

RESEARCH PAPER

Determinants of Women Entrepreneurship Growth under the Startup India Scheme: An Empirical Analysis

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ABSTRACT

Women entrepreneurship plays a crucial role in promoting inclusive economic growth and social empowerment. This study examines the determinants of the growth of women-led enterprises registered under the Startup India scheme. For this purpose, primary data were collected from 126 women entrepreneurs across Punjab and Haryana states. The study used Partial Least Square Structural Equation Modelling to examine the impact of behavioural and institutional factors on entrepreneurial growth. The results reveal that 'creative ability' and 'institutional backing' are the most influential determinants of women entrepreneurial growth, followed by 'technical awareness', 'aspiration for progress' and 'risk tolerance'. The model explains 65% of the variation in entrepreneurial growth ($R^2 = 0.649$). The findings highlight the importance of strengthening innovation capacity, technical skills, and policy support mechanisms to enhance women's participation in the startup ecosystem.

HIGHLIGHTS

- ① Creative Ability is the most significant determinant of women's entrepreneurial growth, with t-value 5.547 and p-value 0.000.
- ② Institutional Backing is the second positive and most significant factor, followed by Technical Awareness, Aspiration for Progress and Risk Tolerance.
- ③ The findings of the study advocate more entrepreneurial training programs, digital and technical skill development, mentorship networks and incubation centres.

Keywords: Women Entrepreneurship, Startup India, Structural Equation Modelling, Entrepreneurial Growth

Women entrepreneurship is very important for strengthening women's economic independence and promoting gender equality in developed as well as developing nations. In India, women's economic contribution to GDP is just 17%, which is less than half the global average of 37%. The country has 63 million MSMEs, out of which just 20% are women-owned (Mastercard, 2022). Therefore, supporting women's entrepreneurship has become an essential element of various government policies aimed at reducing this gender gap.

The government of India has undertaken various policy initiatives over the last two decades to

promote entrepreneurship. Programs such as Startup India, Standup India, and the Mudra Yojana have been instituted to provide institutional assistance through finance, skill development, mentorship, and the minimization of bureaucratic impediments (Gopan and Singh, 2024). The Startup India program was launched on January 16, 2016, to create a supportive environment that promotes innovation and entrepreneurship across multiple

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sectors. This program offers various advantages, including tax benefits, simplified regulatory compliance, self-certification, loan guarantees, and the creation of incubation centres and startup hubs. Government support, in the form of various fiscal and non-fiscal benefits, has been significant and is acknowledged by many women-owned startups (Kar *et al.* 2016).

As a result of these initiatives, women entrepreneurship has grown tremendously in the Indian economy over the last decade. There is significant female enrolment under the Startup India scheme. At the time of the scheme's inception, there were just 345 women-led startups, but this number has increased to 58165 in 2024. Maharashtra, Karnataka, Uttar Pradesh, Gujarat, Tamil Nadu, Telangana and Haryana are the top seven states in terms of the number of startups (Dutta, 2016; Government of India, 2024a). The data reveals that average female participation in the startup establishment is 48%, which highlights that females are also actively participating in startup businesses.

Along with the institutional support, several push and pull factors are also encouraging women entrepreneurship in India. Unemployment, recession, inadequate family income, and job dissatisfaction are the main push factors. Whereas, urge for independence, improved financial opportunities, self-fulfilment, flexibility for work-family balance and personal achievement are the key pull factors boosting women entrepreneurship (Rajalakshmi, 2014). However, women in India also face distinct social, cultural, and economic barriers when establishing businesses. Lack of practical knowledge, family responsibilities, limited family support, lack of awareness of government schemes, shortage of funds, and inadequate financial and digital literacy are the main hurdles for women's enterprises (Hazudin *et al.* 2015; Rajamani, 2022; Arvind and Ranjith, 2023). Lack of self-confidence, socio-cultural norms, mobility-related problems, funding issues, male-dominated society, and inability to take risks are some other major challenges (Arya *et al.* 2017). In spite of these barriers, women possess unique personality traits such as ambition, creativity, balancing home and work, valuing cooperation and allegiance, and cost consciousness and resourcefulness. If given an opportunity, women can establish and grow

businesses successfully (Suba and Sneka, 2016). Different national and international research works have identified several key success factors contributing to the women's entrepreneurship growth. A study of Chile's entrepreneurial ecosystem highlighted Innovations, technical advancements, along with training and funding opportunities as the key factors of inclusive entrepreneurial ecosystem (Kuschel, 2019). Nguyen *et al.* (2020) while studying Vietnamese women entrepreneurs, found that education, prior work experience, and continuous learning in enhancing business capabilities are very important in sustaining and developing women-led enterprises. Additionally, external support from family and professional networks plays a crucial role. Studies also revealed that entrepreneurial personality characters like confidence, motivation and commitment, risk-taking ability, and need for accomplishment significantly influence women entrepreneurial growth (Khan, 2021; Feng *et al.* 2023). Some other studies have also established the positive impact of personal factors, including the need for achievement, digital innovations, technological advancements and risk-taking ability and external factors, specifically regulatory mechanism, institutional support and financial help as important determinants of the women's entrepreneurial success (Rhaezouz *et al.* 2024; Nayak *et al.* 2025). Overall, the literature suggests that a combination of personal capabilities, financial access, supportive networks, and institutional support contributes significantly to the long-term success and stability of women entrepreneurs.

Although several studies have explored the determinants of women entrepreneurship under different entrepreneurship-promoting schemes, there is limited empirical research on startups' growth under the Startup India programme. Literature is scarce on primary data-based studies focusing on women-led startups. Therefore, to fill this research gap, this study is focused on examining the influence of different success factors on the women entrepreneurship growth. The selected success factors are creative ability, risk tolerance, technical awareness, aspiration for progress, and institutional backing. This study was conducted on women entrepreneurs registered under the Startup India scheme in Punjab and Haryana states of India. The primary objective of the study is to

provide policymakers, development practitioners, and researchers with detailed comprehension of the factors that facilitate women's entrepreneurship. The study includes the following hypotheses:

- ♦ H_1 : Creative Ability positively influences the growth of women entrepreneurship.
- ♦ H_2 : Risk Tolerance positively influences the growth of women entrepreneurship.
- ♦ H_3 : Technical Awareness positively influences the growth of women entrepreneurship.
- ♦ H_4 : Aspiration for Progress positively influences the growth of women entrepreneurship.
- ♦ H_5 : Institutional Backing positively influences the growth of women entrepreneurship.

DATABASE AND METHODOLOGY

The target population of the study comprised women entrepreneurs who had availed benefits from the Startup India scheme in the states of Punjab and Haryana. Both these states are rapidly progressing in women entrepreneurship. The share of women-led startups in both states is above the national average (Government of India, 2024b). There were 1222 and 6007 registered start-ups in Punjab and Haryana states, respectively, up to the year 2024. Primary data were collected from 126 women entrepreneurs. The respondents were selected from ten major cities across the two states, including five cities from Punjab (Mohali, Patiala, Ludhiana, Jalandhar, and Ropar) and five cities from Haryana (Gurugram, Hisar, Panchkula, Karnal, and Faridabad). The selected locations were chosen due to their relatively higher concentration of registered startups. A quantitative, cross-sectional research approach is used to examine the impact of selected success factors on the growth of women entrepreneurs.

The data were collected with a purposive sampling technique, using a structured questionnaire including three sections. The first section focused on collecting demographic and business-related information of the respondents, including age, educational background, type of enterprise, duration of business operation, and growth stage. The second section included questions to evaluate different indicators measuring five key success variables believed to influence entrepreneurial success, as shown in Fig. 1.

Each success variable as a construct was measured through a set of specific indicators to accurately apprehend the respondents' views. Creative ability was measured through indicators like anticipating the market needs, novelty in product design and getting IPRs. Risk tolerance included investments for executing experimental ideas, the ability to avert risks, and finding opportunities. Technical awareness implies the application of digital technologies, advanced software and the use of online platforms for product development or marketing. Institutional backing involves infrastructure, training, mentorship and funding support by the government. Ambition for progress implies aspiration to expand business, positive thinking and long-term growth vision. The third section included questions to evaluate the outcome variable, i.e. Growth of Women Entrepreneurship (GWE). This variable was measured through perceived business performance indicators like market expansion, revenue growth, and employment generation. The study utilized a 5-point Likert scale to capture respondents' perceptions regarding these different subjective success factors. The questionnaire structure of this study is presented in Fig. 2.



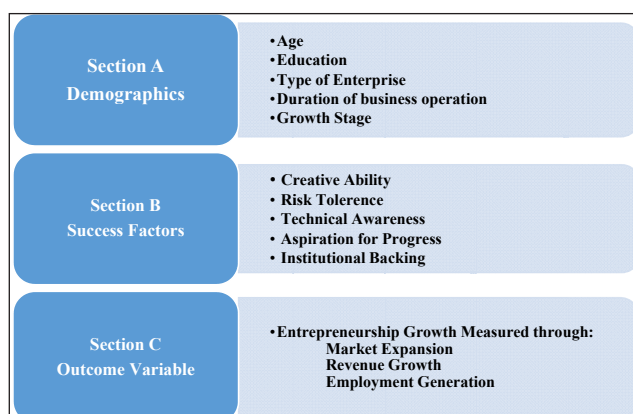
Source: Own compilation.

Fig. 1: Variables that influence entrepreneurial growth

Data for the study were collected using personal interviews to ensure comprehensive participation of respondents. Field visits were conducted across all ten selected cities to administer the questionnaire

through direct interaction with the respondents. The data collection process was carried out over a period of six months in the year 2023. A total of 130 responses were initially obtained; however, following a thorough data screening and after addressing issues such as outliers, missing values and incomplete responses, 126 questionnaires were found suitable for further analysis.

The dataset was analyzed applying both descriptive and inferential techniques. Descriptive analysis was conducted using frequencies, percentages, mean scores, and standard deviations to gain insights into the demographic and business profiles of respondents. To assess the latent constructs through their respective indicators and examine the relationships among them, the Partial Least Squares Structural Equation Modelling (PLS-SEM) technique was employed using SmartPLS 4 software. This model was used to quantify and evaluate the impact of five exogenous latent variables on growth of women entrepreneurship. The reliability and validity of the underlying constructs was measured through convergent and discriminant validity tests that included Factor Loadings, Composite Reliability (CR) test, Average Variance extracted (AVE) and Heterotrait-Monotrait Ratio (HTMT). The hypothesised relationships were tested through measuring path coefficients, t-values, p-values and coefficient of determination (R^2).



Source: Own compilation.

Fig. 2: Questionnaire Structure

RESULTS AND DISCUSSION

Out of the total 126 women respondents, 31 were from the Punjab state, and 95 were from the Haryana state. The study found that the majority of the respondents were young, and 48.4% of them

were under 25 years of age. Most of the respondents were well educated, as approximately 95% of them were graduates or postgraduates. Respondents were also asked about the year of their startup registration and the growth stage of the business. It is found that the majority of the startups had been operating for approximately three to four years and were in the validation stage of business growth.

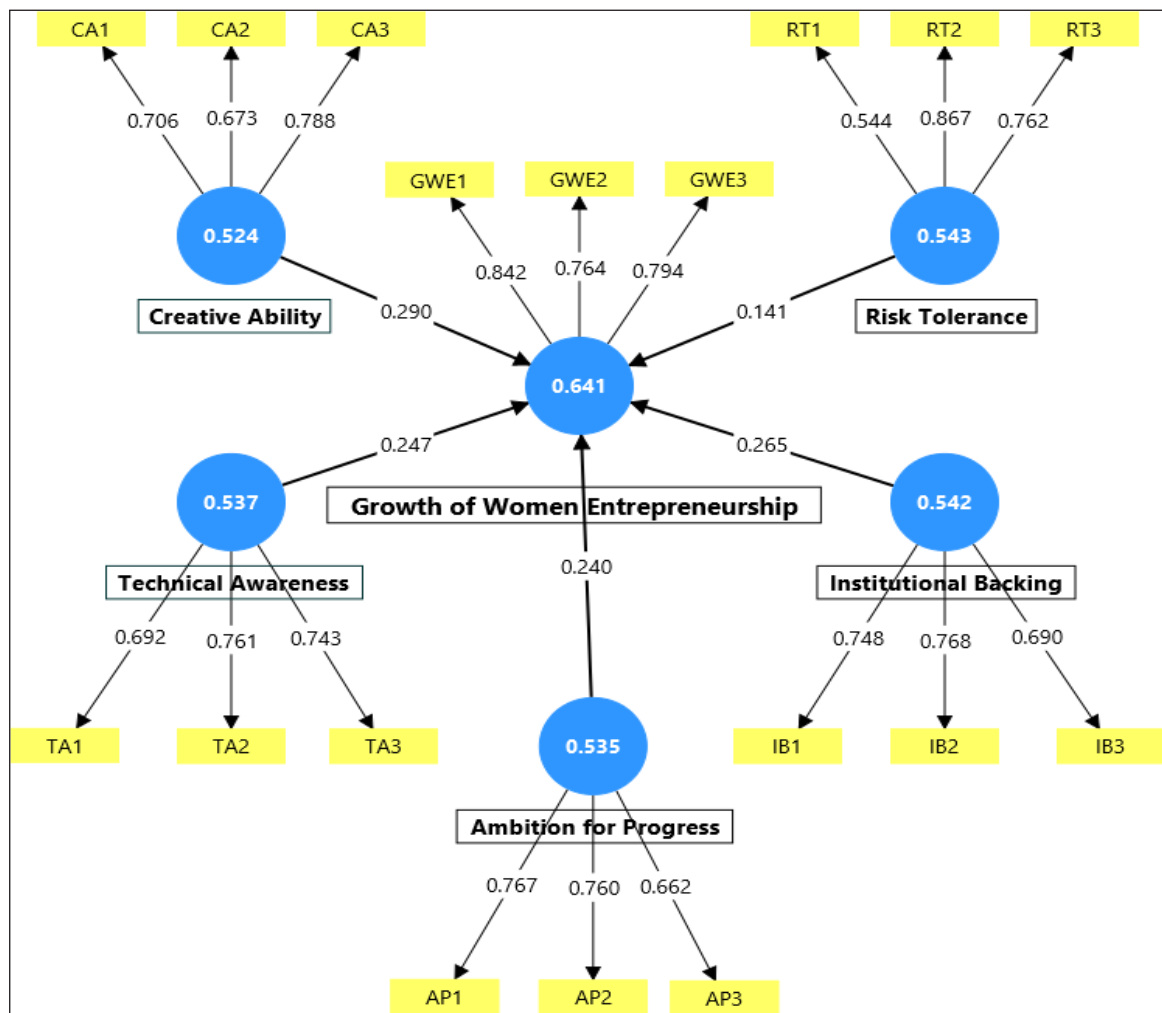
In order to measure the impact of various success factors on the growth of women entrepreneurship, measurement and structural models were developed using PLS-SEM analysis. Measurement model identified the relationship between unobserved constructs known as latent variables and their observed indicators, whereas the structural model evaluated the predictive relationships between the exogenous latent variables and the endogenous latent variable representing entrepreneurial growth.

Measurement Model

The measurement model tested the reliability and validity of the underlying constructs. Fig. 3 shows the graphic as well as the numeric details of the measurement model obtained by using SmartPLS 4 statistical software. The figure shows key statistical information, including outer loading values of indicators measuring their respective constructs, path coefficients (β) representing relationships among constructs and AVE values signifying convergent validity of the indicators in explaining the construct.

Reliability Analysis

In the measurement model, all latent constructs were measured through their respective observed indicators. Indicator loadings were calculated to check the accuracy and consistency in assessing their constructs. The internal composite reliability of the constructs was assessed by calculating rho-c values as shown in Table 1. This is a widely accepted measure of consistency in PLS-SEM, which evaluates the proximity of set of items within each construct. All five success factors, along with the outcome variable, demonstrated acceptable (>0.70) to strong reliability as shown in Table 1. Specifically, the growth of women entrepreneurship showed the highest reliability with 0.843 value of rho-c. Hence, all the constructs were considered



Source: Own compilation.

Fig. 3: Measurement Model

internally consistent and appropriate for inclusion in subsequent statistical modelling and analysis.

Table 1: Composite reliability and convergent validity of the constructs

Sl. No.	Name of Construct	Symbol	Value of Rho-c	Value of average variance extracted (AVE)
1	Growth of Women Entrepreneurship	GWE	0.843	0.641
2	Creative Ability	CA	0.767	0.524
3	Risk Tolerance	RT	0.775	0.543
4	Technical Awareness	TA	0.777	0.537
5	Institutional Backing	IB	0.780	0.542
6	Ambition for Progress	AP	0.774	0.535

Source: Own compilation.

Validity Analysis

Convergent and discriminant validities were assessed to ensure the robustness of the measurement model. Average variance extracted (AVE) values were calculated for establishing convergent validity. AVE represented the average value of the variance of the indicators explained by its construct, calculated as the mean of the squares of the factor loadings of a set of indicators. AVE scores for all constructs were more than the required benchmark value of 0.5, as shown in Table 1. This specifies that the observed indicators shared a substantial proportion of variance with their respective latent constructs. Discriminant validity specifies the uniqueness of each construct, ensuring that different constructs are not highly correlated or overlapped. Heterotrait-Monotrait (HTMT) ratios were calculated for

establishing discriminant validity and are presented in Table 2.

Table 2 showed that most HTMT values were below the recommended threshold of 0.85, while a few values were around the liberal threshold of 0.90, indicating acceptable discriminant validity. Results supported the conclusion that the constructs were empirically distinct from one another. The best HTMT value was 0.370, within risk tolerance and creative ability. Overall, both convergent and discriminant validity assessments confirmed the acceptability of the measurement model for structural testing.

Structural Model

This model is used for hypothesis testing by measuring relationships among the latent constructs. In this study, the structural model tested the direct effect of the five independent latent variables on one dependent variable.

The influence of various success factors on the overall women entrepreneurial development was evaluated in the study through path coefficients. Path coefficients had been calculated with a bootstrapping method for 5000 sub-samples in SmartPLS 4 software. The success factor with the highest effect is creative-ability. The standardized path coefficient for this relation was 0.29. This was followed closely by institutional backing, technical

awareness and ambition for progress, with the path coefficient values of 0.265, 0.247, and 0.240, respectively, as shown in Fig. 3. The results indicate that, along with creative ability and technical soundness, governmental support is also very important for a favorable business environment and venture success. To further examine the significance of each success factor, a one-sample t-test was conducted. The test assessed whether path coefficients (β) were significantly different from zero. All success factors were found statistically significant with value of $p < 0.05$, as given in Table 3.

Furthermore, the multi-collinearity among the independent variables in the structural model was examined by calculating the Variance Inflation Factor (VIF). According to established guidelines, VIF values should remain below the threshold of 3.3 to ensure the absence of multicollinearity among predictors. Table 3 shows that all VIF values were below this recommended threshold, indicating that the predictor variables are not correlated and no multi-collinearity issue existed. The obtained value of Standardized Root Mean Square Residual (SRMR) is 0.085, which shows a good and acceptable model fit. This value measures the difference between the observed correlations and the model-predicted correlations. These findings offer strong empirical support for the proposed hypotheses, confirming that each success factor positively and significantly

Table 2: HTMT Values and Discriminant Validity

	GWE	CA	RT	TA	IB	AP
GWE	—	0.866	0.677	0.914	0.835	0.866
CA	0.886	—	0.370	0.609	0.472	0.579
RT	0.677	0.370	—	0.467	0.494	0.695
TA	0.914	0.609	0.467	—	0.692	0.726
IB	0.835	0.472	0.494	0.692	—	0.421
AP	0.866	0.579	0.695	0.726	0.421	—

Source: Own compilation.

Table 3: Structural Model Results

Relationship	Path Coefficients	Standard deviation	t values	p values	VIF
CA → GWE	0.290	0.052	5.547	0.000	1.158
RT → GWE	0.141	0.062	2.253	0.024	1.227
TA → GWE	0.247	0.057	4.315	0.000	1.170
IB → GWE	0.265	0.064	4.134	0.000	1.181
AP → GWE	0.240	0.059	4.088	0.000	1.174

Source: Own compilation.

contributed to women's entrepreneurial growth. Table 3 presents the structural model results, including path coefficients, standard deviation, t-values, p-values and VIF.

Among the examined factors, creative ability is found to be the most influential determinant of women's entrepreneurial growth. The relatively higher path coefficient and t-value indicated that women entrepreneurs who possessed strong innovative capabilities, the ability to identify emerging market opportunities, and the capacity to design novel products or services were more likely to achieve business expansion. This finding reinforced the argument that creativity and innovation are central elements of successful entrepreneurial ventures, particularly within startup ecosystems that emphasize innovation-driven growth. The result is consistent with earlier findings reported by Goyal and Prakash (2011), Khan *et al.* (2021), and Feng *et al.* (2023), who highlighted creativity and innovative thinking as key drivers of entrepreneurial success.

The second most significant determinant identified in the study is institutional backing. The positive and statistically significant relationship between institutional support and entrepreneurial growth highlighted the importance of policy interventions, financial incentives, training programs, incubation facilities, and mentorship networks provided through different government initiatives. These findings are aligned with a study by Kaur and Arora (2022) and with the objectives of the Startup India scheme, which focuses on promoting entrepreneurial activities through regulatory support, funding opportunities, and infrastructure development.

Technical awareness was also found to have a strong and positive influence on entrepreneurial growth. Women entrepreneurs who possessed knowledge of digital tools, online platforms, and modern technologies were better positioned to improve operational efficiency, expand market outreach, and adapt to changing business environments. The result supported the view that digital literacy and technological capability have become essential components of modern entrepreneurial success (Rhaezouz *et al.* 2024; Nayak *et al.* 2025).

Similarly, aspiration for progress significantly contributed to the growth of women-owned enterprises. Entrepreneurs who exhibited a strong

desire for achievement, long-term business vision, and commitment to enterprise expansion were more likely to get opportunities for organisational growth. This finding supported the perspective that psychological traits such as ambition and achievement orientation play an important role in shaping entrepreneurial outcomes.

Although risk tolerance showed a comparatively lower path coefficient, it still exhibited a statistically significant relationship with entrepreneurial growth. This indicated that the willingness to take calculated risks remained an essential entrepreneurial characteristic. Women entrepreneurs who were prepared to experiment with new ideas and undertake uncertain business decisions were more capable of exploring emerging market opportunities and sustaining business growth. However, the relatively lower magnitude of its effect may reflect the cautious approach generally observed among women entrepreneurs due to financial constraints, social expectations, and limited access to resources.

Overall, the structural model demonstrated a strong explanatory capacity, as reflected in the coefficient of determination ($R^2 = 0.649$). This indicated that approximately sixty-five per cent of the variation in the growth of women enterprises was explained by the selected behavioural and institutional determinants. The findings emphasized that entrepreneurial success among women was driven by a combination of personal capabilities, motivational attributes, and supportive institutional environments. Therefore, policies aimed at strengthening women entrepreneurship should simultaneously focus on enhancing individual competencies and improving the entrepreneurial ecosystem through effective institutional support mechanisms.

CONCLUSION

The present study empirically examined the determinants of the growth of women enterprises registered under the Startup India Scheme. Primary data were collected from 126 women entrepreneurs. The study acknowledged that both behavioural and institutional factors contributed to women's entrepreneurial growth. The results of Structural Equation Modelling revealed that creative ability and institutional backing were the most influential determinants of entrepreneurial growth.

The structural model results validated the robustness of the proposed framework, with an R^2 value of 0.649. Reliability and validity tests confirmed the acceptability of the measurement model, while structural analysis results established that all hypothesized relationships were statistically significant. These findings provided strong empirical evidence that both behavioural factors and institutional support systems are significant contributors towards growth of women-led startups.

From a policy perspective, the study suggested strengthening entrepreneurial training programs, digital and technical skill development, mentorship networks and incubation centres could significantly enhance the growth prospects of women entrepreneurs. Encouraging creativity and technical ability among women entrepreneurs could further strengthen their participation in the startup ecosystem for innovation, employment generation, and sustainable economic growth.

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