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Women's empowerment index for handloom weavers in assam, India

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ABSTRACT

The main purpose of this study is to construct a women's empowerment index for handloom weavers by adopting the tools developed by the Oxford Poverty & Human Development Initiative (OPHI). Within Assam, India, 1000 sample respondents were selected for the study from five leading handloom production districts. For the study, individual-level data were collected by interviewing handloom weavers comprising seven domains and 25 indicators. A regression analysis was used in the study, and the results revealed that out of the five districts in Assam, the empowerment index of handloom weavers is highest for Kamrup (rural) (0.72), followed by Barpeta (0.64), Kokrajhar (0.61), Nagaon (0.58), and Chirang district (0.44). Overall, the women's empowerment index for handloom weavers is less than the global standard empowerment weighted average of 0.80. It was also found that empowerment is linked to wages, education, availability of electricity, media exposure, and other household characteristics. Therefore, policies should set out a minimum wage structure for weavers that is fixed by the government and implemented properly as well as initiatives regarding other factors that encourage empowerment.

Contribution/Originality: Previous studies on handloom weavers have concentrated on analyzing the socio-economic conditions of weavers, female entrepreneurship, and participation. Few studies examine how handloom weaving empowers women, so this study deviates from others as it incorporates the empowerment index of handloom weavers.

1. INTRODUCTION

Handloom weaving is one of the important manufacturing industries in India where women play a key role. However, their contribution goes unnoticed because weaving is an in-house activity and most artisans weave in their homes. According to the fourth Handloom Census of India, 2019–20, nearly 72% of handloom weavers in the country are female. Today, there are over 38 million female weavers in India. The unfortunate truth is that the female workforce in the handloom sector has been overlooked for a long time. Comprising more than 70% of the total

handloom weavers, as per government surveys, it is female artisans who contribute the most to maintaining handloom traditions, yet it is the male artisans in the industry who are credited for the quality weaves that are produced and it is assumed that the females merely do the smaller tasks (https://anuprerna.com/blog/the-state-of-women-weavers-in-handloom-sector). A large number of studies on women's handloom also have highlighted poor social well-being and gender gaps in asset ownership, education, access to credit, extension services (Roy & Chouhan, 2017) and wages. Such gaps affect income and intra-household distribution, with possible negative effects on education, health, and nutritional status in the households (Sraboni, Malapit, Quisumbing, & Ahmed, 2014). Thus, the gender gap may have long-term implications both from economic and developmental perspectives (Manfre, Rubin, Allen, Summerfield, & Akeredolu, 2013). To support women through policy measures, it is essential to understand the dynamics driving the gender gap, well-being, and socio-economic status. Many studies suggest that the gender gap is largely linked to issues relating to women's participation and empowerment (Manfre et al., 2013). Analysis of women's empowerment, therefore, needs to be a key aspect of any work (Sell & Minot, 2018).

1.1. Meaning and Measurement of Empowerment

Empowerment is explained and defined by various disciplines, including social work, psychology, education, public health, sociology, economy, and management. The term covers many meanings related to the phenomena (Febriana, 2011). Today, empowerment is a popular word that is being used and applied to a wide variety of phenomena, such as women's empowerment (Longwe, 1998) and community empowerment (Labonte, 1989). It is relevant at individual and collective levels and can be economic, political, or social. The term can be used to characterize relations within households or between poor people and other actors at the global level (Narayan, 2002). The World Bank and many other development agencies state that empowerment enhances an individual's or group's capacity to make choices and transform those choices into desired actions and outcomes. The extent or degree to which a person is empowered is influenced by a personal agency (the capacity to make purposive choices) and opportunity structure (the institutional context in which a choice is made). Agency and opportunity structures are hypothesized to be associated with the degree of empowerment that a person or group experiences. Degrees of empowerment (DOE) can be measured by assessing whether a person has the opportunity to make a choice, or whether a person uses the opportunity to choose, and once the choice is made, whether it brings the desired outcome (Ruth & Nina, 2005). Thus, the definition of empowerment focuses on resources, agency, and achievement (Sell & Minot, 2018). Control over physical, financial, human, and intellectual resources is referred to as resources (Kabeer, 1999), and having the capacity and freedom to make individual life choices implies agencies (Desai, 2010; Sen, 2009). Together agencies and resources constitute the 'functioning of achievement' or achievement. Based on these criteria, Ibrahim and Alkire (2007) proposed indicators for four possible exercises of an agency whose increase could lead to empowerment drawn on Rowlands' typology (Rowlands, 1997). The possible exercises are (a) empowerment as a choice (power to do) – domain-specific autonomy and household decision-making; (b) empowerment as control (power over) – control over personal decisions; (c) empowerment as change (power from within) – changing aspects in one's life (communal level) and communal belonging; and (d) empowerment in a community (power with) – changing aspects in one's life (individual level).

The factors determining or influencing empowerment, though not easy to determine, are a current topic of discussion. Scientists in this field state that empowerment is determined by factors including age, gender, marital status, nationality, social role, economic activity, intra-household distribution, economic participation, access to and utilization of resources, and health (Khan & Awan, 2011; Malhotra, Schular, & Boender, 2002; Sen, 2009; Trommlerová, Klasen, & Leßmann, 2015). In terms of empowerment within the community, certain groups of individuals are expected to be more influential than others. Socio-economic status, knowledge, experience, national origin, and social standing are individual characteristics that are very likely to be relevant. In this sense, Trommlerová et al. (2015) hypothesized that wealth, employment, education, literacy, and living in a larger household lead to more

communal empowerment. Similarly, age is expected to be a positive determinant of empowerment in the community, possibly with a diminishing marginal return. Apart from economic means and other factors, better health might cause individuals to feel more in control over their life (Trommlerová et al., 2015). Empowerment is also influenced by the existence of a norm in society. The family lineage and living arrangements that centered on men, and inheritance and succession practices that neglect women, hinder gender equality and lead to disempowerment (Roy & Niranjan, 2005). This paper aims to construct a women's empowerment index and examine some of the key determinants of women's empowerment relating to handloom weavers in Assam, India.

1.2. Literature Relating to Approaches to Measuring Empowerment

Table 1 presents the literature relating to approaches taken to measure empowerment.

2. DATA AND METHODS

This study is based on primary data collected in 2019. Within Assam, India, primary data were collected from five leading handloom production districts of Assam – Kamrup (rural), Nagaon, Barpeta, Kokrajhar and Chirang. From these five districts, fifteen blocks were selected (three blocks from each district). The blocks selected in Kokrajhar district are Titaguri, Gossaigaon, and Dotma; the blocks selected in Chirang District are Sidli, Manikpur, and Boro Bazar; the blocks selected in Kamrup District (rural) are Sualkuchi, Boko and Chhaygaon; the blocks selected in Nagaon are Raha, Nagaon, and Kaliabor; and the blocks selected in Barpeta are Barpeta, Bajali, and Sarthebari. From the selected blocks, 150 villages and 150 weaving centers were purposively selected by taking weaving activities into account. A total of 1000 respondents were chosen for the study through simple random sampling. In addition to the questionnaire, a modified women's empowerment in agriculture index (WEAI) module was included, to which female weavers were asked to respond. In most cases, it was possible to interview the respondents individually without the interference of other people. The questions focused on decision making, participation in economic and social spheres, decisions regarding the use of income and child education, and the use of media and leisure time. The educational status, age, experience, marital status, and socioeconomic variables of the weavers were also collected through the questionnaire at the time of the interview.

2.1. Construction of Women's Empowerment Index (WEI) for Handloom Weavers (HW)

The construction of the women's empowerment index (WEI) for handloom weavers (HW) was adopted from Oxford Poverty and Human Development (OPHI), University of Oxford, UK, developed and designed by Alkire et al. (2013), the Women's Empowerment in Agriculture Index (Alkire et al., 2013), and the Women's Empowerment Index for self-help groups women by Roy et al. (2018). For the construction of women's empowerment for handloom weavers, seven domains and 25 indicators are taken into consideration. The seven domains are economic empowerment, household empowerment, participation in the political and social sphere, health, involvement in fertility-related decisions, media, and leisure time/time allocation. The variables chosen for the indicators are given in Table 2. The domains and indicators are given equal weight, and since there are 25 indicators, the weight assigned to each is 1/25, which equals 0.04, and summed up to unity. The indicators are termed as binary, i.e., '1' for Yes if it indicates empowerment and '0' for No based on the respondents' opinions. Thus, the aggregate value lies between '0' and '1'.

Table 1. Literature relating to approaches to measuring empowerment.

Study and location	Measurement concept	Data sources	Conclusions
Alkire et al. (2013) Bangladesh, Guatemala, and Uganda	Measured the empowerment, agency, and inclusion of women in the agricultural sector. The women's empowerment in agriculture index (WEAI) comprises two sub-indexes, one of which assesses the degree to which women are empowered in five domains of empowerment (5DE) in agriculture: (1) decisions about agricultural production, (2) access to and decision-making power about productive resources, (3) control of the use of income, (4) leadership in the community, and (5) time allocation.	Funding for the WEAI was provided by the US government's Feed the Future Initiative. The study is based on individual-level data collected by interviewing men and women within the same households.	Findings indicate that WEAI indicators are relatively robust. WEAI estimates can further serve as a diagnostic tool to signal key areas for interventions to increase empowerment and gender parity. The study found that the areas of disempowerment of women (and men) differ from country to country; the WEAI measures can help to identify the key decision makers in different types of production and whether the greatest needs are for resources, credit, leadership, or time.
Sell and Minot (2018) Uganda	Focused on the relationship between a range of individuals, households, and community characteristics and women's empowerment levels.	Gender-disaggregated survey data from rural Uganda is used to explore individual and household characteristics associated with women's empowerment.	Findings show links between empowerment and age, education, and proximity to a paved road. Age and education are associated with higher empowerment, but equality in education between spouses is more important than the average level of education.
Roy, Chatterjee, and Gupta (2018) West Bengal	The study developed an index based on a few sector-specific parameters to measure the empowerment level of women engaged in self-help groups (SHGs). The individual empowerment index and the group empowerment indices were constructed, where financial liberty, the ability to make decisions, the health condition of women, and the ability to stand up against the evils of society were used as empowerment parameters. The index was applied to 300 SHG members in rural West Bengal, which provided us with an idea of the existing level of rural women's empowerment in this area.	Data were collected from 300 women who belong to several SHGs from districts of North 24 Parganas and Nadia in West Bengal, India.	Empowerment is associated with education.
Mason (2005) India, Malaysia, Pakistan, the Philippines, and Thailand.	Discussed empowerment and its determinants or influences and the best way to measure and analyze the effectiveness of interventions to empower poor women in developing countries. The domains used to measure empowerment are the economics decision making scale, decisions regarding family size, the freedom of movement scale, if the wife is afraid to disagree with the husband, and if the husband beats the wife.	A survey-based study of women's empowerment and demographic changes in five Asian countries (India, Malaysia, Pakistan, the Philippines, and Thailand). The study surveyed rural and peri-urban married women aged 20–39 and a subset of their husbands (interviewed separately) in the winter of 1993–94.	Women's domestic empowerment is conceptually complex and methodologically challenging to measure and analyze. Findings indicate that paid work empowers women. In Thailand and the Philippines, where women typically enjoy more rights and freedom than they do in India and Pakistan, their gainful employment does not increase domestic violence. The results suggest that engaging in remunerative work is no guarantee of making important household

Study and location	Measurement concept	Data sources	Conclusions
			decisions or being able to pursue one's interests if community norms and the actions of the powerful determine otherwise.
Biswas-Diener (2005) Rich Americans, Kenya, Pennsylvania, Northern Greenland, India, and the United States.	This study discusses two psychological concepts: subjective well-being (SWB) and psychological empowerment and its measurement. The study adopted a theoretical model indicating four stages of well-being: (a) environmental circumstances and events to which the person reacts; (b) a person's immediate reactions to these events, such as feelings of joy or sadness; (c) a person's recall of her or his reactions; and (d) a person's global constructed judgments of his or her life, such as life satisfaction.	The data was collected from different groups: Forbes richest Americans, Maasai (Kenya), Amish (Pennsylvania, Inughuit (Northern Greenland), Cloistered nuns (United States), Illinois nurses, Illinois college students, Calcutta slum dwellers, Calcutta sex workers, Uganda college students, Calcutta homeless, California homeless, new prisoners and mental health inpatients (Illinois), and Detroit sex workers. The response scale used is: 1 = extremely dissatisfied; 4 = neutral; 7 = extremely satisfied.	Feelings of agency and psychological empowerment are often highly intertwined with cultural belief systems. Feelings of psychological disempowerment may persist long after external conditions have changed. In these cases, educational and behavioral interventions are needed to enhance psychological empowerment. Efforts to empower people will succeed only when external conditions allowing efficacious action are present when people have the skills and abilities to act effectively and when they feel and believe that they are empowered.

The formula for constructing the Women's Empowerment Index (WEI) for handloom weavers (HW) is presented as:

$$\text{WEI for } HW = H_e + H_d(A_e) \qquad (1)$$

Where:

H_e is the percentage of women with adequate empowerment or it is the empowered headcount ratio given by $H_e = \frac{q}{n}$, Here q is the number of individuals who are empowered, and n is the total population (sample).

H_d is the percentage of women without adequate empowerment or it is the disempowered headcount ratio = (1 - H_e).

A_e is the average adequacy score of disempowered individuals, which equals (1 - Ap).

Ap is the intensity (or breadth) of disempowerment, or the average inadequacy score of disempowered individuals and can be expressed as follows: $A_p \ \frac{\sum_{i=1}^{25} ci(k)}{q}$

Where *ci(k)* is the sum of the inadequacy score of individual i, and q is the number of disempowered individuals.

The formula for finding H_e, H_d, and A_e is as follows:

$$E_k = \Sigma D_i I_j (W_j) \qquad \text{i = 1, 2…7 and j = 1, 2…25}$$

Where:

E_k = the empowerment index for individual handweavers, D = domains, and I = indicators.

2.2. Regression Model

The regression analysis is carried out using empowerment as the dependent variable. The study examines empowerment as a continuous variable, similar to what Sraboni et al. (2014) did in their analysis. The regression analysis uses a range of characteristics as possible explanatory variables for empowerment. More specifically, the following equation is estimated: $E_i = \ a + \beta_0 x_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 w_1 + \beta_4 w_2 + \beta_5 h_1 + \beta_6 h_2 + \beta_7 h_3 + \beta_8 h_4 + \beta_9 m_1 + u_i$, where E_i is the aggregated empowerment variable for the weavers in the handloom sector, and x_0, x_1 and x_2 indicate individual-level characteristics of the handloom weavers, i.e., log wage, age and education. Education is classified as follows: below primary level = 1; classes 5 to 8 = 2; classes 9 to 12 = 3, and above class 12 = 4; w_1 *and* w_2 indicate the differences in age and education between spouses; h_1, h_2, h_3, *and* h_4 are household characteristics, i.e., access to electricity, access to a bank account, household size, and members aged over 60; m_1 is exposure to media; u_i is an error term, which is assumed to be independently and identically distributed with a normal distribution; and the βs are coefficients to be estimated.

2.3. Multicollinearity Test

One of the assumptions of the classical linear regression model is that the two explanatory variables are independent from each other. If this assumption is violated, we face the problem of multicollinearity. To identify multicollinearity in the model, the tolerance and variance inflation factor (VIF) values are assessed. VIF values above 5 or 10 and tolerances of less than 0.20 or 0.10 are often regarded as indicating multicollinearity. According to collinearity statistics, our model is free from multicollinearity.

Table 2 presents the domains and indicators of women's empowerment, where D = domain, I= indicator ('I' is a suffix for D); i = 1, 2…7, indicating the seven domains (1 = economic contribution, 2 = household empowerment, 3 = participation in the political and social sphere, 4 = health, 5 = weavers' involvement in fertility-related decisions, 6 = media, and 7 = leisure time); 'j' is a suffix for 'I', j = 1, 2, 3…25(since the total number of indicators is 25; 1 = first indicator, 2 = second indicator, …25 = 25th indicator). The W_i's are the weights assigned to the indicators, which are assumed to be equal and summed up to unity (i.e., $w_1=w_2=\ldots\ldots=w_{25}$ and $\Sigma w_i = 1$). Equal weights are assigned to the

domain depending on the number of indicators attached to it. The greater the number of indicators assigned to a domain, the higher the weight.

Table 2. Domains and indicators of women's empowerment.

Domains (W = weight)	Indicators	D_iI_j	W_j
1. Economic empowerment	Earning meets expenditure	D_1I_1	W_1
	Satisfied with earnings	D_1I_2	W_2
	Freely spend household income	D_1I_3	W_3
	Have a permanent home	D_1I_4	W_4
2. Household empowerment	Play a role in making household decisions	D_2I_5	W_5
	Husband and wife jointly make major financial decisions	D_2I_6	W_6
	Make decisions regarding the education of children	D_2I_7	W_7
	Make decisions regarding buying land and the construction of a house	D_2I_8	W_8
	Can access a bank account	D_2I_9	W_9
3. Participation in the political and social sphere	Participates in community meetings	D_3I_{10}	W_{10}
	Participates in public protests	D_3I_{11}	W_{11}
	Participates in political campaigns	D_3I_{12}	W_{12}
	Has mobility within and outside the locality	D_3I_{13}	W_{13}
	Participates in the Development Programme	D_3I_{14}	W_{14}
4. Health	Women who have access to health care services independently	D_4I_{15}	W_{15}
	Women who have attended a health-related programme (Nutrition programs, family planning, child development)	D_4I_{16}	W_{16}
5. Weavers' involvement in fertility-related decisions	Uses contraceptives	D_5I_{17}	W_{17}
	Determines the size of the family	D_5I_{18}	W_{18}
	Involved in reproductive decisions	D_5I_{19}	W_{19}
6. Media	Women who have access to and use information from radio/TV	D_6I_{20}	W_{20}
	Women who have access to newspapers	D_6I_{21}	W_{21}
	Women who have access to a mobile phone	D_6I_{22}	W_{22}
7. Leisure time	There is/is not a division of power in the household	D_7I_{23}	W_{23}
	Receives orders from male family members	D_7I_{24}	W_{24}
	Gets positive responses from male members if she gives orders	D_7I_{25}	W_{25}

The indicators are assumed to be binary, where a value of 1 indicates empowerment, and 0 otherwise. Therefore, the aggregate empowerment score ranges from 0 to 1.

3. RESULTS AND DISCUSSION

Tables 1 to 7 present women's empowerment indexes in handloom for different districts in the study area. The women's empowerment index in the district of Kamrup (rural) is better than all other districts in the sample. The seven domains for the Kamrup district show an empowered headcount ratio of 54% and the WEIH for the district is 0.72. Kamrup district is the hub of commercial weaving in Assam, and most of the weavers here migrated from other places to adopt weaving as their profession. They are skilled, mostly independent, and make decisions on their own.

Table 3. Women's empowerment index in handloom (WEIH), Kamrup (rural).

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.540
Percentage of women without adequate empowerment (H_n)	0.460
Average inadequacy score of disempowered individuals (Ap)	0.600
Average adequacy score of disempowered individuals (A_e)	0.400
WEIH	0.720

Table 4. Women's empowerment index in handloom (WEIH), Barpeta.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.450
Percentage of women without adequate empowerment (H_n)	0.550
Average inadequacy score of disempowered individuals (Ap)	0.640
Average adequacy score of disempowered individuals (A_e)	0.360
WEIH	0.640

The seven domains of empowerment for Barpeta show that 45% of weavers are adequately empowered. The 0.55% of women who are not yet empowered have, on average, inadequate achievements in 64% of domains. Thus, the index for women's empowerment in handloom is calculated as 0.64.

Table 5. Women's empowerment index in handloom (WEIH), Kokrajhar.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.430
Percentage of women without adequate empowerment (H_n)	0.570
Average inadequacy score of disempowered individuals (Ap)	0.670
Average adequacy score of disempowered individuals (A_e)	0.330
WEIH	0.610

In Kokrajhar, the seven domains of empowerment show that 43% of weavers are adequately empowered. The 0.57% of women who are not yet empowered have, on average, inadequate achievements in 67% of domains. Thus, the index for women empowerment in handloom is calculated as 0.61.

Table 6. Women's empowerment index in handloom (WEIH), Nagaon District.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.330
Percentage of women without adequate empowerment (H_n)	0.670
Average inadequacy score of disempowered individuals (Ap)	0.625
Average adequacy score of disempowered individuals (A_e)	0.375
WEIH	0.581

The women's empowerment index in Nagaon district is 0.5812. The seven domains for Nagaon show that the empowered headcount ratio is 33%. The disempowered weavers have, on average, inadequate achievements in 62% of domains and an adequacy score of 37%.

Table 7. Women's empowerment index in handloom (WEIH), Chirang District.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.200
Percentage of women without adequate empowerment (H_n)	0.800
Average inadequacy score of disempowered individuals (Ap)	0.698
Average adequacy score of disempowered individuals (A_e)	0.302
WEIH	0.441

The women's empowerment index in the sample district of Chirang is the lowest of all the districts. The seven domains for Chirang show an empowered headcount ratio of 20%. The disempowered weavers, on average, have inadequate achievements in 69% of domains. Thus, the WEIH for the Chirang district is 0.4416.

Table 8 exhibits the women's empowerment index in handloom in all districts of the study area. The seven domains of empowerment show that 39% of weavers are adequately empowered. The 61.0% of women who are not yet empowered have, on average, inadequate achievements in 64% of domains. Thus, the index for women's empowerment in handloom on average is calculated as 0.598. Based on the decomposition of the disempowerment measures of the domains in the sample areas that contribute most to women's disempowerment are weak decision-

making with regard to major financial decisions (78.6% say no), access to a bank account (65.7% say no), lack of control over resources (79% say no), and illiteracy (42% below primary level). Approximately 70% in the survey are not yet empowered.

Table 8. Women's empowerment index in handloom (WEIH) in the study area.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.390
Percentage of women without adequate empowerment (H_n)	0.610
Average inadequacy score of disempowered individuals (Ap)	0.644
Average adequacy score of disempowered individuals (A_e)	0.356
WEIH	0.598

Note: WEIH = Women's empowerment index in handloom.

Table 9. Women's empowerment index in handloom (WEIH), urban areas.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.290
Percentage of women without adequate empowerment (H_n)	0.710
Average inadequacy score of disempowered individuals (Ap)	0.673
Average adequacy score of disempowered individuals (A_e)	0.327
WEIH	0.541

Table 9 presents the women's empowerment index in the urban areas in the study. The WEIH for weavers in handloom centers located in urban areas is 0.541. The seven domains for urban areas show that 29% of weavers have adequate empowerment and 0.71 do not have adequate empowerment. The adequacy score of disempowered weavers is 32%.

Table 10. Women's empowerment index in handloom (WEIH), rural areas.

Indexes	Score
Percentage of women with adequate empowerment (H_e)	0.240
Percentage of women without adequate empowerment (H_n)	0.760
Average inadequacy score of disempowered individuals (Ap)	0.712
Average adequacy score of disempowered individuals (A_e)	0.288
WEIH	0.4588

The women's empowerment index for weavers in centers located in rural areas is lower than in urban areas (see Table 10). The seven domains for weavers in centers located in rural areas show an empowered headcount ratio of 24%. The disempowered weavers, on average, have inadequate achievements in 71% of domains. Thus, the WEIH for rural areas is 0.4588.

Out of the five districts in Assam, the empowerment index of handloom weavers is highest in Kamrup (rural) (0.72), followed by Barpeta (0.64), Kokrajhar (0.61), Nagaon (0.58), and Chirang district (0.44). From the field study, it was observed that, on average, the weavers in Kamrup earn Rs. 9500 per month, which is the highest among all districts. Most of the weavers in Kamrup are migrants and professional weavers. In Barpeta, 85% of weavers are above class 10. So, wage and education may be important factors for the higher empowerment index of handloom weavers. The empowerment index for all the districts is 0.598. The empowerment index for weavers working in handloom hubs situated in urban areas was found to be higher than in rural areas. The reason behind this is that females who have the freedom to move to town in search of work are more empowered regarding decision making compared to those who don't. Moreover, weaving in town pays more to compensate for the higher cost of living and to attract skilled workers. Table 11 presents the descriptive statistics for the variables.

Table 11. Descriptive statistics for the variables.

Variable	N	Mean	Standard deviation	Minimum	Maximum
Empowerment index	1000	0.5983	0.17250	0.200	0.96
Education	1000	2.180	1.370	1.000	5.00
Age	1000	31.17	7.130	17.000	46.00
** Education difference between spouses	1000	2.080	1.530	1.000	5.00
* Age difference between spouses	1000	1.490	3.050	1.000	10.00
Availability of electricity	1000	0.635	0.4817	0.000	1.00
Access to a bank account	1000	0.5262	0.499	0.000	1.00
Household size	1000	3.400	2.970	1.000	8.00
Members over 60 years of age	1000	0.220	0.520	0.000	3.00

Note: Education classifications: below the primary level of education = 1; classes 5 to 8 = 2; classes 9 to 12 = 3, and above class 12 = 4.
* Age difference is calculated as the age in years of the woman subtracted from the age in years of the man.
** Education difference is calculated as the years of education of the woman subtracted from the years of education of the man.

Table 12. Regression results showing factors affecting women's empowerment.

Variable	Unstandardized coefficient ($\beta's$)	T-statistics	Sig.	Collinearity statistics	
				Tolerance	VIF
Constant	0.657	14.087	0.000	-	-
Log wage	1.419	2.910	0.010	0.988	1.045
Education	0.036	5.979	0.000	0.936	1.068
Age	0.002	1.682	0.093	0.988	1.012
The age difference between spouses	-0.010	-2.543	0.011	0.957	1.045
Education difference between spouses	-0.001	-0.031	0.975	0.988	1.045
Availability of electricity	0.040	0.111	2.317	0.957	1.045
Access to a bank account	0.004	0.252	0.801	0.990	1.010
Household size	0.029	0.943	0.956	0.967	1.035
Members over 60 years of age	-1.60	2.13	0.012	0.947	1.045
Media exposure	1.82	4.916	0.000	0.977	1.023

Table 12 presents the factors affecting women's empowerment. The regression results indicate that wage is a key factor that influences women's empowerment. Flinterman (2016) and Masterson and Zacharias (2018) state that wage is one of the most important factors leading to economic empowerment, and worker empowerment is part of earning a living wage (Flinterman, 2016; Masterson & Zacharias, 2018). Education was also found to influence empowerment as per the regression results. According to the International Center for Research on Women, "Women are more likely to control their own destiny and bring changes in communities when they have a higher level of education" (Hunt, 2013). Education is associated with higher empowerment, but equality in education between spouses is also important. Even though the education difference between spouses is not statistically significant, the negative value of the coefficient suggests that the larger the male advantage in education, lower the woman's empowerment. This implies that raising the general level of education is important but alone may not contribute to women's empowerment, whereas promoting gender parity in education could. Regarding age, we have included the mean age of women (weavers) and the age difference between spouses. The mean age of women is not significant, but the difference in age between spouses is negatively significant at a 5% level. However, a study on women's empowerment and associated age-related factors by Batool and Jadoon (2018) found that empowerment increased with age and conjugal duration, but the age at marriage and age difference between spouses did not influence women's empowerment (Batool & Jadoon, 2018). Several household characteristics, such as availability of electricity, access to a bank account, household size, and members aged over 60, are associated with women's empowerment are also examined in the study. The results show that the availability of electricity positively influences empowerment, while members over 60 years of age have a negative influence. Electricity has both direct and indirect impacts on cloth production. Because of this, the government in different states and particularly in Tamil Nadu has announced a free power supply to benefit handloom weavers (Government of India, 2016). Another variable found to be positively significant is exposure to media. Media are platforms where women can share opinions when their voice is restricted, creating opportunities for the civic population to express their views. It is also considered a tool for society to reach

out to a large audience by mass communication. If media can be powerful agents of change, they can be equally powerful for empowerment (Ibrahim, 2021; Shubha, 2011).

4. CONCLUSION

Our study was conceived with the primary aim of determining the level of women's empowerment for handloom weavers in different districts of Assam, India. According to our findings, the empowerment index is different for various districts, where Kamrup (rural) was found to be the highest and Chirang the lowest. Based on the results, it is evident that the women's empowerment index for handloom weavers in Assam is below the standard empowered weighted average of 0.80. Thus, it can be said that an index with a score below 0.80 means that women are not expected to be able to access all necessities and do not have freedom in decision making within or outside the family. The results also suggest that empowerment is linked to mean wage, availability of electricity, exposure to media and education, and a smaller education gap between spouses. Some policy implications can be proposed based on the results. Since wage is one of the most influential factors of empowerment, the government should implement a fixed minimum wage structure for weavers. In the case of power supply, 24/7 availability of electricity is required in weaving hubs so that weavers can work at a time that is convenient. This will enhance production, productivity, and wages. It is also suggested that women's capacity for decision making and leadership could be improved through participation in media organizations. Since individual traits and household characteristics are not sufficient to determine empowerment, reducing gender inequality is a necessity in education, the ownership of assets, economic opportunity, access to and use of health care, and improving services that create an enabling environment for women to use these services. Another important way in which poor women can be helped to empower themselves is through collective action, the effectiveness of which is also suggested by the World Bank, as well as experience in changing the culture that give males and females distinct rights. Although the end goal is to empower women and improve their lives, it does not necessarily mean that interventions and policies must exclusively be directed at women. It should be such that the women themselves can be the agents of normative and structural change.

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