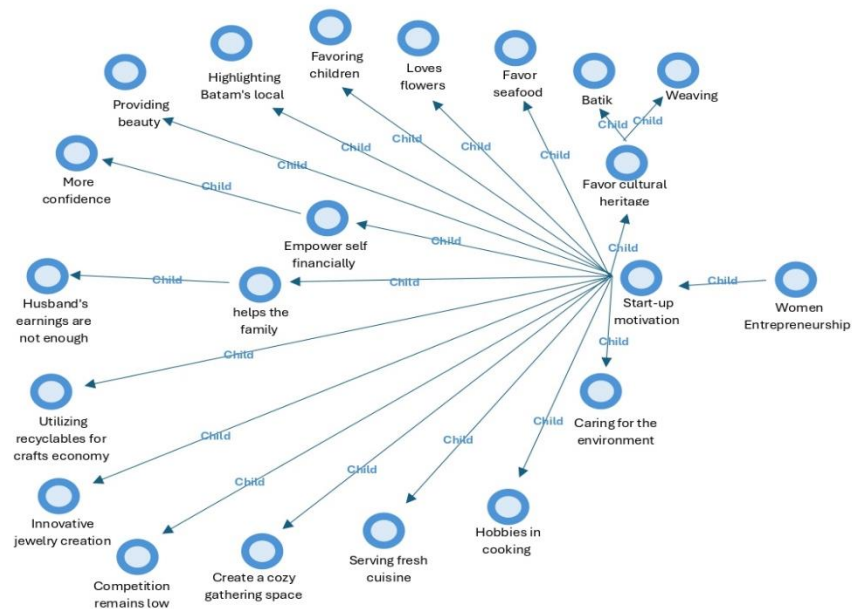


Figure 25. Mapping Motivation to start a business

Entrepreneurial ventures were primarily motivated by economic necessity. However, participants exhibited a diverse range of additional motivations. These included a passion for culinary arts, a desire for community building, and a drive for creativity. Some sought to contribute to family income or achieve financial independence, while others were influenced by environmental concerns or a love for local culture. Additionally, personal interests such as child-care, floristry, and seafood played a role in shaping business ideas.

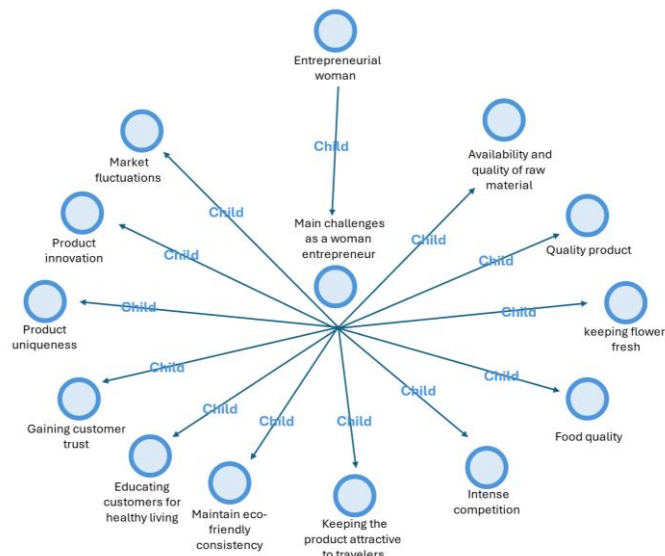


Figure 26. Mapping major challenges

Entrepreneurial ventures often encounter significant hurdles that can impede growth and development. Participants in this study identified several key challenges. These included market instability and intense competition, the imperative for continuous product innovation, and the challenges associated with securing

and maintaining a reliable supply chain. Additionally, preserving product quality, building customer trust, and promoting sustainable business practices emerged as critical obstacles.

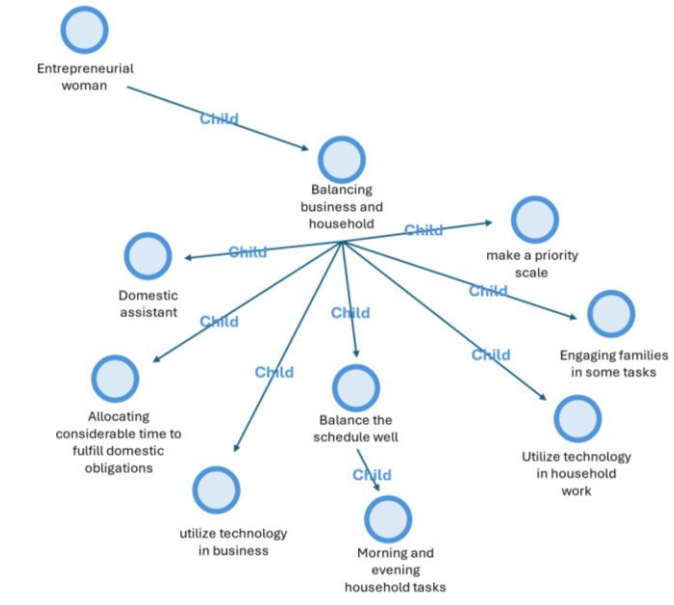


Figure 27. Mapping on balancing business and household tasks

Woman entrepreneurs often encounter the challenge of balancing professional aspirations with domestic responsibilities. To navigate this complex interplay, several strategies can be employed. Delegating household tasks, involving family members in domestic chores, and optimizing free time for household management can significantly alleviate the burden. Leveraging technology for both business operations and household chores can streamline processes and enhance efficiency. Prioritizing tasks and creating a well-structured schedule are essential for effective time management. By implementing these approaches, women entrepreneurs can foster a healthier work-life balance and improve overall well-being.

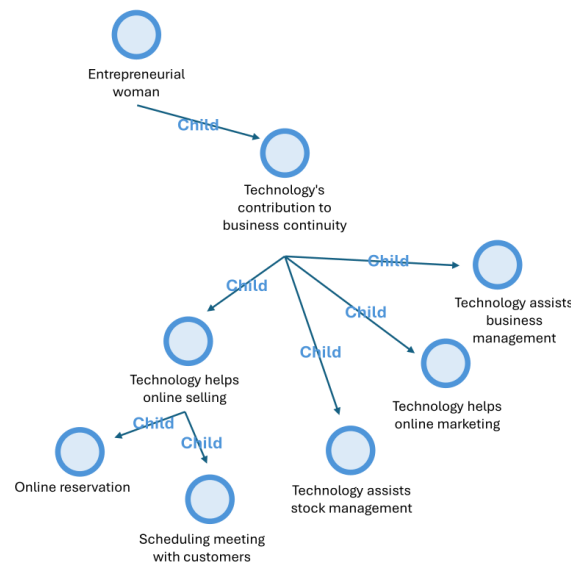
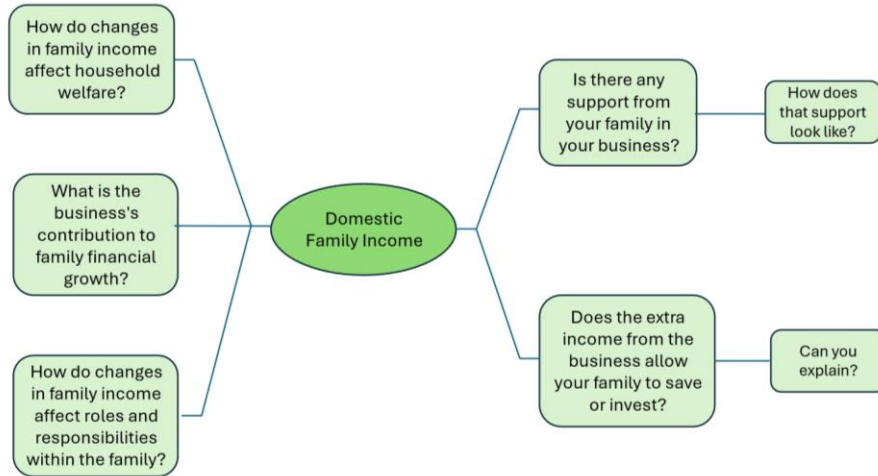


Figure 28. Mapping Utilization of Technology in Business Management

Technology has emerged as an indispensable tool in contemporary business management, serving as a catalyst for operational efficiency and growth. Its applications span across various business functions. For instance,

technology streamlines internal processes, from inventory management to resource allocation. Additionally, it empowers businesses to connect with their target audience through effective digital marketing campaigns. In the realm of e-commerce, technology facilitates seamless online sales and expands market reach. Furthermore, it enhances customer relationships through tools like appointment scheduling and online reservations, particularly in industries such as salons and restaurants.

Domestic Family Income



Five research questions were employed to measure this variable.

- How do changes in family income affect household welfare?
- What is the business's contribution to family financial growth?
- How do changes in family income affect roles and responsibilities within the family?
- Is there any support from your family in your business? How does that support look like?
- Does the extra income from the business allow your family to save or invest? Can you explain?

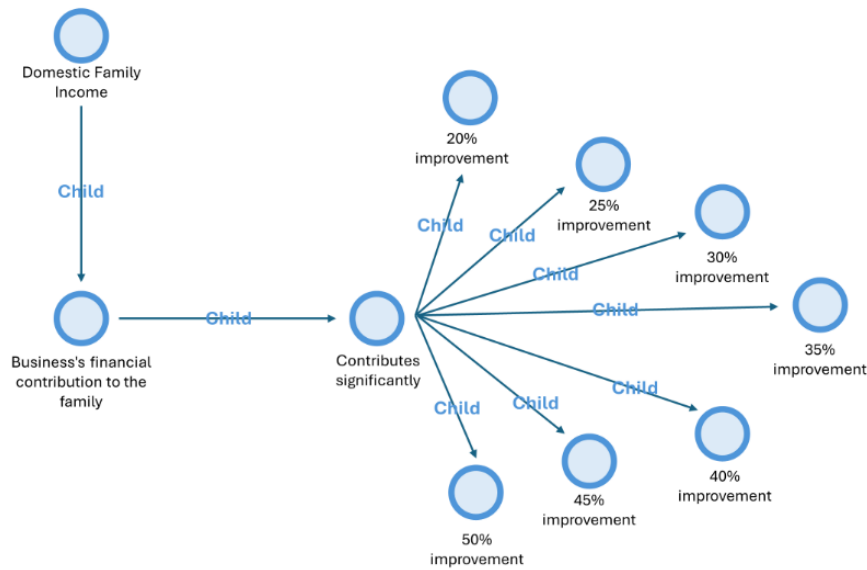


Figure 29. Mapping Contribution of business proceeds to family domestic income

The business venture has demonstrated a significant capacity to augment family income, contributing anywhere between 20% and 50% of the total household earnings.

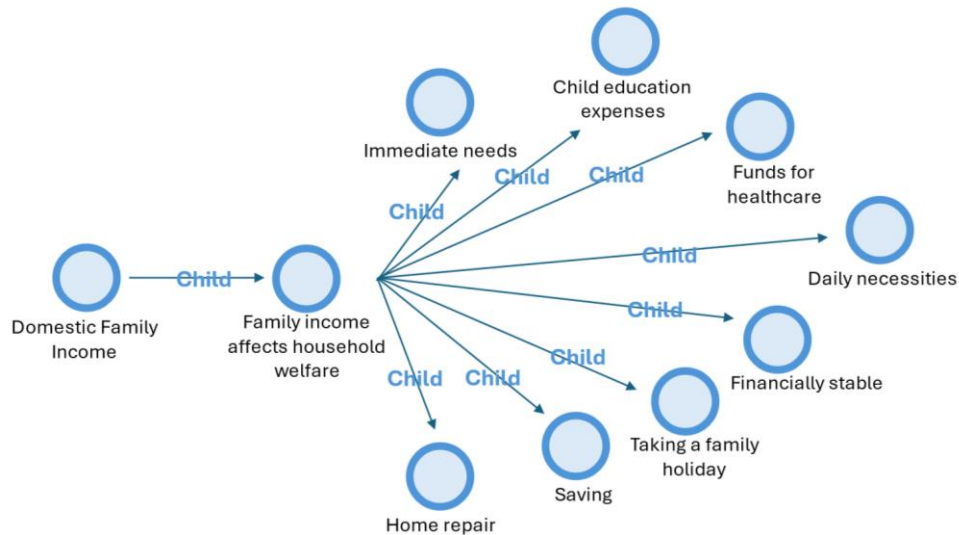


Figure 30. Mapping of changes in family welfare

The business venture has positively impacted family well-being by significantly increasing household income. This financial uplift has enabled families to allocate increased funds towards children's education, healthcare, and emergency savings. Moreover, it has facilitated the consistent fulfillment of daily needs, established financial stability, and empowered families to engage in leisure activities such as vacations. The additional income has also supported home improvements and the accumulation of savings, contributing to an overall enhancement of family life.

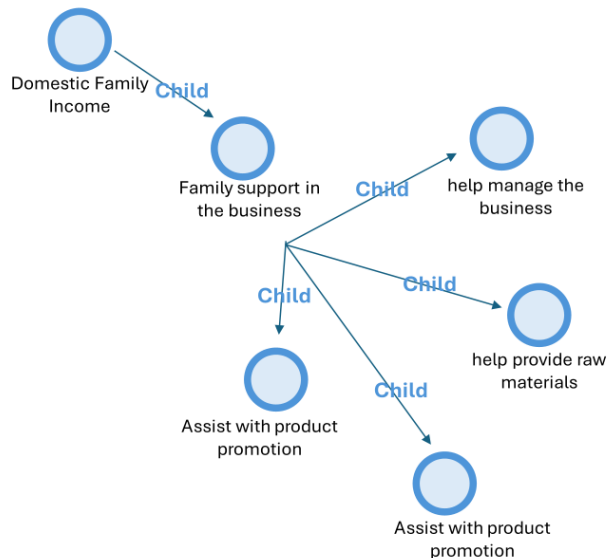


Figure 31. Mapping of family support

Family members have played a pivotal role in the success of these businesses, providing indispensable support. Informants reported receiving assistance in various operational areas, including business management, procurement of raw materials, marketing, and production.

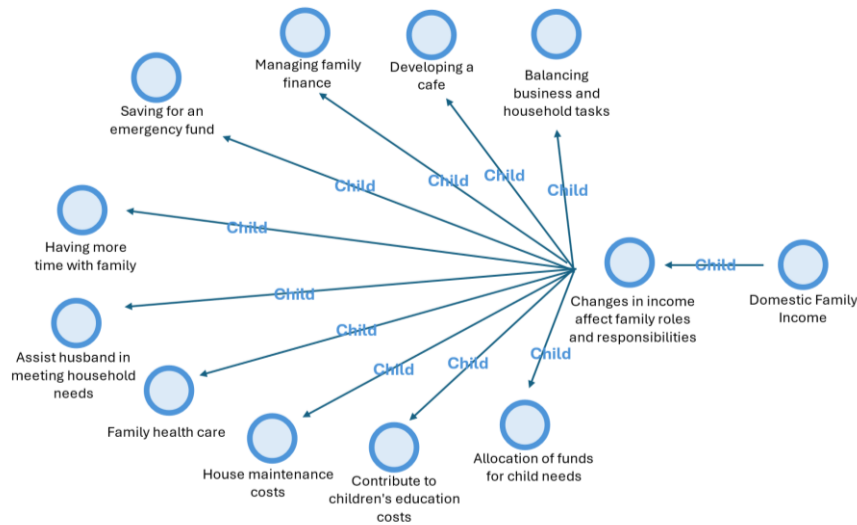


Figure 32. Mapping of family support

The financial gains generated by the business have prompted significant shifts in family dynamics and resource allocation. These changes encompass increased investments in children's education, improved household maintenance, enhanced family healthcare, and a more equitable distribution of domestic responsibilities. Furthermore, the additional income has facilitated savings, financial planning, and even the exploration of new business opportunities. This newfound financial stability has allowed families to strike a better balance between work and family life, ultimately contributing to an improved overall quality of life.

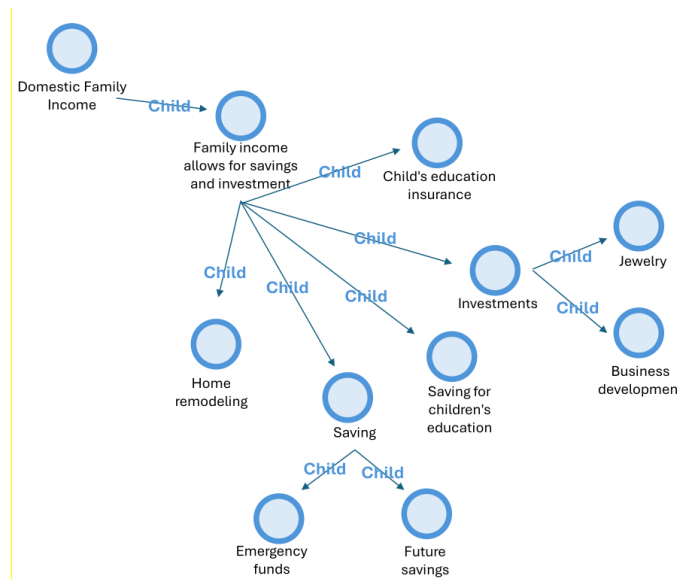


Figure 33. Mapping Investment and savings

A portion of business revenue can be strategically allocated towards savings and investment vehicles. This includes securing the financial future of children through education insurance and dedicated savings accounts. Investment opportunities, such as purchasing assets like jewelry or expanding the business itself, can also be explored. Moreover, establishing emergency funds, planning for long-term financial goals, and undertaking home improvement projects are viable options for utilizing these funds.

CONCLUSION

This study provides deep insights into the role of women's entrepreneurship in enhancing domestic family income in Batam, a region with unique socio-economic characteristics. The main conclusion of this research is that women's entrepreneurship significantly impacts the improvement of family welfare, both economically and socially.

Furthermore, this study shows that women's education level, access to capital, and family support are key factors influencing the success of women's entrepreneurship. In this context, formal education has been proven to offer significant advantages in terms of business management and strategy development. However, practical experience and skills also play a crucial role, allowing women without formal education to succeed in their businesses with the right support.

Access to capital, often a barrier for women entrepreneurs, is proven to be an essential element in starting and growing a business. Barriers to accessing capital, such as high interest rates and complex procedures, highlight the need for more innovative strategies and stronger support from various stakeholders to help women overcome these challenges.

Additionally, the increase in family income derived from women's entrepreneurial ventures not only impacts the fulfillment of basic needs such as food and children's education but also improves the overall quality of life. This additional income enables families to have better financial security, save for the future, and make larger investments in important aspects of life, such as home improvements and higher education for their children.

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