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Strengthening Women Entrepreneurship for Inclusive and Sustainable Growth

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"When women lead, growth lasts."

Abstract

In the evolving landscape of global startup ecosystems, inclusivity remains a persistent challenge, with significant disparities often marginalizing non-urban populations. Women entrepreneurs have emerged as critical agents of change, leveraging their ventures to bridge these socio-economic gaps and foster community resilience. This study investigates the pivotal role of women-led startups in promoting ecosystem inclusivity, specifically focusing on their contributions to the empowerment of rural youth through the development of digital proficiency. The primary objective is to delineate the mechanisms through which women entrepreneurs facilitate the transfer of digital skills, thereby enhancing the employability and economic agency of marginalized rural demographics.

Entrepreneurs are indispensable to driving sustainable social and economic transformation, serving as the critical nexus between technological advancement and grassroots rural empowerment. The study concludes that women entrepreneurship should be viewed as a capability-enhancing and inclusion-driven development strategy rather than merely an income-generation activity. By focusing on inclusivity as both an economic and social objective, the paper underscores the importance of targeted policy support, capacity building, and ecosystem-level interventions to foster sustainable women entrepreneurship.

Keywords: Women Entrepreneurship, Startup Ecosystems, Digital Inclusion, Skill Development, Social Innovation.

1. INTRODUCTION

Women entrepreneurship has emerged as a critical mechanism for socio-economic development, particularly in rural areas where employment opportunities and digital literacy are limited. Globally, women-led ventures constitute approximately **31% of entrepreneurial activity**, yet rural participation remains low due to structural, financial, and societal barriers (GEM, 2022). In India, women entrepreneurs account for roughly **20% of all entrepreneurs**, often concentrated in informal sectors with limited scalability (NITI Aayog, 2023). Women-led enterprises play a transformative role in fostering local employment, promoting digital skill development, and creating socially inclusive economic growth. This study empirically examines how women entrepreneurship influences digital literacy, employability, and income among rural youth, highlighting challenges and identifying strategies for sustainable development.

2. REVIEW OF LITERATURE AND RESEARCH GAP

Women entrepreneurship has been widely recognized as a key driver of inclusive economic growth and social development. **Brush et al. (2009)** emphasize that women entrepreneurs often operate in high social-impact sectors such as health, education, and handicrafts, creating local employment opportunities and contributing to community development. **Minniti and Arenius (2010)** note that women entrepreneurs distinguish themselves through risk-taking behavior, social capital, and effective networking, especially in resource-constrained environments. However, **Ahl (2012)** highlights persistent structural and cultural barriers, including limited access to finance, societal biases, and household responsibilities, which constrain women's participation in formal entrepreneurial activities. The **OECD (2020)** asserts that inclusion-focused entrepreneurship strengthens long-term economic resilience, particularly in rural contexts, but underscores the need for targeted interventions to enable full participation.

Recent research has also examined the role of women entrepreneurship in promoting digital skill development. **According to the Global Entrepreneurship Monitor (GEM, 2019),** digital literacy initiatives led by women entrepreneurs significantly improve youth employability, often increasing job-readiness by 25–30% in rural areas. **The World Bank (2021)** observes that women-led digital ventures facilitate access to e-commerce platforms, online markets, and fintech services, enhancing financial independence and self-reliance. **NITI Aayog (2023)** highlights that technology-driven women entrepreneurship programs equip rural youth with

practical skills in digital marketing, e-commerce, and online service provision, thereby increasing employability and creating new income opportunities.

In addition to skill development, women entrepreneurship contributes to socio-economic empowerment. **Kabeer (2016)** emphasizes that entrepreneurship increases women's agency, decision-making capacity, and social recognition, while **UN Women (2020)** notes that female-led startups help reduce gender-based inequalities by providing economic and leadership opportunities in rural communities. **Chakraborty and Majumder (2021)** further demonstrate that women-led ventures in rural India improve household income, literacy, and health outcomes through socially-oriented business models.

Despite this extensive literature, several gaps remain. First, most studies focus on urban women entrepreneurs, with limited empirical evidence on rural contexts and the mechanisms through which women-led ventures impact youth digital skill development and employability. Second, although digital literacy is recognized as critical, few studies quantitatively assess the effectiveness of women-led training programs on employment and income outcomes. Third, while qualitative insights are common, robust statistical analyses linking women entrepreneurship interventions to measurable socio-economic impacts are scarce. Finally, there is a lack of integrated studies that simultaneously examine skills, employment, income, and barriers, providing a holistic understanding of how women entrepreneurship drives sustainable and inclusive growth in rural areas.

Research Gap: This study addresses these gaps by conducting an empirical analysis of rural women entrepreneurs and youth beneficiaries, quantifying the impact of women-led initiatives on digital skills, employment, and income, and identifying structural and social barriers that limit scalability.

3. OBJECTIVES

1. Evaluate the impact of women-led startups on rural youth digital skill development.
2. Assess the socio-economic benefits of women entrepreneurship on employment and income.
3. Identify enablers and barriers affecting rural women entrepreneurs.
4. Recommend strategies to strengthen women entrepreneurship for inclusive and sustainable growth.

4. RESEARCH METHODOLOGY

4.1 Research Design

This study adopts a **descriptive and empirical research design** to examine the role of women entrepreneurship in promoting inclusive and sustainable growth in rural areas. The research combines **quantitative and qualitative methods** to capture both measurable outcomes (skills, employment, income) and contextual insights (challenges, enablers, and community impact).

- **Descriptive Aspect:** Captures demographic, socio-economic, and skill-related characteristics of women entrepreneurs and beneficiaries.
- **Empirical Aspect:** Measures the impact of women-led interventions on digital skills, employability, and income, using statistical tools.
- **Rationale:** A mixed approach ensures comprehensive understanding of both **outcomes and processes**, directly addressing the study objectives.

4.2 Population and Sample

- **Population:**
  1. Women entrepreneurs operating rural and semi-urban ventures in Kuppam and surrounding districts.
  2. Rural youth beneficiaries engaged in skill development and employment programs initiated by these women-led ventures.
- **Sample:**
  - ✓ **Women Entrepreneurs:** 100 respondents selected through **purposive sampling**, targeting women who run startups or micro-enterprises and actively provide training or employment opportunities to rural youth.
  - ✓ **Youth Beneficiaries:** 200 respondents selected through **stratified random sampling** to ensure representation across gender, age groups (18–35), and educational backgrounds.
- **Justification:** Purposive sampling ensures that participants meet the criteria for women entrepreneurship activities, while stratified sampling ensures that youth beneficiaries reflect the diversity of the rural population.

4.3 Data Collection

4.3.1 Instruments Used

1. **Structured Questionnaires**
   - ✓ Separate questionnaires were designed for entrepreneurs and youth beneficiaries.

- ✓ Entrepreneur questionnaire: Demographics, training programs offered, challenges, financial and digital support, employment creation.
- ✓ Beneficiary questionnaire: Digital skill level (pre- and post-training), employment status, income change, and perceptions of program effectiveness.

2. **Interviews and Focus Group Discussions (FGDs)**
   - ✓ Conducted with **20 women entrepreneurs** to explore qualitative insights, such as motivational factors, social barriers, and ecosystem support requirements.
   - ✓ Conducted with **30 youth beneficiaries** to understand the real-life application of digital skills and income benefits.
3. **Secondary Data Sources**
   - ✓ NITI Aayog reports, GEM Reports, World Bank publications, and local government records were used to contextualize findings and validate primary data.

4.3.2 Data Collection Procedure

- Enumerators were trained to administer questionnaires in local language (Telugu) to ensure comprehension.
- Pre-tests were conducted on **10 entrepreneurs and 20 beneficiaries** to validate the reliability of instruments.
- Data was collected over **three months (October–December 2025)**, ensuring adequate sample coverage and seasonal variability.

4.4 Variables and Measures

Objective	Independent Variable	Dependent Variable	Measurement Scale
Objective 1: Skill Development	Women entrepreneurship interventions (training programs)	Digital skill proficiency	5-point Likert scale (1=Low, 5=High)

Objective	Independent Variable	Dependent Variable	Measurement Scale
Objective 2: Employment	Skill training and mentorship	Employment status	Nominal scale (Employed/Self-employed/Unemployed)
Objective 3: Income Enhancement	Entrepreneur support	Household income	Continuous variable (₹/month)
Objective 4: Barriers	Structural and social constraints	Perceived impact	Percentage and frequency analysis

4.5 Analytical Tools and Techniques

1. **Descriptive Statistics:**
   - ✓ Frequency, percentage, mean, and standard deviation to summarize demographic and skill-related characteristics.
2. **Inferential Statistics:**
   - ✓ **Correlation Analysis:** Measures the strength and direction of relationship between women entrepreneurship interventions and outcomes (employment, income, skill improvement).
   - ✓ **Regression Analysis:** Quantifies how much variance in youth employment or income is explained by entrepreneurship interventions.
3. **SWOT Analysis:**
   - ✓ Identifies strengths, weaknesses, opportunities, and threats in the women entrepreneurship ecosystem.
   - ✓ Combines quantitative and qualitative insights to guide recommendations.
4. **Data Interpretation:**
   - ✓ Skill improvement, income growth, and employment data were analyzed to determine **statistical significance**.
   - ✓ Qualitative data from interviews and FGDs were coded thematically to identify recurring patterns and challenges.

4.6 Reliability and Validity

- **Reliability:**
  - ✓ Cronbach's Alpha = 0.82 for questionnaires, indicating high internal consistency.
- **Validity:**
  - ✓ Face validity ensured through expert review (faculty of commerce and rural development specialists).
  - ✓ Content validity verified by aligning questionnaire items with research objectives and prior literature.

4.7 Ethical Considerations

- Voluntary participation with informed consent obtained from all respondents.
- Confidentiality maintained; data anonymized for analysis.
- Responses used solely for academic research purposes.

5. DATA ANALYSIS AND INTERPRETATION

5.1 Objective 1: Impact of Women-led Startups on Rural Youth Digital Skill Development

Skill Area	Pre-Training Score (Mean ± SD)	Post-Training Score (Mean ± SD)	Improvement (Mean ± SD)	% Improvement
MS Office & Productivity Tools	2.1 ± 0.6	3.8 ± 0.5	1.7 ± 0.4	37%
Social Media Marketing	1.8 ± 0.7	3.7 ± 0.6	1.9 ± 0.5	38%
E-Commerce & Online Sales	1.5 ± 0.6	3.1 ± 0.5	1.6 ± 0.4	29%
Digital Payment & FinTech	1.4 ± 0.5	2.9 ± 0.6	1.5 ± 0.5	30%

Interpretation:

The **average digital skill score improved from 1.7 to 3.4** across all skill areas, reflecting substantial capability enhancement. Social Media Marketing showed the **highest improvement (38%)**, indicating practical, income-generating relevance. Standard deviations (0.4–0.6) suggest consistent improvements across beneficiaries, not limited to a few participants. Correlation between skill improvement and employment outcomes: **r = 0.71**, statistically significant at $p < 0.01$, confirming that better digital skills directly increase employability.

5.2 Objective 2: Employment Generation

Employment Outcome	Number of Beneficiaries (N=200)	Percentage (%)	Average Jobs Created per Entrepreneur
Employed in local ventures	68	34	12
Self-employed / Micro-enterprises	68	34	12
Skill applied but not yet employed	32	16	-
No change	32	16	-

Interpretation:68% of youth transitioned to either formal employment or self-employment, demonstrating direct impact of women-led initiatives. On average, each woman entrepreneur generated **12 local jobs**, showing substantial contribution to community employment. Youth who applied skills but are not yet employed (16%) indicate **a lag in matching skills with market opportunities**, suggesting the need for stronger market linkage programs.

5.3 Objective 3: Income Enhancement

Income Category (₹/Month)	Pre-Training (N)	Post-Training (N)	Change (ΔN)	% Change
<5,000	50	20	-30	-30%
5,001–7,500	100	60	-40	-20%
7,501–10,000	40	80	+40	+40%

Income Category (₹/Month)	Pre-Training (N)	Post-Training (N)	Change (ΔN)	% Change
>10,000	10	40	+30	+30%

Interpretation:

Average monthly income increased from ₹6,500 to ₹8,200, representing a **26% growth**. The highest positive shift was in the **₹7,501–10,000 category**, indicating tangible socio-economic impact for rural households. The redistribution of income categories shows both direct earnings and spillover effects from skill-based employment and micro-enterprises. Correlation between entrepreneurship intervention and income: **r = 0.65**, confirming that participation in women-led initiatives contributes meaningfully to household income growth.

5.4 Objective 4: Barriers and Challenges

Barrier	Number of Entrepreneurs Reporting (N=100)	Percentage (%)
Limited access to finance	62	62
Societal/familial resistance	55	55
Lack of mentorship & networking	48	48
Limited digital infrastructure	40	40
Regulatory or policy hurdles	25	25

Interpretation:

Financial constraints (62%) remain the most significant barrier, preventing scaling and adoption of advanced digital tools. Societal and familial resistance (55%) indicates persistent cultural challenges in rural entrepreneurship. Mentorship and network gaps (48%) highlight the need for structured guidance and knowledge-sharing platforms. Combined, these barriers suggest that **policy interventions and**

ecosystem-level support are critical to sustaining and scaling women entrepreneurship in rural contexts.

5.5 Objective 5: Correlation and Regression Analysis

Variables	Correlation (r)	Regression R^2	Interpretation
Digital Skill Improvement → Employment	0.71	0.52	Strong positive relationship; skill improvement explains 52% of variance in employment outcomes
Digital Skill Improvement → Income	0.65	0.42	Positive correlation; higher skills contribute to income growth
Entrepreneur Support (mentorship + training) → Youth Skill Improvement	0.68	0.46	Guidance and structured support improve digital competencies

Interpretation:

Regression results confirm that **skill development through women-led programs significantly predicts employment and income outcomes**. Correlation coefficients (0.65–0.71) indicate strong and statistically significant relationships at $p < 0.01$. These findings empirically validate the study's core hypothesis: women entrepreneurship is a driver of **inclusive growth, skill development, and socio-economic empowerment** in rural areas.

6. FINDINGS

Based on the empirical analysis, several key findings emerge:

1. **Digital Skill Enhancement:**
   - ✓ Youth beneficiaries showed significant improvements in digital skills, with **average scores increasing from 1.7 to 3.4** across MS Office, social media marketing, e-commerce, and digital payment platforms.
   - ✓ Social Media Marketing demonstrated the **highest improvement (38%)**, reflecting practical skill application for income generation.

- ✓ The positive correlation (r = 0.71) between skill improvement and employment confirms that enhanced digital skills directly translate to better employability.

2. **Employment Generation:**
   - ✓ **68% of youth beneficiaries** secured employment or became self-employed after participating in women-led entrepreneurship programs.
   - ✓ On average, each woman entrepreneur created **12 local jobs**, demonstrating significant community impact.
   - ✓ A small segment (16%) who acquired skills but were not yet employed suggests the need for stronger **market linkages and entrepreneurial support**.
3. **Income Enhancement:**
   - ✓ Household income among beneficiaries increased by **26% on average**, with the most substantial growth in the ₹7,501–10,000 range.
   - ✓ Correlation analysis (r = 0.65) confirms a strong link between participation in women-led programs and improved economic outcomes.
4. **Barriers and Challenges:**
   - ✓ Limited access to finance (62%) and societal/familial resistance (55%) are the most pressing constraints.
   - ✓ Mentorship and networking gaps (48%) and limited digital infrastructure (40%) hinder the scaling of women entrepreneurship initiatives.
   - ✓ These findings align with Ahl (2012) and GEM (2019), confirming that structural and social barriers remain critical challenges.
5. **Statistical Insights:**
   - ✓ Regression analyses indicate that skill development and entrepreneurial support explain **42–52% of variance in employment and income outcomes**, demonstrating the **significant impact of women-led interventions**.

Interpretation:

Women entrepreneurs act as catalysts for **inclusive and sustainable growth**, creating measurable socio-economic benefits for rural youth while addressing digital skill

gaps and employment challenges. The combination of skill training, mentorship, and localized employment opportunities produces the most effective outcomes.

7. SUGGESTIONS

1. **Policy and Financial Support:**
   - ✓ Introduce **low-interest loans, grants, and seed funding** for rural women-led startups.
   - ✓ Simplify regulatory processes to ease startup registration and operations.
2. **Capacity Building and Training:**
   - ✓ Provide structured **digital literacy and entrepreneurship programs**, including MS Office, e-commerce, digital marketing, and fintech.
   - ✓ Establish **mentorship networks** connecting experienced entrepreneurs with rural women to enhance skills and business guidance.
3. **Ecosystem Development:**
   - ✓ Set up **rural incubators, accelerators, and market access platforms** tailored for women-led ventures.
   - ✓ Facilitate **linkages with urban markets** to expand income opportunities for youth beneficiaries.
4. **Community Engagement:**
   - ✓ Conduct awareness campaigns to reduce societal and familial resistance to women entrepreneurship.
   - ✓ Promote **success stories** of women-led ventures to inspire replication in other rural areas.
5. **Monitoring and Evaluation:**
   - ✓ Develop tracking systems to monitor **skill acquisition, employment, and income outcomes**.
   - ✓ Use data to continuously improve programs and interventions, ensuring sustainable impact.

8. CONCLUSION

The empirical study confirms that women entrepreneurship is a **strategic driver of inclusive and sustainable growth** in rural areas. Key contributions include:

- Significant improvement in **digital skills** among rural youth (average improvement 37–38%).

- Direct **employment generation** for 68% of beneficiaries, with local job creation averaging 12 per entrepreneur.
- Substantial **income growth**, with average household income increasing by 26%.
- Identification of key **barriers**, including finance, societal resistance, and mentorship gaps.

Correlation and regression analyses demonstrate that **skill development and structured entrepreneurial support** directly impact employment and income outcomes, empirically validating the study objectives.

Despite challenges, women-led initiatives effectively enhance capability, promote socio-economic empowerment, and foster **sustainable, inclusive rural development**. With targeted policy interventions, capacity building, and ecosystem support, women entrepreneurship can continue to bridge gender and socio-economic gaps, reinforcing the guiding principle:
"When women lead, growth lasts."

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