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Key Factors Influencing Women's Economic Empowerment in Rural Bangladesh: Insights and Implications for Development Policy

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ABSTRACT

Purpose: The primary objective of this study, with some specific objectives also, is to investigate the factors associated with enhancing women's economic empowerment in rural Bangladesh. **Methods:** Using both quantitative and qualitative approaches, a Women's Empowerment Index was constructed from primary data collected through surveys and interviews. Regression analysis identified key determinants of empowerment, while the logit model examined factors influencing female labor force participation, suitable for the binary dependent variable. The Ordinary Least Squares (OLS) method analyzed earnings determinants for female workers. **Findings:** Age, presence of children, status as heads of households, occupation, education and access to information and social media contribute significantly to economic empowerment. **Policy implications:** The government should prioritize expanding education access, especially for rural women, and develop vocational training programs aligned with local economic opportunities. Initiatives to improve digital literacy and provide financial and market access are crucial for fostering entrepreneurship and formal job sector participation. Policies promoting work-life balance, affordable childcare, and gender equality in employment must be implemented alongside measures to support women's property rights, ICT access, and decision-making participation. Multi-sectoral collaborations and community awareness programs are needed to address gender stereotypes and ensure holistic empowerment. **Originality of the study:** By employing the most recent data set and cutting-edge methodology, the present research adds to the body of available research by revealing the factors that pose a huge impact on rural women's economic empowerment.

Keywords: Economic empowerment, Women Empowerment Index, Logit model, OLS, Development policy.

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INTRODUCTION

The concept of women's economic empowerment is a highly debatable issue. Whenever women are economically empowered in a real sense, they freely pursue their ambitions, make choices, and have access to national resources. Benet (2002) defines empowerment as "The enhancement of assets and capabilities of diverse individuals and groups to engage, influence and hold accountable the institutions which affect them". A study by Mude and Barrett (2013) in Kenya found that higher income levels were associated with greater decision-making power for women in households and communities, as well as increased access to healthcare and education. Similarly, Quisumbing and Maluccio's (2003) study in Guatemala found that higher household income was positively correlated with women's ability to participate in decision-making and control over household resources.

Moreover, Sen and Grown (1987) emphasized the importance of empowering women, particularly in rural areas, to achieve economic development and poverty reduction. They argued that empowering women through increased access to education, employment, and resources can lead to greater economic growth and development. The majority of Bangladeshi women reside in rural areas. Thus, empowering women can culminate rapid development of the economy. They work in various sectors such as road construction and land excavation labour, hawkers, vegetable sellers, parlour assistants, crop harvesters, or in different agricultural sectors but most of these working women have very little academic background. In addition, women's participation in livestock production has been shown to increase household income and improve nutrition, as documented in a study by Kristjanson et al. (2010) in Ethiopia. Rural women often engage in handicrafts and non-farm activities, which can provide them with alternative income sources and reduce their dependence on agriculture. A study by Schreiner and Raschky (2014) in Uganda found that non-farm employment opportunities can significantly reduce poverty and increase household income for rural women.

However, from the beginning of their life, women mostly stay in labyrinths for quite poor families. They rarely can express their opinion in decision making problems of their family. A study by Sultana and Thompson (2010) in rural Bangladesh found that women's opinions were often not taken into account in family decision-making, even when they had important knowledge and experience. They also become the victim of family violence and torture for depending on male members for economic issues (Ahmed & Islam, 2023; Ahmed & Surid, 2023). Women are also more likely to be underutilized in the labour market (Ahmed &

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Chowdhury, 2024) and relatively lower confidence in businesses during shocks (Raihan et al., 2020a, 2020b, Raihan et al., 2021a, 2021b, 2021c, 2021d; 2022a). Generally, economic contribution creates the opportunity for women to interfere both in family and social issues. Nonetheless, in the rural economy, sometimes it doesn't matter whether a woman has economic power or not. They are dominated as usual. However, rural women may face significant barriers to expressing their opinions and influencing family decisions. In this regard, efforts to address the barriers and promote women's participation in decision-making processes can have important implications for women's economic empowerment and overall household well-being.

In addition, Bangladeshi rural women are more susceptible to shocks, which could make the nation's overall development objectives more challenging (Raihan et al., 2021e). Hence, improving women's economic empowerment to achieve SDGs is critically important. According to UN Women (2020), there is a strong correlation between the development goals of gender equality and the eradication of poverty, and empowering women also promotes inclusive economic growth, as highlighted by the worldwide experience. Against this backdrop, identifying the barriers and challenges associated with enhancing women's economic empowerment is crucial to finding the way forward and achieving multiple SDGs.

The primary objective of this study is to investigate the factors associated with enhancing women's economic empowerment in rural Bangladesh. Some of the specific objectives are presented as follows:

- To construct a composite index on women's economic empowerment (WEE), and analyze the index across sub-indicators of WEE in different domains;
- To identify the association of women's demographic, socioeconomic, household-level statistics, social norms, cultural beliefs, etc., with WEE;
- To identify the obstacles and facilitators for WEE in rural Bangladesh; and
- To provide recommendations for developing policies and interventions that can improve the economic empowerment of women in rural Bangladesh.

LITERATURE REVIEW

Women who are empowered have easier access to social and material resources, including knowledge, status, and influence within the family and community, as well as resources like

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food, land, money, and other types of wealth (Paul et al., 2016). Empowerment is granting authority and power, and when we talk about women's empowerment, we're talking about providing women authority and power (Hossain, 2011). Women must acknowledge their strategic needs, social standing, and the extent to which it is coercive to achieve this.

Gaining more economic clout gives women more influence over domestic matters and encourages them to spend an unusual amount of money on their daughters' and boys' education, health, and nutrition (Ahmed & Zubayer, 2024; Zubayer et al., 2025). Additionally, they have more control over fertility. Since fertility and the rise of the national income go in opposite direction, their educated daughters likewise have lower fertility. Additionally, there is a correlation between women's economic empowerment and a decline in armed conflict, corruption, and long-term violence against women. It is even tangentially associated with improved environmental management and maybe lower HIV prevalence (Blumberg, 2005).

Paul et al. (2016) pointed out that women's empowerment has been defined by taking a multifaceted approach to issues that are indicated by factors such as education, talking with partners about family planning, participating in the major decision-making process at home, occupation and freedom of movement, legal rights along with political representation, and, lastly yet importantly, age at marriage. They also claim that various studies have depicted that a woman, most of the time, may experience empowerment in some spheres of life but not in others.

One of the determinants of women's economic empowerment is education Aregu et al., (2017), Vishal (2015), and Taye (2014). With an education, women can take on more autonomy or authority in traditional gender-stratified and egalitarian households, providing them more control over their own lives and a stronger voice in decisions that positively impact their families and themselves (Paul et al., 2016). Academics contend that education raises people's knowledge of the essential rights of all people (Tijani & Yano, 2007). Furthermore, education and skill development helped women's socioeconomic standing, gave them the ability to fight for and defend their rights more successfully, and helped address sociocultural norms that negatively impact women's wellbeing (Khan & Noreen, 2012). Women with advanced degrees see the world from fresh angles, which encourages them to be more proactive in making decisions, to work hard, to value themselves, and ultimately to be more self-assured (Soharwardi & Ahmad, 2020)

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Kuma and Godana (2023) found that 69% of the rural women were not empowered. They found education level to be positively associated with women's economic empowerment. Kithuka and Otuya (2016) tried to assess the determinants of women economic empowerment in Machakos County. Their research found that 87% of the participants stated that a woman's ability to handle her finances is influenced by her educational background. The majority of respondents who stated that their decision to borrow loans depends on their degree of education also mentioned that borrowing decisions are heavily influenced by education. The goal of Didana (2019) was to examine the factors that influence rural women's economic empowerment in the Damot Gale Woreda through agricultural pursuits. From four chosen kebeles, 369 sample farm households were chosen at random. The study found the level of education significantly affecting economic empowerment through agricultural activities.

Many women are ignored and denied the opportunity to enrol in school in Bangladesh's rural communities. However, those who can enrol find it difficult to finish their education because of early marriage, which is linked to the socioeconomic circumstances of the women's family (Hossain, 2011). According to Hossain (2011), the family restriction posed a danger to higher education, due to religious beliefs.

Early marriage is another factor that hampers women's empowerment, since this sabotages the opportunities for youngsters, especially girls, to pursue their dreams. Hossain (2011) opined that girls are seen by guardians as a burden. Thus, they consistently attempt to wed them. Additionally, early marriage negatively affects the physical health of young girls who are forced to marry someone much older than them. Early marriage typically results in early parenthood, and pregnancy-related illnesses frequently pose a threat to the lives of young women (Parveen & Leonhäuser, 2004). Furthermore, this study also states that the most unfair and discriminatory social behaviour directed towards women is the system of forced marriages based on dowries, which severely hurts young girls' or even women's mental health.

The foundation of any economy is finance, which has the power to restrict the amount of economic activity in a given person, community, or nation. According to Khor & Pencavel (2006), empirical evidence from numerous countries indicates a correlation between reduced inequality and increased women's household income. According to Adegoroye and Adegoroye (2008) research, financial constraints and limited credit availability work against women's economic empowerment. Additionally, Magaji and Aliyu (2007) discover that credit has a substantial impact on the majority of women empowerment measures and influences physical

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individuality. Furthermore, according to Malami (2008), one of the primary issues preventing women from achieving economic empowerment is a lack of enough funding. If funding is available, this will help to improve women's economic status and, as a result, lower the rate of poverty. According to Damisa and Yohana (2007), the yearly farm income from the sale of crops, livestock, vegetables, and other agricultural products boosts farmers' financial capacity and raises the likelihood that they will invest in and use new technologies and empowerment practices. Islam et al., (2012) talk about the freedom to spend own hard-earned money. Women spend their income whenever their families need it. Rural women also tend to spend their earnings on their children's education in order to ensure a better future for them, in family emergencies and purchase gifts for their children on religious as well as cultural occasions.

In Bangladesh, rural women typically do not own land; instead, their husbands' names are on the title papers (Islam et al., 2012). For which, they do not have capacity to raise voice in order to place their opinions, let alone involvement in decision-making process, in their respective households. For a woman to be economically empowered and to support her own prosperity, she must have access to and control over property. The aforementioned issue is extremely important because it involves women's greater self-respect, honor from their own families, economic prosperity, unrestricted movement, and decision-making authority (Klugman et al., 2014). Didana (2019) finds that owning property strengthen Ethiopian rural women's economic empowerment. According to the model result's marginal effect, women who own property are 33% more likely to feel powerful than women who don't. Margaret (2015); Gebrat (2013), and Mariam et. al., (2014) have found similar types of results for Kenya, Sekota woreda and Pakistan, respectively.

Rural women gain empowerment by participating in household decision-making, a further determinant of women's empowerment, through these traditional methods of poultry rearing activities (Roy, 2013).

The majority of households in rural Bangladesh struggle with a lack of access to basic necessities including food, clothes, shelter, medicine, etc. Typically, a rural man toils in the fields to provide food for his family and take care of their basic necessities (Islam et al., 2012). Women tend to take care of their husbands, children and in-laws. They are supposedly required to cook, clean and work in their domestic spheres only. Nevertheless, sometimes they occasionally take on men's assigned tasks with respect to the division of labour in the home, but both the male members of the family and the wider public typically do not value the labour

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they perform (Hossain, 2011). Nonetheless, women, in rural areas have been participating in poultry rearing activities for the last couple of years. This has not only complemented women's empowerment but also helped to boost up economic growth by inducing more poultry production, such as eggs and chickens, in the economy. Given the aforementioned difficulties faced by rural households, the best method to harness women's ability to be productive and contribute value to the family is through domestic poultry keeping (Islam et al., 2012). This activity has changed the behaviour of the husbands, one of the determinants of women's empowerment, towards their wives, since they have started earning and spending in, and for, the family too (Islam et al., 2012).

According to the World Bank (2014), an increasing body of research demonstrates that gender differences impede agricultural production and expansion. It has been noted that the current disparity in gender between male and female farmers, with women having less access to resources like land, financing, and technology, lowers business productivity (Ahmed and Naher, 2021; Raihan et al., 2024) and, consequently, production overall. It is quite evident that women lack proper training in ICT more than men, for which their productivity, not only in the agricultural sector but in every sector, decreases. With an emphasis on the influence of ICTs on women's empowerment, Nikulin (2017) conducts a panel study covering 60 developing nations between 2000 and 2014. The study demonstrates that, overall, there is a positive correlation between the percentage of women who participate in the workforce and the use of ICTs, as indicated by the number of people with mobile phone subscriptions and Internet usage per 100 people. Furthermore, it appears that women are more likely to participate in the labor force in an economy where there is greater wealth inequality.

Based on the literature review, a couple of key indicators of women's empowerment can be observed such as (1) their educational qualification, (2) their husbands' behaviour towards them, (3) whether they are earning, that is they have their own disposable income, (4) freedom of spending their income; the control over their own money, (5) decision making power in their own household, (6) Ownership of productive assets by women, including land, livestock, and equipment, and (7) accessibility of proper training in ICT to women.

METHODOLOGY

This study employs both quantitative and qualitative approaches. Primary data were collected through surveys and key informant interviews (KIIs). A Women Empowerment Index was constructed using the primary data to quantitatively measure the extent of women's

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empowerment in rural Bangladesh. Finally, regression analysis was performed to identify the factors influencing women's economic empowerment.

Primary Data Collection

As a part of primary data collection, this study conducted a primary survey followed by some key informant interviews (KIIs). The specific methodology is presented as follows:

Primary survey

To understand the ground-level perspective of this study on the determinants of women's economic empowerment in rural Bangladesh, a primary survey in rural areas using a purposive sampling technique was undertaken. The study selected four districts for the survey: Satkhira in the southern part of the country, Netrokona in the northwestern part, Pabna in the northern part, and Tangail in the central part. The sample size and its distribution is as follows:

Table 1: *Sample size by districts*

District Name	Sample Size	Percent
Netrokona	100	25%
Pabna	100	25%
Satkhira	100	25%
Tangail	100	25%
Total	400	100%

To conduct the survey in each district, an Upazila from each district was selected using simple random sampling. From this Upazila, two unions were selected randomly. Within each union, again, two villages were chosen at random. As a result, ultimately, four villages were selected from each upazila. Current research conducted approximately 25 surveys in each village, totalling 100 surveys from the four selected villages per district.

Construction of the Women Empowerment Index (WEE)

To construct the WEE, this study has followed a systematic approach. First, reviewing the literature on the measurement of WEE from both international and national perspectives. Second, identifying five broad indicators along with several sub-indicators under each. Third, assigning weights to each sub-indicator so that the weighted WEE score would range between 0 and 1.

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Based on the literature review, the selected five indicators are as follows:

(1) Production: Women's participation in decision-making over productive and income-generating activities.

(2) Resources: Women's ownership and decision-making power over productive resources.

(3) Income: Women's control over expenditure from their own income.

(4) Digital Literacy: Women's digital literacy.

(5) Household Expenditure Decision**:** Women's participation in household expenditure decisions.

Several sub-indicators under each of the broad indicators are also stated below. Table 2 shows the broad and sub-indicators of WEE index.

Table 2: *The indicators of the women's economic empowerment index*

Broad domain	Indicators	Sub indicators	Definition
Production (1/5)	Input in income generating activities (1/10)		=1 if she has significant input in the household decision on income generating activities;0 otherwise
	Employment/occupation choice (1/10)		=1 if her decision has significant importance to her occupational choice; 0 otherwise
Resources (1/5)	Ownership of assets (1/10)	Land (1/30)	=1 if she owns land; 0 otherwise
		House (1/30)	=1 if she owns house; 0 otherwise
		Large livestock (1/30)	=1 if she owns large livestock; 0 otherwise
	Access to and decision on credit (1/10)		=1 if her decision on credit has significant importance; 0 otherwise
Income (1/5)	Control over use of income (1/10)		=1 if she can spend her income independently; 0 otherwise
	Earning status (1/10)		=1 if she is an earner; 0 otherwise
Digital literacy (1/5)	Having banking/mobile banking account (1/15)		=1 if she has a bank/mobile bank account; 0 otherwise
	Having a mobile phone (1/15)		=1 if she owns a mobile;0 otherwise
	Have used computer/internet (1/15)		=1 if she has ever used computer/internet; 0 otherwise

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Household expenditure decision (1/5)	Expenditure on basic needs (1/5)	Food (1/25)	=1 if she has significant input to the household spending decision on food; 0 otherwise
		Housing (1/25)	=1 if she has significant input to the household spending decision on housing; 0 otherwise
		Healthcare (1/25)	=1 if she has significant input to the household spending decision on health; 0 otherwise
		Education (1/25)	=1 if she has significant input to the household spending decision on education; 0 otherwise
		Clothing (1/25)	=1 if she has significant input to the household spending decision on clothing; 0 otherwise

Note: *Individual index and sub-index weights are in the parentheses*

A total of 16 indicators across five broad domains were considered for constructing the Women's Economic Empowerment (WEE) index. Each broad indicator was assigned an equal weight (1/5 of the total 100), while the weight of sub-indicators within each broad indicator was divided equally among them based on their number. For example, under the production domain, which has two indicators, each carries a weight of (1/10). The empowerment score for each indicator was calculated by adding the weighted scores of its indicators and sub-indicators. These scores for the broad domains were then summed to calculate the overall WEE index score at the household level, which ranges from 0 to 100. A higher WEE score indicates greater empowerment.

Method for Secondary Data Analysis

To understand the factors influencing the female labor force participation rate in rural Bangladesh this study has applied the logit model, which is appropriate given the binary dependent variable and offers a straightforward interpretation. To analyze the determinants of earnings for female workers in rural Bangladesh, present research has applied the Ordinary Least Squares (OLS) method.

RESULTS AND DISCUSSION

Empirical Results Using Secondary Data

Determinants of female labor force participation in rural Bangladesh

Female labor force participation is a key determinant of women's economic empowerment. Higher labor market participation by women leads to greater empowerment for women in the

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country. Therefore, it is essential to understand the factors influencing the female labor force participation rate in rural Bangladesh. To analyze this the logit model is applied, which is appropriate given the binary dependent variable and offers a straightforward interpretation. Before interpreting the regression results, it is imperative to examine the explanatory variables and their descriptions. Table 3 provides an overview of the variables used in the logit regression and their descriptions.

Table 3: *Variable names and their description*

Variable name	Variable Description
age	Age of the women
age2	Age squared of the women
no_edu	=1 if the women have no education, reference category
pri_edu	=2 if the women have completed the primary education
sec_edu	=3 if the women have completed the secondary education
hsec_edu	=4 if the women have completed the higher secondary education
tertiary_edu	=5 if the women have completed the tertiary education
madrasha_edu	=6 if the women have completed the madrasah education
Training	1=if the women received vocation training in the last 12 months, 0=otherwise
married	1=if the woman is married, 0=otherwise
Head	1=if the woman is the head of the household, 0=otherwise
hhzize	Number of members in the family
hhland	Landholding of the household
Islam	1=if the women's religion is Islam, 0=otherwise.

Table 4 presents the estimated coefficients, odds ratios, and average marginal effects from the logit model. The average marginal effects indicate the probability of a woman's participation in the labor market compared to women who are not in the labor market. To interpret the results probabilistically, focus was given on the average marginal effects. For instance, if a woman's age increases by one year, the probability of her participating in the labor market increases by 4.7 percentage points. However, the negative sign of the age-squared term suggests that while women's participation in the labor market increases with age, it does so at a decreasing rate.

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Table 4: *Estimated results of the logit estimate (Dependent variable: Whether a female is in the rural labor market or not)*

VARIABLES	(1) Coefficient	(2) Odd Ratio	(3) Average marginal effects
age	0.301***	1.351***	0.0469***
	(0.00333)	(0.00450)	(0.000453)
age2	-0.00373***	0.996***	-0.000582***
	(4.28e-05)	(4.26e-05)	(5.85e-06)
pri_edu	-0.266***	0.767***	-0.0414***
	(0.0205)	(0.0157)	(0.00319)
sec_edu	-0.122***	0.885***	-0.0192***
	(0.0207)	(0.0183)	(0.00327)
hsec_edu	0.269***	1.308***	0.0436***
	(0.0406)	(0.0532)	(0.00665)
tertiary_edu	0.926***	2.524***	0.153***
	(0.0730)	(0.184)	(0.0120)
madrasa_edu	-0.991***	0.371***	-0.139***
	(0.224)	(0.0830)	(0.0261)
training	2.201***	9.030***	0.343***
	(0.105)	(0.950)	(0.0163)
married	0.336***	1.399***	0.0524***
	(0.0242)	(0.0339)	(0.00377)
head	0.423***	1.527***	0.0660***
	(0.0276)	(0.0421)	(0.00428)
hhsize	-0.0426***	0.958***	-0.00665***
	(0.00417)	(0.00400)	(0.000649)
hhland	0.0648***	1.067***	0.0101***
	(0.0102)	(0.0109)	(0.00159)
islam	-0.319***	0.727***	-0.0497***
	(0.0243)	(0.0177)	(0.00378)
Constant	-5.663***	0.00347***	
	(0.0623)	(0.000216)	
Observations	115,173	115,173	115,173

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Higher education significantly influences women's participation in the labor market of rural Bangladesh. A woman who has completed higher secondary education has a 4.4 percentage point higher probability of participating in the labor market compared to a woman with no education. If a woman has completed tertiary education, this probability increases by 15.3 percentage points. In contrast, women with primary, secondary, or madrasa education are less likely to participate in the labor market compared to those with no education.

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Training is another critical factor for human capital development, significantly impacting women's participation in the labor market. Women who received vocational training have a 34.3 percentage point higher likelihood of participating in the labor market compared to those who did not receive such training.

Marital status also affects labor market participation. Married women have a greater likelihood of participating in the labor market. Similarly, women who are heads of their households are 6.6 percentage points more likely to participate in the labor market than those who are not.

Conversely, larger household size poses a barrier to labor market entry. For instance, as household size increases, women's participation in the labor market decreases by approximately 1 percentage point.

Religion is another important factor. Women who follow Islam are less likely to participate in the labor market compared to women of other religions.

Determinants of earnings for female workers in rural Bangladesh

This study also explored the determinants of earnings for female workers in rural Bangladesh, as earnings are a crucial determinant of women's economic empowerment (WEE). To analyze this, the Ordinary Least Squares (OLS) technique was performed. Table 5 provides an overview of the variables and their descriptions.

Table 5: *Variable names and their description used in the OLS regression*

Variable names	Variable description
no_edu	=1 if the women have no education, reference category
pri_edu	=2 if the women have completed the primary education
sec_edu	=3 if the women have completed the secondary education
ssc/hsc_edu	=4 if the women have completed the SSC or HSC education
tertiary_edu	=5 if the women have completed the tertiary education
exp	Experience of the women
exp2	Experience squared of the women
married	1=if the woman is married, 0=otherwise
training	1=if the women received any vocational training in the last 12 months, 0=otherwise
lnhhincome	Log of the household income
head_prisec	1=if head of the household completed primary or secondary education, 0=otherwise
head_hscssc	1=if head of the household completed HSC or SSC education, 0=otherwise
head_unipassed	1=if head of the household completed university education, 0=otherwise

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head_agri	1=if head of the household is employed in agriculture, 0=otherwise
head_selfemployed	1=if head of the household is self-employed, 0=otherwise
paid_employed	1=if the woman is paid employee, 0=otherwise
full_time	1=if the woman is employed on a full-time basis, 0=otherwise
work_dur	Women's hours of work in a week
written	1=if the women's job contract is written, 0=otherwise
formal	1=if the woman is employed in the formal sector, 0=otherwise
elem	1=if the women employed in elementary occupations

Table 6 presents the estimated coefficients from the OLS regression. The coefficients for education variables are positive and highly significant, indicating that education is a key determinant of earnings. The higher the education level, the higher the earnings. The coefficient for experience is positive, while the coefficient for experience squared is negative, suggesting that earnings increase with experience but at a decreasing rate.

The coefficients for marital status and training dummies are statistically insignificant. Household income positively impacts women's earnings, as higher household income often leads to better access to education and training, resulting in greater human capital and higher earnings. Additionally, the higher education level of household heads positively influences women's earnings.

If the head of the household is employed in agriculture, women's earnings decrease. Conversely, if the head of the household is self-employed, women's earnings increase. Women who are paid employees earn more compared to other types of employment.

Several workplace characteristics also significantly affect earnings. Women employed full-time earn more than those employed part-time. Similarly, women with written contracts and those working in formal sector jobs have higher earnings. However, women employed in elementary occupations tend to earn less.

Table 6: *Estimated coefficients of the OLS regression (Dependent variable: Log of earnings)*

VARIABLES	(1) lnearn
pri_edu	0.0640**
	(0.0274)
sec_edu	0.149***
	(0.0317)
ssc/hsc_edu	0.378***
	(0.0445)
tertiary_edu	0.438***
	(0.0508)

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exp	0.00951***
	(0.00228)
exp2	-0.000120***
	(3.45e-05)
married	-0.0268
	(0.0187)
training	0.0792
	(0.0659)
lnhhincome	0.197***
	(0.0158)
head_prisec	0.00158
	(0.0218)
head_hscssc	0.0994***
	(0.0332)
head_unipassed	0.0773*
	(0.0454)
head_agri	-0.0557***
	(0.0187)
head_selfemployed	0.120***
	(0.0203)
paid_employed	0.423***
	(0.0516)
full_time	0.125***
	(0.0221)
work_dur	0.00160***
	(0.000537)
written	0.0823***
	(0.0216)
formal	0.116***
	(0.0290)
elem	-0.212***
	(0.0232)
Constant	5.845***
	(0.206)
Observations	4,122
R-squared	0.359

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Analysis of Women Empowerment using primary data

At the national level, the WEE index stands at 65.1. Pabna and Tangail districts scored above the national average, with Pabna achieving the highest score (80.3), indicating high empowerment among women in that district. Tangail scored 68.5 on the WEE index. Netrokona and Satkhira scored the lowest, with a score of 55.7 each.

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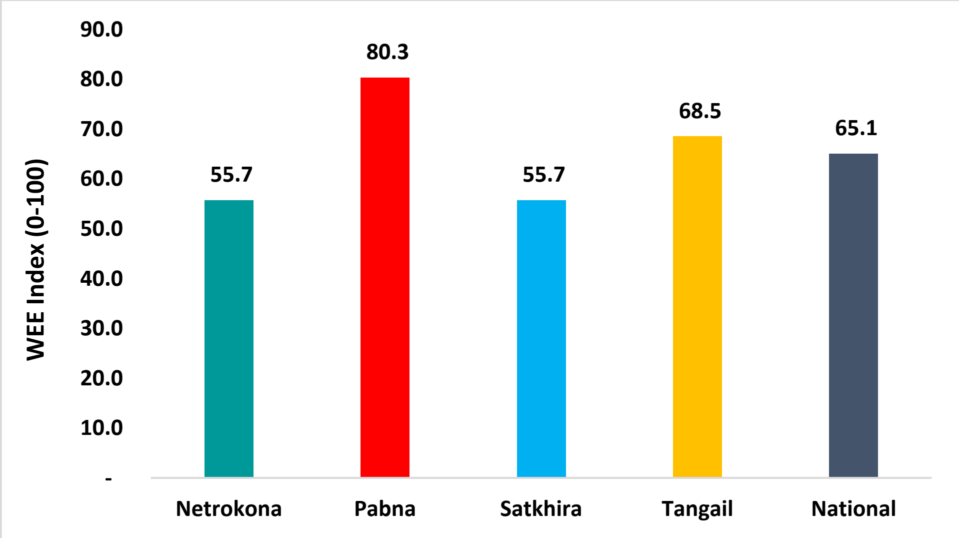

Figure 1: WEE index (0-100) by district and national level

Source: Authors' primary survey 2023

The Women's Economic Empowerment (WEE) index was further disaggregated into five broad sub-indicators, each ranging from 0 to 20. At the national level, the scores for the sub-indicators are as follows: expenditure decision (17.5), production (15.7), income (12.2), digital literacy (10.3), and resources (9.4).

Within the production domain, Pabna achieved the highest score (19.5), followed by Tangail (16.8), Netrokona (16.0), and Satkhira (10.4). For the resources sub-indicator, Pabna scored highest (10.6), followed by Tangail (10.4), Satkhira (9.7), and Netrokona (6.9). In the income domain, Pabna scored highest (19.1), followed by Tangail (11.4), Satkhira (9.5), and Netrokona (8.9). Regarding digital literacy, Pabna obtained the highest score (12.7), followed by Satkhira (12.1), Tangail (11.1), and Netrokona (5.5). For expenditure decisions, Tangail scored the highest (18.8), followed by Netrokona (18.4), Pabna (18.4), and Satkhira (14.1).

Table 7: *WEE index (0-100) by sub-indicators*

	Production (20)	Resources (20)	Income (20)	Digital literacy (20)	Expenditure decisions (20)
Netrokona	16.0	6.9	8.9	5.5	18.4
Pabna	19.5	10.6	19.1	12.7	18.4
Satkhira	10.4	9.7	9.5	12.1	14.1
Tangail	16.8	10.4	11.4	11.1	18.8
National	15.7	9.4	12.2	10.3	17.5

Source: Authors' primary survey 2023

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Using the survey data, present study aimed to understand the factors influencing Women's Economic Empowerment (WEE) in rural Bangladesh through Ordinary Least Squares (OLS) regression. Dependent variable in this analysis is the WEE index, which ranges from 0 to 100. Below are the explanatory variables used in this study.

Table 8: *Variable names and their description used in WEE analysis*

Variable name	Variable description
age_w	Age of the woman
age2_w	Age squared of the woman
child_w	Children of the woman
head_w	=1 if the woman is the head of the household, 0=otherwise
hh_earners	Number of earners in the household
govt_employee	=1 if the woman is a government employee (reference category)
pri_employee	=2 if the woman is a private employee
self_employed	=3 if the woman is self-employed
day_labourer	=4 if the woman is a day labourer
family_helper	=5 if the woman works contributing as a family helper
maidservant	=6 if the woman is a maidservant
housewife	=7 if the woman is a housewife or homemaker
no_edu	=1 if the woman has no education (reference category)
pri_edu	=2 if the woman has completed primary education
sec_edu	=3 if the woman has completed secondary education
SSC/HSC_edu	=4 if the woman has completed SSC or HSC education
tertiary_edu	=5 if the woman has completed tertiary education
inc_w	Income of the woman
motiv	=1 if the woman gets the motivation to engage in income-generating activities, 0=0therwise
training	=1 if the woman received any training on income-generating activities, 0=otherwise
mkt_part	=1 if the woman participated in the market transaction (either buying or selling), 0=otherwise

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access_inf	=1 if the woman has at least one of the accesses to information (frequency of watching TV, frequency of listening to radio, and frequency of reading newspapers), 0=otherwise
access_social	=1 if the woman has at least one of the accesses to social media (such as Facebook, Youtube, LinkedIn, Instagram, etc.), 0=otherwise

Table 9 presents the determinants of Women's Economic Empowerment (WEE). The coefficient for age is positive, but the coefficient for age squared is negative, indicating that women's economic empowerment increases with age but at a decreasing rate. The presence of children has a negative and highly significant coefficient, suggesting that women's economic empowerment decreases with the number of children they have. Women who are heads of households experience higher levels of empowerment, and empowerment also increases with the number of earners in the household.

Occupation significantly influences women's economic empowerment. Women working as day laborers, family helpers, or housewives have lower empowerment compared to those employed in government positions. Higher education plays a positive role in enhancing WEE; women with SSC/HSC or tertiary education have higher empowerment compared to those with no formal education. Economic empowerment also increases with women's income.

Participation in income-generating activities and receiving training related to these activities enhance women's empowerment. Additionally, access to information and social media positively contributes to economic empowerment.

Table 9: *Estimated results of the OLS regression (Dependent variable: WEE index)*

VARIABLES	(1) wee	(2) wee	(3) wee	(4) wee
age_w	1.119**	0.790*	0.557	0.698*
	(0.468)	(0.444)	(0.447)	(0.408)
age2_w	-0.0118**	-0.00916*	-0.00649	-0.00575
	(0.00553)	(0.00524)	(0.00524)	(0.00480)
child_w	-2.952***	-2.697***	-1.594**	-1.910***
	(0.823)	(0.781)	(0.778)	(0.705)
head_w	12.65***	7.720***	6.906**	13.15***
	(2.971)	(2.881)	(2.872)	(2.601)
hh_earners	4.376***	2.103	0.143	2.998***
	(1.293)	(1.288)	(1.287)	(1.132)
pri_empoyee			-0.950	
			(5.317)	

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self_employed			-5.332	
			(6.134)	
day_labourer			-18.06***	
			(6.790)	
family_helper			-23.74***	
			(4.908)	
maidservant			-7.570	
			(7.026)	
housewife			-27.51***	
			(4.777)	
pri_edu	-0.262			
	(3.023)			
sec_edu	4.655			
	(3.144)			
SSC/HSC_edu	10.07***			
	(3.235)			
tertiary_edu	17.67***			
	(4.964)			
inc_w		0.00110***		
		(0.000146)		
motiv				13.43***
				(1.952)
training				6.841***
				(1.972)
mkt_part				6.851***
				(1.827)
access_inf				5.123***
				(1.868)
access_social				10.73***
				(2.080)
Constant	35.39***	47.44***	77.56***	24.09***
	(9.551)	(8.574)	(10.45)	(7.989)
Observations	400	400	400	400
R-squared	0.163	0.225	0.292	0.387

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

POLICY RECOMMENDATIONS

Regarding education and skill development, it is suggested that the government should expand the access to education at all levels, particularly focusing on secondary and tertiary education for women in rural areas. The government should further Develop and scale up vocational training programs tailored to rural women, emphasizing skills relevant to local economic opportunities and emerging sectors. Implementation of the initiatives to improve digital literacy among rural women is another concern which will ensure women’s effective utilization of technology for learning, entrepreneurship, and accessing information.

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To encourage actions that generate revenue through targeted training and financial support, the government should make it easier for women to engage in income-generating activities, encouraging entrepreneurship and financial independence. Promoting policies that eradicate gender discrimination in hiring, compensation, and advancement procedures is something the authority should support in order to facilitate women's admission into formal job sectors by guaranteeing equal employment chances. Another crucial issue is expanding access to local and regional markets where goods and services generated by women living in rural areas are exchanged. Improving market accessibility will support both market integration and economic growth.

For women to fully engage in economic activities, the government should implement work-life balance-promoting measures, such as flexible work schedules, inexpensive childcare, and parental leave. It is advisable for women to form community networks and support organizations that facilitate mutual support, skill sharing, and mentoring among female entrepreneurs and workers.

To ensure that women have access to government programs, financial services, and market information, the relevant authority needs to increase access to information and communication technologies (ICTs) in remote areas. To raise the the voices and influence of women, society should support their involvement in decision-making at all levels, including local development planning and community governance.

Society should support legislative reforms in order to improve their level of economic security and autonomy. Women's property rights, including those related to land ownership and inheritance, would need to be protected under the reform. In order to combat damaging gender stereotypes and advance fair standards for women's economic responsibilities and contributions, the local government should start awareness programs and community discussions.

In order to utilize resources and expertise for comprehensive women's empowerment projects, multi-sectoral methods should have been in place to encourage collaborations between government agencies, non-governmental organizations, academia, and business sector entities.

Finally, in order to contribute to more comprehensive national development objectives, the aforementioned initiatives need to be in line with the SDGs, especially Goal 5 (Gender Equality) and Goal 8 (Decent Work and Economic Growth).

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CONCLUSION

Women's economic empowerment is not merely a matter of economic output but a fundamental human right and a cornerstone of sustainable development. This study has delved into the determinants influencing women's economic empowerment in rural Bangladesh.

The findings underscore the pivotal role of education in empowering rural women. Access to quality education, particularly at secondary and tertiary levels, emerges as a key determinant positively influencing women's economic participation and earnings. Vocational training tailored to local contexts further enhances women's skills and entrepreneurial capabilities, enabling them to capitalize on economic opportunities. Moreover, the study highlights the significance of supportive policy frameworks that foster women's economic agency. Family-friendly policies, including childcare support and flexible work arrangements, are essential in enabling women to balance productive roles with caregiving responsibilities. Equally crucial are initiatives that promote gender-sensitive employment practices and eliminate barriers to women's entry and advancement in the formal labour market. Beyond education and employment, access to information and digital literacy plays a transformative role in enhancing women's economic empowerment. Bridging the digital divide empowers women with essential information, facilitates market access, and expands opportunities for financial inclusion.

As evident by the analysis, empowering rural women economically not only benefits individual women but also catalyzes broader societal development. By investing in women's economic empowerment, Bangladesh can unlock untapped potential, accelerate poverty reduction (Raihan et al, 2020c, 2022b, 2023) and advance towards achieving the Sustainable Development Goals (SDGs), particularly Goal 5 on Gender Equality and Goal 8 on Decent Work and Economic Growth.

In conclusion, sustained commitment from policymakers, civil society, and the private sector is essential to translate these findings into actionable policies and programs that foster inclusive and sustainable economic development, ensuring that no woman is left behind in the journey towards a more equitable and prosperous Bangladesh.

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