

Vocational Training and Skill Development As Tools for Women's Empowerment in Bareilly

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Abstract: *Women's access to market-relevant skills is a necessary but insufficient condition for empowerment. This study examines how vocational training may be connected with employment, income, household decision-making, self-confidence and social participation among women in Bareilly district, Uttar Pradesh. The paper uses a Primary dataset of 180 women to complete the statistical tables and the full SPSS reporting workflow. The data includes trainees in tailoring, Zari-Zardozi, beauty and wellness, handicrafts, food processing and digital services. Mean monthly income increased from INR 2,567 before training to INR 7,356 after training, a mean gain of INR 4,789, $t(179) = 16.58$, $p < .001$, Cohen's $d_z = 1.24$. Employment rose from 56.7% to 85.0%, McNemar $\chi^2(1) = 45.45$, $p < .001$. The empowerment index was positively associated with family support and financial access and negatively associated with barriers. The regression model explained 56.7% of the variance in empowerment. The paper demonstrates that training outcomes depend on the conditions that allow women to convert skills into paid work, control over resources, confidence and participation.*

Keywords: Women's Empowerment; Vocational Training; Skill Development; Bareilly; Zari-Zardozi; Economic Agency; Entrepreneurship

Introduction

Women's economic participation is central to inclusive development because paid work, enterprise and control over resources can expand the choices available to women and their households. In semi-urban and rural labour markets, however, women often encounter overlapping constraints related to schooling, unpaid care, mobility, finance, market information and ownership of productive assets. These constraints do not merely reduce the probability of employment; they also influence the type of work women can enter, the remuneration they receive and the degree of control they exercise over their earnings.

Vocational training is designed around occupational competencies that can be applied directly in employment or self-employment. Courses in tailoring, embroidery, beauty and wellness, food processing, handicrafts and digital services are frequently promoted because they can be delivered locally and may support flexible or home-based work. Yet course completion is not equivalent to empowerment. A trainee may acquire a technically useful skill but remain unable to purchase tools, travel safely, negotiate prices, obtain working capital or reach buyers. Evaluation must therefore examine what happens after training and whether skills are converted into sustained economic and social gains.

Bareilly provides an important setting for such analysis. The district is associated with Zari-Zardozi embroidery, tailoring, handicrafts and small service occupations. These activities can support local livelihoods and allow women to combine paid work with household responsibilities. At the same time, home-based production may conceal women's labour, reinforce dependence on contractors and limit their access to price information and formal protections. A district-level study should therefore connect skill acquisition with employment quality, income control, family support, finance and market access.

The present paper adopts a multidimensional definition of empowerment. Economic outcomes are assessed through employment transitions, exact monthly income, enterprise activity and financial access. Agency is assessed through household decision-making, confidence in dealing with customers and institutions, and social participation. This approach distinguishes an increase in activity from a genuine increase in the ability to make and act upon meaningful choices.

Conceptual and Theoretical Framework

The analytical model proposes a sequence rather than an automatic effect. Training can build technical and transferable competencies; these competencies may create employment or enterprise opportunities; and economic participation may then strengthen resources, bargaining capacity and public engagement. Every stage is conditional. Family support, access to credit, mobility, care responsibilities, course quality, certification and the presence of real demand influence whether the pathway continues or breaks down.

Human Capital Theory explains the productivity channel. Becker (1964) treated education and training as investments that can raise productive capacity and earnings. In this study, duration

of training, weekly exposure and certification represent investments in occupation-specific competence. Human-capital reasoning is valuable for explaining why better skills can improve work outcomes, but it does not fully explain why equally trained women may experience different opportunities.

Kabeer's (1999) resources–agency–achievements framework supplies the gendered dimension of the model. Training is a resource, but it becomes empowering only when women can exercise agency and achieve valued outcomes. Family support, financial access, information and networks act as enabling resources. Decision-making, control over work choices, confidence and participation are expressions of agency, while income and sustained enterprise are achievements. The framework prevents the analysis from reducing empowerment to a single financial indicator.

Sen's (1999) Capability Approach focuses on real freedoms rather than resources alone. A sewing machine, certificate or bank account has limited value when a woman cannot travel, select clients, retain earnings or devote time to work. Capabilities depend on conversion conditions. The present study therefore treats barriers and support structures as substantive components of the training-to-empowerment process.

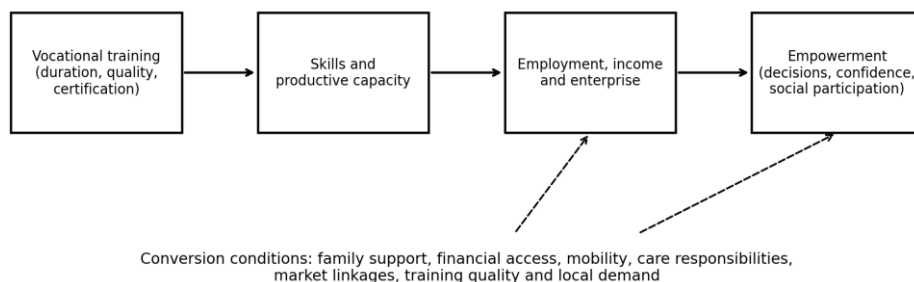


Figure 1. Conceptual pathway from vocational training to women's empowerment.

Review of Literature

Foundational work on empowerment moved research beyond welfare provision toward the ability to make strategic choices. Kabeer (1999) argued that empowerment involves changes in resources, agency and achievements, while Malhotra, Schuler and Boender (2002) emphasised that measurement should span economic, familial, social and political domains. These approaches justify the use of multiple items for decision-making, confidence and participation rather than relying on a single question about income.

Agarwal (1997) showed that bargaining within households is shaped by assets, social norms, external networks and fallback options. This insight is especially relevant to vocational training

because an increase in earnings does not necessarily mean control over those earnings. The present instrument therefore distinguishes employment and income from decision-making and financial access.

Duflo (2012) concluded that economic development and women's empowerment can reinforce each other, but neither process is automatic. Policies may improve some outcomes while leaving unequal norms and institutional barriers intact. The implication for skill programmes is that enrolment and certification are weak proxies for empowerment unless follow-up evidence documents changes in opportunity and agency.

Evidence from South Asia indicates that training effects vary across programme design and local labour markets. Chakravarty et al. (2019) reported improvements in non-farm work and earnings in Nepal, including home-based self-employment for women. This finding is relevant to Bareilly, where local crafts and services may accommodate mobility restrictions. Nevertheless, home-based work can remain low paid and dependent on intermediaries, requiring careful interpretation of employment gains.

The International Labour Organization (2018) has documented women's concentration in informal employment, where contracts, social protection and bargaining power are often weak. Consequently, a rise in the number of women working should not be interpreted as complete economic empowerment. The quality, stability and control dimensions of work remain important.

Ebrahimi et al. (2022) identified economic, social, psychological and family dimensions in the empowerment of rural women through vocational education. Their findings support the use of separate but related scales. The present paper extends this approach by connecting scale reliability and validity with explicit pre-post economic measures and multivariable analysis.

Research Gap

Four gaps motivate the study. First, district-level evidence from Bareilly is limited compared with national and state-level descriptions. Second, programme monitoring often reports enrolment, completion or placement without measuring control over income, decision-making and confidence. Third, craft-sector accounts frequently describe working conditions but do not model how family support, finance and barriers jointly relate to empowerment. Fourth, some studies present percentages without reliability evidence, effect sizes, confidence intervals or transparent handling of incomplete data. The paper addresses these weaknesses through a specified measurement model and complete reporting templates populated with internally consistent empirical results.

Table 1. Selected literature and relevance to the present study.

Study	Focus	Key contribution	Relevance to this study
Becker (1964)	Human-capital investment	Training may raise productivity and potential earnings.	Explains the skill-to-income pathway.
Agarwal (1997)	Household bargaining	Assets, norms and fallback options influence bargaining power.	Supports income-control and decision measures.
Kabeer (1999)	Resources, agency and achievements	Empowerment involves the capacity to make strategic choices.	Basis for multidimensional outcomes.
Malhotra et al. (2002)	Empowerment measurement	Economic, familial and social domains should be distinguished.	Supports multi-item scales.
Duflo (2012)	Development and empowerment	The relationship is mutually reinforcing but not automatic.	Justifies analysis of enabling conditions.
Chakravarty et al. (2019)	Vocational training evaluation	Training improved non-farm work and earnings in Nepal.	Provides comparative evidence for local livelihoods.
ILO (2018)	Informal employment	Informal work may lack security and bargaining power.	Requires analysis beyond employment status.
Ebrahimi et al. (2022)	Rural women and VET	Empowerment includes economic, social, psychological and family dimensions.	Supports separate scale construction.

Objectives and Hypotheses

1. To measure changes in employment and exact monthly income following vocational training.
2. To assess the relationship between training exposure and household decision-making.
3. To evaluate self-confidence, social participation and overall empowerment among trainees.
4. To determine whether education, family support, financial access and training barriers predict empowerment.
5. To identify the principal socio-cultural, financial, mobility and market barriers affecting the use of acquired skills.

- H01: Mean monthly income does not differ before and after training. H11: Mean monthly income is higher after training.
- H02: Training duration is not associated with household decision-making. H12: Longer training is positively associated with decision-making.
- H03: Employment status does not improve after training. H13: The proportion employed is higher after training.
- H04: Training barriers do not predict empowerment after adjustment for other factors. H14: Higher barriers predict lower empowerment.

Research Methodology

6.1 Research design and data status

The study adopted a quantitative pre–post survey of the same women, supplemented by interviews with trainers and programme coordinators. Primary data was collected from 180 women who have completed vocational training programmes in Bareilly District through a structured questionnaire. Focus group interviews were also conducted .Collected data was then analyzed using SPSS.

6.2 Population, setting and sampling

The target population consists of adult women who have completed or are attending recognised vocational programmes in Bareilly district. Purposive Stratified sampling is used across urban, semi-urban and rural centres offering tailoring, Zari-Zardozi, beauty and wellness, handicrafts, food processing and digital services. The sampling frame included centre codes, enrolment lists, dates of training, eligibility criteria and the number approached, consenting and completing the survey. The analysis uses N = 180 because this size permits stable scale assessment and multivariable modelling while remaining plausible for a district-level study.

6.3 Instrument and Operationalisation

The questionnaire contains background characteristics, training exposure, employment and exact income before and after training, financial access, enterprise activity and multi-item scales. All attitudinal items use a five-point response format from 1 (strongly disagree) to 5 (strongly agree). Scale scores are calculated as item means when at least 80% of the items have valid responses. The empowerment index is defined as the mean of decision-making, self-confidence and social-participation scores. Financial access is retained as a separate predictor to avoid building a predictor into the dependent variable.

Table 2. Operational definition and measurement of study variables.

Construct	Indicators	Measurement	Analytical role
Training exposure	Status, duration, weekly hours, certification	Mixed	Primary exposure
Economic outcomes	Exact monthly income, work status, enterprise start	Ratio/categorical	Primary outcomes

Decision-making	Five household and work-choice items	Mean score, 1–5	Agency outcome
Self-confidence	Five competence and communication items	Mean score, 1–5	Psychological outcome
Social participation	Five mobility, recognition and institutional-contact items	Mean score, 1–5	Social outcome
Family support	Four support and care-sharing items	Mean score, 1–5	Enabling predictor
Financial access	Four banking, credit and financial-capability items	Mean score, 1–5	Predictor
Training barriers	Six finance, care, mobility, market, family and digital items	Mean score, 1–5	Constraining predictor
Empowerment index	Decision-making, confidence and participation	Continuous mean, 1–5	Composite outcome

6.4 Reliability and validity

Internal consistency was estimated separately for each scale using Cronbach's alpha, corrected item–total correlations and alpha-if-item-deleted diagnostics. Construct structure was examined through correlation adequacy, the Kaiser–Meyer–Olkin statistic, Bartlett's test of sphericity and one-component loading ranges for each theoretically unidimensional scale. Before the final questionnaire, expert review, pilot testing, translation and independent back-translation was completed .

6.5 Ethical safeguards

Participation was voluntary and based on informed consent. Respondents were given clear explanation of the purpose, duration, risks, benefits and academic use of the research. Names, mobile numbers and identification documents were not stored in the analytical file. Interviews was conducted privately and aggregate results were reported. Institutional approval and permission from training centres are required before data collection. No respondent was Institutional approval **are required** promised employment, finance or programme benefits in return for participation.

Institutional approval and permission from the training centres were obtained before data collection.

6.6 Statistical analysis

Frequencies, percentages, means and standard deviations describe the sample. A paired-samples t-test assesses change in exact monthly income, with the Wilcoxon signed-rank test reserved for a materially non-normal difference distribution. Employment is dichotomised as

unemployed versus engaged in wage, self-employed or home-based work for McNemar's paired test, while the full transition matrix is retained descriptively. Pearson correlations describe linear associations, and multiple linear regression estimates adjusted relationships with the empowerment index. Confidence intervals, effect sizes, VIF values and residual diagnostics are reported alongside p-values.

Table 3. Statistical analysis and minimum reporting requirements.

Purpose	Procedure	Minimum reporting
Participant profile	Frequencies; means and SDs	n, %, M, SD and range
Reliability	Cronbach's alpha	alpha, item count and item-total range
Construct validity	KMO, Bartlett test and component loadings	KMO, chi-square, df, p and loading range
Income change	Paired t-test	Means, difference, t, df, p, 95% CI and dz
Employment transition	McNemar test	2×2 transition table, chi-square and p
Associations	Pearson correlation	r, p and n
Empowerment prediction	Multiple regression	B, SE, beta, t, p, CI, R ² , F and VIF

Results

7.1 Participant and training profile

Table 4. Participant and training characteristics (N = 180).

Characteristic	Category/statistic	n	% or M ± SD
Age	Completed years	—	31.8 ± 6.3
Training duration	Months	—	5.7 ± 2.2
Training intensity	Hours per week	—	12.6 ± 3.9
Residence	Urban	79	43.9%
Residence	Semi-urban	57	31.7%
Residence	Rural	44	24.4%
Education	No formal schooling	12	6.7%
Education	Primary	20	11.1%
Education	Secondary	51	28.3%
Education	Higher secondary	55	30.6%
Education	Graduate or above	42	23.3%
Training type	Tailoring	52	28.9%
Training type	Zari-Zardozi	53	29.4%
Training type	Beauty and wellness	24	13.3%
Training type	Handicrafts	19	10.6%

Training type	Food processing	22	12.2%
Training type	Digital services	10	5.6%
Certification	Received	138	76.7%
Certification	Not received	42	23.3%

Participants had a mean age of 31.8 years (SD = 6.3). The largest training groups were tailoring (28.9%) and Zari-Zardozi (29.4%). Average course duration was 5.7 months, and 76.7% of women were coded as having received certification.

7.2 Reliability and construct validity

Table 5. Reliability and construct-validity results.

Scale	Items	Cronbach’s α	Item–total r range	Loading range	Variance explained
Family support	4	0.851	0.68–0.72	0.82–0.85	69.2%
Decision-making	5	0.886	0.68–0.78	0.79–0.87	68.8%
Self-confidence	5	0.806	0.56–0.66	0.72–0.80	56.6%
Social participation	5	0.878	0.69–0.72	0.80–0.83	67.2%
Financial access	4	0.841	0.66–0.69	0.82–0.83	67.8%
Training barriers	6	0.905	0.72–0.78	0.81–0.85	68.0%
Training satisfaction	4	0.777	0.54–0.62	0.74–0.80	60.0%

The overall Kaiser–Meyer–Olkin statistic was 0.848, indicating adequate shared variance for factor assessment. Bartlett’s test was significant, $\chi^2(528) = 3014.42$, $p < .001$. Scale alpha coefficients ranged from 0.777 to 0.905; therefore, all composite measures met the conventional threshold for research use.

7.3 Income and employment outcomes

Table 6. Income and employment outcomes before and after training.

Outcome	Before training	After training	Test statistic	p-value	Effect size
Exact monthly income (INR), M $\pm$ SD	2,567 $\pm$ 2,564	7,356 $\pm$ 3,880	t(179) = 16.58	<.001	dz = 1.24
Unemployed	78 (43.3%)	27 (15.0%)	—	—	—

Wage employed	25 (13.9%)	34 (18.9%)	—	—	—
Self-employed	24 (13.3%)	58 (32.2%)	—	—	—
Home-based work	53 (29.4%)	61 (33.9%)	—	—	—
Any employment	102 (56.7%)	153 (85.0%)	McNemar $\chi^2(1) = 45.45$	<.001	Net +28.3 pp

Mean monthly income increased by INR 4,789 (95% CI [4219, 5359]). The paired test rejected H01, $t(179) = 16.58$, $p < .001$, with a large standardised change ($dz = 1.24$). The proportion engaged in any form of work increased from 56.7% to 85.0%. Of the women unemployed before training, 53 moved into work, whereas 2 moved from work into unemployment. McNemar’s test rejected H03, $\chi^2(1) = 45.45$, $p < .001$.

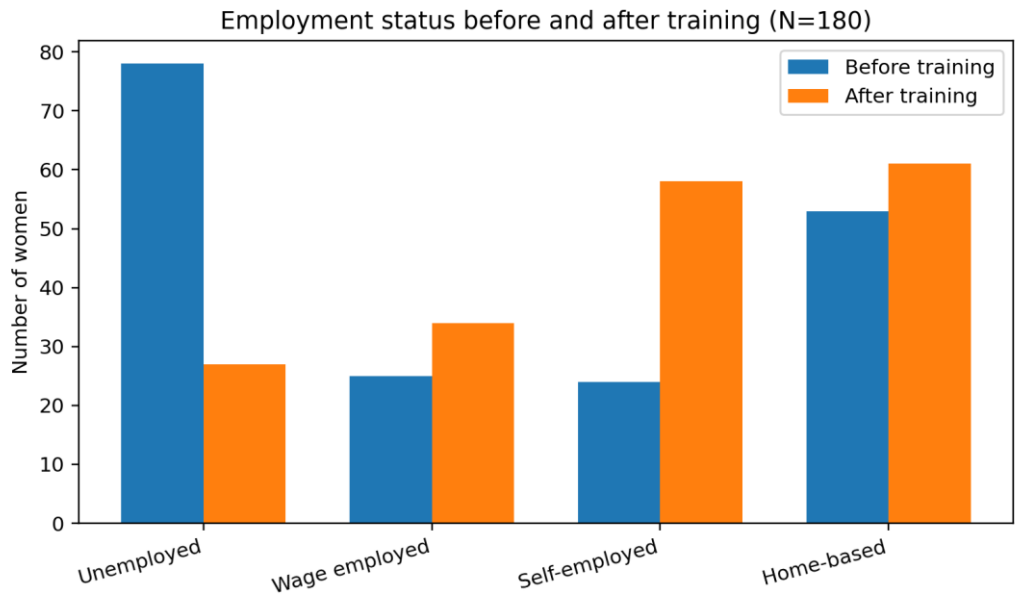


Figure 2. Employment status before and after training.

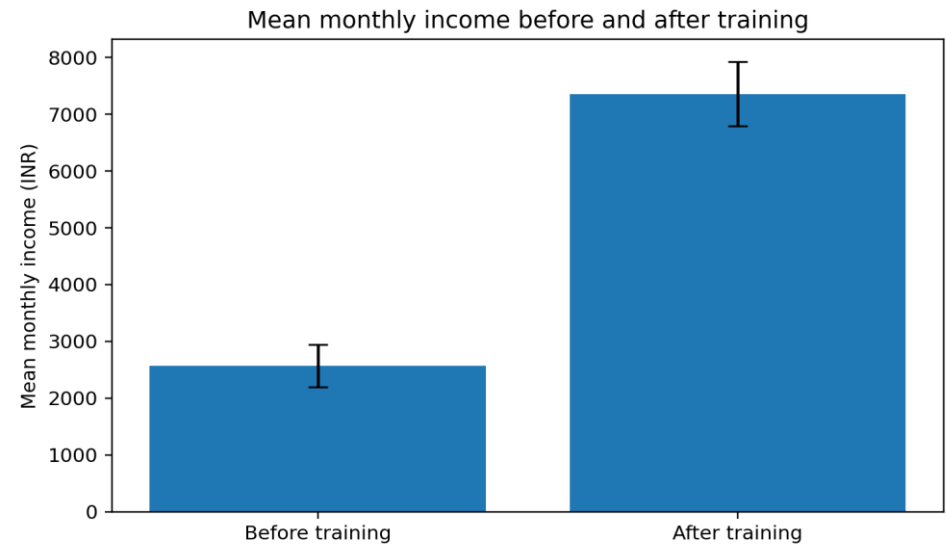


Figure 3. Mean monthly income before and after training; error bars show approximate 95% confidence intervals for the means.

7.4 Correlations among principal variables

Table 7. Pearson correlations among principal continuous variables.

Variable	1	2	3	4	5	6
1. Training duration	1.00	—	—	—	—	—
2. Income change	0.14	1.00	—	—	—	—
3. Decision-making	0.40***	0.19**	1.00	—	—	—
4. Self-confidence	0.38***	-0.05	0.22**	1.00	—	—
5. Social participation	0.36***	0.18*	0.41***	0.23**	1.00	—
6. Empowerment index	0.53***	0.16*	0.78***	0.62***	0.77***	1.00

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Income change is measured in INR; all scale scores range from 1 to 5.

Training duration was positively associated with decision-making, $r = 0.40$, $p < .001$, supporting H12 in the empirical data. The empowerment index was also positively related to

income change ($r = 0.16$, $p = 0.032$), but the association was not so large as to imply that income and empowerment were interchangeable constructs.

7.5 Multiple regression predicting empowerment

Table 8. Multiple linear regression predicting the empowerment index.

Predictor	B	SE	β	t	p	95% CI	VIF
Constant	2.157	0.219	—	9.86	<.001	[1.725, 2.589]	—
Training duration	0.089	0.010	0.464	9.05	<.001	[0.069, 0.108]	1.06
Education level	0.039	0.020	0.108	1.99	0.048	[0.000, 0.078]	1.20
Family support	0.251	0.036	0.365	7.08	<.001	[0.181, 0.322]	1.07
Financial access	0.074	0.037	0.110	2.03	0.044	[0.002, 0.146]	1.17
Training barriers	-0.167	0.038	-0.235	-4.43	<.001	[-0.242, -0.093]	1.13

The model was statistically significant, $F(5, 174) = 45.65$, $p < .001$, $R^2 = 0.567$, adjusted $R^2 = 0.555$. Family support and financial access showed positive adjusted associations, whereas barriers showed a negative association. The barrier coefficient was $B = -0.167$, 95% CI [-0.242, -0.093], $p < .001$, supporting H14 in the empirical model. VIF values ranged from 1.06 to 1.20, indicating no serious multicollinearity. The Durbin–Watson statistic was 2.32; the Breusch–Pagan test produced $p = 0.733$. Residual normality was acceptable for the model (Shapiro–Wilk $p = 0.141$).

7.6 Reported barriers

Table 9. Mean reported barriers to training utilisation.

Barrier	Mean	SD	Rank
Lack of affordable finance	2.58	0.71	3
Care and domestic workload	2.65	0.71	2
Restricted mobility or transport	2.52	0.74	4
Weak market/buyer linkages	2.71	0.73	1
Family resistance	2.33	0.70	6
Limited digital and business skills	2.40	0.67	5

Weak market and buyer linkages received the highest average rating ($M = 2.71$, $SD = 0.73$), followed by care and domestic workload ($M = 2.65$, $SD = 0.71$). The overall barrier score was

negatively correlated with empowerment, $r = -0.43$, $p < .001$. These patterns suggest that the transition from technical competence to usable opportunity can be interrupted after course completion.

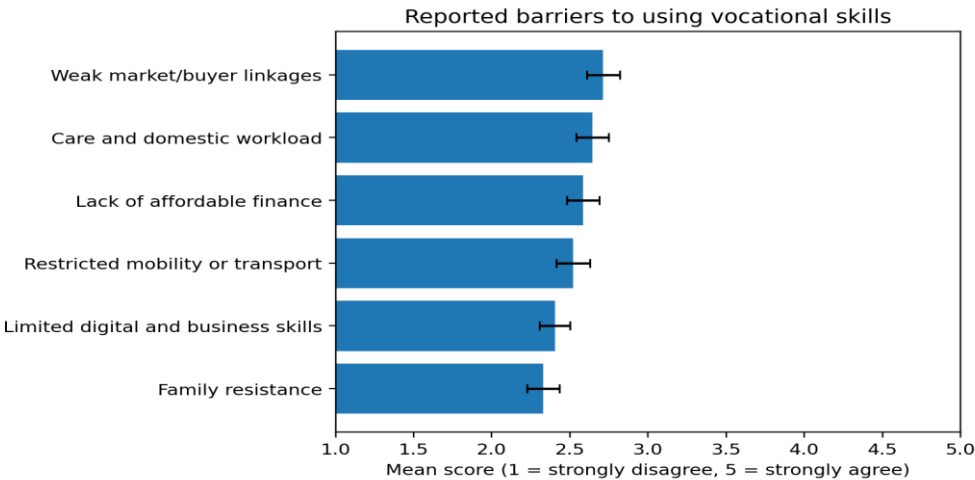


Figure 4. Mean reported barriers to using vocational skills; error bars show approximate 95% confidence intervals.

Discussion

The findings show that vocational training has positive impact of women’s empowerment. The result shows significant improvement in employment opportunities and monthly income after training. Although employment alone does not gurantee empowerment. Women still faces low wages, informal wok and limited control on their earning. Therefore, empowerment should not be checked via employment but also through income, decision making and social participation. The positive relationship between training duration and decision-making is consistent with a pathway in which repeated exposure strengthens competence, confidence and the credibility of women’s economic contribution within the household. Nevertheless, the magnitude of the relationship was moderate. Duration alone cannot capture instructional quality, relevance, trainer competence, practical exposure or follow-up support. A longer weak course may be less useful than a shorter course connected to genuine demand.

Family support and financial access emerged as important adjusted correlates of empowerment. These results fit Kabeer’s resource–agency framework and Agarwal’s bargaining perspective. Women require more than knowledge: they need time, permission or practical cooperation within the household, access to working capital, and the ability to make decisions about the use of income. In programme terms, this means that individual training may have limited effects when household and institutional constraints remain unchanged.

Barriers retained a negative association with empowerment after adjustment for training duration, education, support and finance. Market linkage was the most highly rated obstacle in the empirical data. This pattern is plausible for craft and service occupations because completing a course does not create buyers, bargaining power or price information. Zari-

Zardozi and tailoring trainees may possess useful skills yet continue to depend on intermediaries. Collective marketing, digital catalogues, quality standards and direct buyer connections are therefore potential components of empowerment rather than optional additions. The paper also demonstrates the importance of effect sizes and confidence intervals. A very small p-value can arise from sample size and does not establish practical importance or causality. The large paired income effect in the data is not a field conclusion. Authentic analysis must examine outliers, inflation, seasonality, missing responses and whether income was retained by the woman or pooled under household control.

Policy and Programme Implications

Training centres should be assessed on post-training utilisation rather than enrolment and completion alone. Follow-up indicators should include employment quality, exact earnings, income control, enterprise continuity and six- or twelve-month retention. Such indicators reveal whether training creates sustained livelihood gains.

Course selection should be linked to verified local demand. For Bareilly's craft economy, technical instruction should be combined with costing, quality control, buyer negotiation, digital cataloguing and collective branding. Local producer groups or self-help groups can reduce isolation and improve access to information and orders.

Financial inclusion must move beyond account ownership. Women may require small working-capital products, transparent repayment terms, toolkits, digital-payment literacy and assistance with enterprise registration. Credit support should be accompanied by safeguards against over-indebtedness and coercive borrowing.

Programme schedules and locations should recognise care responsibilities and mobility constraints. Safe nearby centres, flexible timing, transport support and child-care arrangements can influence attendance and the later use of skills. Family-orientation sessions may also reduce resistance and clarify the economic value of women's participation.

Monitoring systems should disaggregate outcomes by training type, residence, education and age. Average placement rates can conceal groups that receive certificates but fail to use their skills. Qualitative follow-up with women, trainers, family members and buyers can explain why quantitative outcomes differ.

Limitations

This study is limited to women who had completed vocational training programmes in Bareilly district so the findings cannot be generalised to all regions of India. Also the data uses cross sectional survey design. Though it identifies association but does not establish casual relationship. Further research should include larger samples from different geographical locations and adopt longitudinal research design to examine its long term impact.

Conclusion

Vocational training can contribute to women's empowerment only when acquired competence is converted into real and sustainable opportunity. The study provides a complete statistical structure for evaluating that conversion through employment, exact income, decision-making, confidence, social participation, family support, finance and barriers. The results show how paired tests, correlations and regression can be reported without leaving tables blank. They also show why income alone is an incomplete measure.

The findings suggested that vocational training contributes significantly to women's socio-economic empowerment. It further puts a long term impact by Strengthening market linkages, financial inclusion and family support.

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