

# **Research Report**

SD-18: A critical assessment of financial literacy of  
migrant workers and their access to financial services  
in destination countries

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Bangladesh

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## **List of Abbreviations**

DSE	Dhaka Stock Exchange
CSE	Chittagong Stock Exchange
FGD	Focused Group Discussion
DSEx	DSE Broad Index
GFC	Global Financial Crisis
Fintech	Financial Technology

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## **1. Introduction**

Financial literacy of citizens or working people is often termed as the key facilitator of financial access (Khan, Siddiqui, & Imtiaz, 2022) of citizens or working people of a country. Financial access of the people working for a country develops the financial sector of the economy (Islam, Khan, Popp, Sroka, & Oláh, 2020). Therefore, financial literacy has captured a significant coverage of interest among the researchers and Governments and policymakers.

Financial literacy can play a significant role in determining the financial access of immigrant Bangladeshi workers. Financial literacy refers to the knowledge and understanding of financial concepts and products, which can enable individuals to make informed decisions about their financial lives.

Immigrant Bangladeshi workers, who often face language and cultural barriers in their host countries, may find it challenging to navigate the complex financial systems of their adopted countries. Lack of financial literacy can lead to a lack of knowledge about financial products, services, and opportunities, which can limit their access to financial services.

Studies have shown that individuals with higher levels of financial literacy are more likely to have access to financial services, such as bank accounts, loans, and credit cards. They are also more likely to make informed financial decisions and avoid costly financial mistakes.

In the case of immigrant Bangladeshi workers, improving their financial literacy can be particularly beneficial. It can help them to better understand the financial systems of their host countries, including the regulatory environment, financial products, and services available. It can also enable them to make better financial decisions, such as choosing the most appropriate financial products and avoiding high-cost financial services.

Efforts to improve financial literacy among immigrant Bangladeshi workers could involve education and training programs that focus on financial concepts and products relevant to their specific needs and circumstances. These programs could be delivered through a variety of channels, including community organizations, workplaces, and financial institutions.

Overall, improving financial literacy among immigrant Bangladeshi workers can be an effective way to promote financial inclusion and enhance their access to financial services and lead to better life.

Different development bodies are also emphasizing financial literacy around the globe resulting from global economic needs which made the area as of sustained and raising interest of researchers. On the other hand, the spread of ecommerce and ebanking has raised the emergence of financial literacy a step further. This has also eased the border barriers and made people capable to transact globally (Pham, Tran, Misra, Maskeliūnas, & Damaševičius, 2018), which may in turn result in sustainable development.

Financial literacy skills avoid and resolve financial troubles, which are essential to a prosperous, healthy, and happy life. Studies found that financial problems may cause divorce, mental illness, and other problems (Cleek & Pearson, 1985; Kinnunen & Pulkkinen, 1998; Yeung & Hofferth, 1998). Financial difficulty may also create loneliness, psychological strain, disappointment, and poor self-esteem, which can lead to material difficulties (Wolcott & Hughes, 1999). Thus, financial literacy will remain a prominent study area, with the emphasis on adopting and assessing measures to increase financial literacy in cohorts of people where past research has revealed a lack of financial knowledge and expertise (Roy Morgan Research, 2003). Thus, research is required to determine appropriate and accurate benchmarks for the ongoing measurement of financial literacy of the migrant workers and their access to financial services in the destination countries. Technology and needs for saving, investing, borrowing, retirement, medical, and insurance will also drive financial literacy study (Marcolin & Abraham, 2006).

### **1.1 The objectives of the research**

The proposed study is a novel one for the Bangladeshi migrants and the policymakers. The key objective of the research project is to ease the knowledge difficulties of Bangladeshi migrant workers at their destination countries. However, more specifically the major objectives of the project can be specified as follows:

1. Reveal the literacy level of Bangladeshi migrant workers about the financial services at their destination countries
2. Investigate the intention to access the financial services at destination countries.



3. Empirically investigate the impact of financial literacy to financial access of Bangladeshi migrant workers at destination countries.
4. Identify the problems if financial access of Bangladeshi migrant workers, and finally,
5. Identify the knowledge needs to improve financial literacy of Bangladeshi migrant workers.

### **1.2 Expected Outcomes of the research project**

Although, it is by circumstances assumed that, a majority of Bangladeshi migrant workers are less educated and are working around the globe. In most of the case they work and live in separate area of different countries. Therefore, they find a little chance for knowledge sharing and train each other in financial issues. This research project is expecting, firstly, with a diverse methodological application gather a confident knowledge about the literacy and skills currently borne by BMWs. This knowledge is expected to help the researcher to be able to visualize the scenario. Therefore, the research project, secondly, expects to assess the BMWs intention to access different formal financial channels at destination countries. Thirdly, an empirical understanding is logically expected to capture the impact of financial literacy to access financial services at destination countries. The theory of planned behavior (Ajzen, 1985, 1991) will be followed to find the scenario while as per prior literature a positive relationship is expected. Once the impact is found significant the proposed research project, fourthly, expects identify different issues that possibly hinder the literacy level of BMWs in regard to financial services. Finally, the proposed research project, expects to suggest policy guidelines for the Government of Bangladesh (GOB) and policy makers, that may improve the scenario and let BMWs better perform and contribute to the development of the country.

### **1.3 Relevance of the research to national development:**

This specific research project is expected to be highly relevant to the national development of Bangladesh. The migrant human resource is one of the largest foreign currency sources of Bangladesh. The BMWs transact the majority of their income into Bangladesh. Moreover, they often face difficulties in receiving money (salary/wage) and continue their regular financial/banking activities at the destination countries. Therefore, an uplift of their financial literacy is expected to ensure their better life

standard at destination country, better plan their life and manage their wealth at home country. As this research expects to reveal the reality and assess the necessity heading to their financial literacy, this research project is expected to add values in policy formulation which in turn benefit the country's prosperity.

## **2. Literature review**

The liberalization of financial markets, increasing availability of credit, quick credit card issuance, and rapid growth in financial product marketing have all raised the relevance of personal finance knowledge. Therefore, financial literacy is becoming more important.

However, in 2019, 4.9% of the destination nations' labor force consisted of 169 million migrant workers (ILO, 2021). They are a good source of earning foreign currency which requires financial knowledge to be transferred to the motherland from the destination countries. But it has evidence that migrants' lack of financial knowledge may hinder competitiveness and new product acceptance. A randomized experiment on migrant financial literacy training is reported where training seems to increase financial knowledge and information-seeking behavior and minimize the risk of switching to costlier remittance products, but it did not improve the frequency or quantity of transfer (Gibson et al., 2014).

Garg & Singh (2018) stated that components of financial literacy includes “financial knowledge, financial attitude and financial behavior”. They found that age, gender, income, marital status, and educational attainment affect youth financial literacy, as do financial knowledge, attitude, and behavior. Another evidence shows that money basics, borrowing, investing and protecting resources are four measures which also used as instruments to measure the financial literacy (Huston, 2010). Inflation knowledge, financial mathematics, financial knowledge, mathematics skills and cognitive reflection are listed as instruments to measure the financial literacy (Rieger, 2020). The measures financial literacy of target populations with questions based on basic knowledge of finance like knowledge about ATM, saving and investment decisions of individuals, day to day money transaction knowledge, risk management insights and perception about financial knowledge about oneself and others.

Previous studies have shown that individuals who are financially literate have “lower inflation expectations” (Bruine de Bruin et al., 2010). They understand the effect inflation on return (Lusardi & Mitchell, 2011b). They have a sense of greater empowerment to make investment decisions, and controlled spending behavior (Jariwala, 2014). In addition, individuals who are financially literate tend to borrow at

low costs and pay attention to fees (Bucher-Koenen et al., 2017; Lusardi & Mitchell, 2011a).

## **2.1 Financial Literacy**

Literacy refers to the comprehension (which refers to knowledge of words, symbols, and arithmetic operations) and application (refers to ability to read, write, and calculate) of writing, documents, and quantitative information (Huston, 2010). Financial literacy is the understanding of fundamental economic and financial principles, as well as the capacity to apply that understanding and other financial skills to properly manage financial resources for a lifetime of financial well-being (Hung et al., 2011). Commonwealth Bank Foundation (Foundation, 2004) defines financial literacy as “the ability to balance a bank account, prepare budgets, save for the future and learn strategies to manage or avoid debt”. It enables people to make smart and secure decisions about their budgeting, expenditure, and saving, as well as their usage of financial goods and services ranging from everyday banking to taking out loans, making investments, and long-term planning (ANZ, 2015).

The older population have faith in itself well financially knowledgeable but they are less literate even than average. In a comparison by gender, it is found that women are not as financially literate as men. Highly educated are well informed than others. Geographical and racial differences are also present among the city people and rural dwellers in Russia (Lusardi & Mitchell, 2011b).

The financial system of a country deals with receiving finance from surplus units and distribution of those in the form of capital to deficit units while individuals and households are the major portion of surplus units. The financial decisions of such units most often depends on financial literacy of individuals and family members (Vieira, 2012). In recent years, however, the emergence of the global financial crisis (GFC) has changed this development making it difficult for the economy to access foreign capital; the detrimental effect of the financial crises such as unemployment and poverty on economies has been documented (Baidoo, Boateng, & Amponsah, 2018) while COVID-19 has put the phenomena further. The critical question facing the government of Bangladesh now is which key variable to consider as the most influential determinant of domestic saving.

A number of theories have evolved over time to explain the behavior of individual consumption and savings. One of such theories is the absolute income hypothesis by Keynes (1937). It considers the current level of income as key determinant of consumption or saving. In a related theory, the relative income hypothesis propounded by Duesenberry (2019) asserts that income distribution plays a significant role in individuals' ability to save and aggregate savings in general. In contrast, Friedman (2018) contends that individuals' consumption behavior is influenced by what he termed 'permanent' income because in his view, a temporal change in income has little or no effect on household consumption spending. The life cycle hypothesis maintains that consumers spread their lifetime consumption over their entire accumulated savings during the active working age in order to smooth out or maintain the same consumption level during retirement (Deaton, 2021). The permanent income and life cycle hypotheses are considered as important theories of consumption and savings.

However, these theories however fail to recognize that financial literacy is closely tied to savings as it influences the ability of consumers to make informed decisions about when and how to save for future eventualities.

Policymakers in the developing world are increasingly recognizing the importance of financial literacy and of investing resources in financial education programs. Comprehensive national initiatives and programs funded by the World Bank, DFID, and other development donors are emerging all over the world (Xu & Zia, 2013).

The term migrant worker conveys a certain sense of mobility which often disguises the fact that many of them actually spend most of their time being grounded in one locality, either in the country of destination or in the home country when they return. In the countries of destination, a big number of migrant workers continuously extend their stay through either regular or irregular means. Researchers observe that ample levels of financial literacy will enable a person to plan for the future. In the case of the overseas migrant, planning for the migrant's and the family's long-term economic future begins prior to migrating abroad. However, some studies show that many migrant workers did not improve their income levels and (poor) financial literacy is one suspected reason for this failure. Overseas migrants coming from low economic backgrounds may be in such a state "due to their unawareness of fundamental economic concepts driving economic well-being during their working period" (Lacsina & Opiniano, 2017).

## **2.2 Access to Financial Services**

The administration, especially in emerging nations like Bangladesh, will need to place a primary emphasis on the development of reliable, trustworthy, and easily accessible financial institutions in order to meet the needs of the millions of individuals who are interested in safeguarding their economic future (Mazid, 2017).

Four outcomes measure financial inclusion. First, the proportion of persons having basic bank accounts at formal financial institutions, including mobile money accounts. (Karlan and Morduch, 2009; Brune et al., 2016). Debit card use also indicates financial inclusion. Bank accounts are less inclusive than debit cards. Debit cardholders get new generation benefits which is better than cash. These two criteria of financial inclusion should benefit from financial literacy, which is needed to make sophisticated financial decisions. Bank account savings is another variable. For protection, bank consumers should save in a formal institution. Finally, respondents having insurance also have

Beck et al. (2009) stated that three basic access and use evaluation methods had promise across demographics. Basic financial service users, companies' subjective service quality ratings, and physical and economic obstacles to access are measured. In the first approach, account holders of different formal or semi-formal financial institutions may receive services of varying quality and price; in the second, subjective service quality assessments may be unreliable; and in the third, data on some barriers (such as bank branch distance or documentary requirements to open an account) may be lacking.

## **2.3 Measuring Financial Literacy**

According to President's advisory council on financial literacy (Schwab et al., 2008), the term "financial literacy" may be understood in a number of different ways, such as (a) a certain kind of knowledge, (b) the competence or skills to apply that knowledge, (c) perceived understanding, (d) acceptable financial behaviour, and (e) even as financial experiences. Folke et al. (2021) introduced Assessment of Economic and Financial Literacy (ASSET), an instrument for measuring financial literacy, particularly for early adults to address **fundamental numeracy**, **financial knowledge**, and the **application of numeracy abilities** in financial states. They focused on four relevant variables (i.e., interest, inflation, investment, and exchange) to measure financial

literacy. A person having bank accounts and credit cards is also considered as financially literate (Mandell, 2008). Andrew (2006) employed gender, age, ethnicity, employment, level of education, income, savings, and amount of debt to examine the financial literacy and found it to be higher among 50–60-year-olds, professionals, company and farm owners, and college graduates. Unemployed, female, and low-educated non-English speakers have the lowest literacy rates.

### **2.3.1 Financial Numeracy and Access to Financial Services**

Nicolini & Haupt (2019) defines the financial numeracy as the ability to perform the basic arithmetic competency and computation when required in making any financial decisions and the long-term benefits.

### **2.3.2 Financial Knowledge and Access to Financial Services**

Financial access is expanding concerns for developing country decision-makers. According to Ardic et al. (2011), the global percentage of individuals without access to banking services is 56%, with variations observed between high-income (17%) and underdeveloped nations (64%). The year 2009 witnessed an enhancement in deposit services, notwithstanding a decline in savings and loans due to the worldwide financial crisis. The global financial sector experienced an increase of 65 deposit accounts per 1,000 individuals, while the amount of outstanding loans remained unchanged. The number of financial institution branches, automated teller machines (ATMs), and point of sale (POS) terminals has experienced a global increase. The study found that for every 100,000 adults, there is a provision of 167 new point-of-sale (POS) machines, five automated teller machines (ATMs), and one bank branch.

### **2.3.3 Application of Numeracy Abilities and Access to Financial Services**

Account ownership is an individual or joint account at a regulated organization as a bank, credit union, microfinance institution, post office, or mobile money service provider (World bank, 2022). 3% of adults with accounts reported having a debit card in their own name, receiving wages, government transfers, a public sector pension, or payments for agricultural products into a financial institution account or mobile money account in the past 12 months, or paying utility bills from a financial institution account (World bank, 2022).

Research suggests that basic banking services can help the poor, so policymakers are

focusing on ways to improve the banking sector in order to increase financial inclusion. But study by Ardic et al. (2011) shows that the global unbanked at 56% in 2011, looks at access to deposit and lending services and retail networks, and provides an annual report to inform policy. However, according to the Global Findex Database 2021, the global ownership of accounts increased from 51% to 76% between 2011 and 2021(World bank, 2022).



### **3. Research Methodology**

#### **3.1 The conceptual framework**

A technology adoption model that combines certain variables is being used in this study. Financial literacy includes knowledge and skills on financial technology (fintech) as well. Therefore, this study will make a literature synthesis of ‘Unified Theory of Acceptance and Use of Technology (UTAUT)’, followed by recent studies related with the conceptual model that it will be developing.

UTAUT is a theory put forward by Venkatesh, Morris, Davis, and Davis (2003), which is developed through a systematic comprehensive review of eight previous models: Diffusion of Innovation Theory (DIT), Theory of Reasonable Behavior (TRA), Social Cognitive Theory (SCT), Theory of Acceptance Model (TAM), Theory of Planned Behavior (TPB), Model of PC utilization (MPCU), Motivational Model (MM), and Combined TAM and TPB (C-TAM-TPB). UTAUT has three factors that directly influence behavioral intentions to use technology, namely performance expectations, effort expectations, and social influence. Referring to the fact that UTAUT is built from a combination of eight models and previous technology adoption theories, each of the factors that build UTAUT is also formed by a combination of certain factors from previous models and theories that have been refined (Venkatesh et al., 2003).

Performance expectations are explained as the level at which individuals believe that using technology will help in terms of their work performance, which can be explained as a condition where people will tend to adopt new technology when they have confidence that certain technology will help them in doing their work. This factor is formed by a combination of five different factors, the perceived benefits of TAM, external motivation of the Motivation Model, job suitability of the MPCU, the relative benefits of DIT, and expected results of SCT (Venkatesh et al., 2003).

Effort expectation explains the level of ease about the use of technology, which is more concrete, meaning people will tend to adopt new technology when they believe it will allow them to do less effort on it. This factor is formed by a combination of three

different factors, which are considered the use of TAM, the complexity of MPCU, and the ease of use of DIT (Venkatesh et al., 2003).

Social influence explains the level at which individuals perceive that it is important for others to believe that they must use certain technologies. There are three different factors that build social influence, namely subjective norms from TRA, TPB, and C-TAM-TPB, social factors from MPCU, and images from DIT (Venkatesh et al., 2003).

With a detailed study of the relevant theories, to explore the matter under consideration the current research proposes the following conceptual framework.

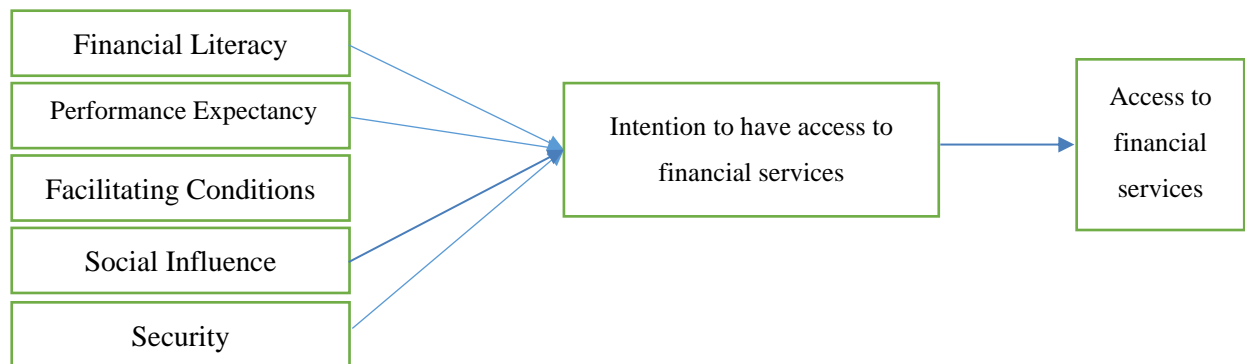


Figure 1. The conceptual model (Source: Author)

### **3.2 The Study Design**

The study is an observational design based one which considers participation of Bangladesh expatriates currently living and working in different destination countries. The study was principally designed to assess the effect of financial literacy of Bangladeshi migrant workers on their intention to use financial services and their access to financial services at their current destination countries. The study follows a UTAUT model framework to explore the issue and estimate the relationship using structural equation model (SEM).

### **3.3 Study Population**

The study is based on a sample of BMWs i.e. Bangladeshi migrant workers who are currently working abroad. Every year more than 0.4 million people from Bangladesh migrates to foreign countries for works (ILO, 2023). As per Bureau of Manpower Employment and Training (BMET) data A large portion of BMWs are low or moderately educated (Sultana & Roshid, 2020), therefore they may often face problems in doing financial transactions and access to financial problems. It is generally expected

that higher educated people are more prompt to learn and use financial knowledge and technologies. However, this study does not consider the difference between general educational levels and considers all expatriates as BMWs.

### **3.4 The inclusion and exclusion criteria**

While making the sample set, the study considered a number of inclusion and exclusion criteria.

The inclusion criteria of such sample includes:

- i. the participant should be a major (18+ of age)
- ii. the participant should be of sound health and mind.
- iii. the participant has returned to Bangladesh with in last one year.
- iv. the ethnicity differences are not considered and all Bangladeshi citizens who are currently BMWs may be included.
- v. the educational differences are not considered and all Bangladesh citizens who are currently BMWs had an equal chance to be included.

However, any minor and unsound mental health candidate will be avoided to be included in to the study.

### **3.5 Settings and Sampling**

The study was done based on a sample of BMWs. A convenient sampling technique was applied to reach the potential participants to the study. To determine the total sample size the study employed the procedure proposed by Kothari and Garg (2013). To reduce the chance of sample lack 30% data loss will be considered and add additional sample. However, before we go for the final survey, a pilot survey was conducted consisting a small sample of 30 participants to check the readability, reliability and validity of the questionnaire. After appropriate adjustments and modifications, the questionnaire was used for the final survey. Finally, the data was analyzed to reveal the practical reality existing in Bangladesh with structural equation modelling (SEM).

There are different ways and methodologies to determine a sample size. For the sample size determination, we need the number BMWs. As per 2020-21 annual report of

Ministry of expatriates welfare and overseas employment, currently 12 million BMWs are working overseas (Probashi, 2021). The number is considered a population to determine an expected sample size. Furthermore, as there is an equal opportunity of inclusion of BMWs from all educational groups, the study considers medium educated (secondary) sub-group as a base/benchmark for calculating the sample size (Ouyang & Nasrin, 2021). The educational percentage data comes from World Bank's World development index WDI (2021) which was approximately 75.5%.

To determine the total sample size we employ the procedure proposed by Kothari and Garg (2013). "The procedure determined sample size by dividing the multiplication result of the value of the standard variate, sample proportions, and population size with the summation of the multiplication results of the squared value of standard error and population size less 1, and the value of standard variate and sample proportions" (Ouyang & Nasrin, 2021). The procedure requires a selection of a population fraction. Thus we went for a fraction of total population based on education. As there were equal opportunity of inclusion ranging from uneducated to highly educated BMWs, we considered moderately educated proportion as fraction to calculate the sample size. Moreover, the fraction moderately educated BMWs are the largest fraction in case of Bangladesh and thus selecting this fraction would have the best representation of population.

The procedure works with the following formula to calculate the expected minimum sample size:

$$n^* = \frac{z_{\alpha/2}^2 * p * q * N}{e^2(N - 1) + z_{\alpha/2}^2 * p * q} \dots \dots \dots (2)$$

Where, N = size of the population = 12,000,000

$z_{\alpha/2}$  = the value of the standard variate at a given confidence level = 1.96 (for a 95% confidence level)

p = population proportion = 0.2838 [the percentage of population having upper secondary education]

q = (1-p) = (1-0.755) = 0.245

e = limit of acceptable error = 0.05

$n^*$  = sample size = ?

$$n^* = \frac{(1.96)^2 * (0.0.755) * (0.0.245) * 2992100}{(0.05)^2(2992100 - 1) + (1.96)^2 * (0.755) * (0.245)}$$
$$n^* = \frac{8527200}{30000.71}$$

$$n^* = 284.233$$

$$n^* \cong 284$$

Thus we found the minimum required sample size as 284 parents.

### **3.6 Data collection**

Prior to the final survey, we conducted a pilot survey in order to verify the readability and validity of this survey on a small sample of 20 participants. We found a minor revision was necessary to improve its readability and therefore made the revisions. In addition, we have added Bangali translations of questions/statements in brackets which have been placed adjacent to each sentence/question/response option. The researcher translated the material and tested and modified it by a Bengali Language and Literature Professor, Jatiya Kabi Kazi Nazrul Islam University, Bangladesh. Taking into account of BMWs corresponding to selected criteria of inclusion and exclusion, a total of 400 of questionnaires were distributed. We invited more people to participate in the survey due to the low response rate (Y. Guo, Kopec, Cibere, Li, & Goldsmith, 2016) that was suspected as it was studied on BMWs. We utilized different media to send the invitation to potential participants such as social media (e.g. facebook, emo, whatsapp), emails etc. The research assistants and 20 volunteers facilitated communicating the questionnaire. Furthermore, we extended the invitation to snowball techniques carried out by respondents who were mainly invited, to their convenience. For data collection the questionnaire was developed using the 'google forms'. The links of the forms to prospective respondents were shared by researchers and primarily selected volunteers via online. Respondents would first find a consent form to which they would have to respond with yes/no options at the start of the response process. They could move forward to answer demographic information questions only if they indicated their consent by selecting "yes." They were able to see and respond to questions about EBF after completing the demographic information. Participants could contact us at any time via email or phone with any questions they had. A total of 306 replies were received. Nonetheless, even after excluding incomplete responses, the minimum number required for our study was met. Even considering the exclusion criteria and

shorting the invalid and incomplete observations<sup>1</sup> out, we were able to keep 291 responses for further investigation. Despite the problem of convenience sampling, all dimensionalities (e.g., social class) were handled fairly when designing the sample. This meant BMWs from each dimension had an equal probability of being included. We further found that participants from all classes of age, occupation, income category, residence location, religions and education level were included in this sample (see Section 6).

### **3.7 The structural equation model (SEM)**

The SEM methodology has long been used for last couple of decades (Rappaport, Amstadter, & Neale, 2020) for empirical analysis and successfully gained researchers' acceptance as an excellent analysis tool. The methodology is especially accepted as an excellent one for multivariate analysis. The tool is based on path analysis which explore the effect of one variable to another (Kock, 2015). The SEM often measures models in practical research which are constructed with latent variables. The latent variable are the issues which cannot be measured directly (Bratianu, Prelipcean, & Bejinaru, 2020). The issues are measured indirectly usually via a set of questionnaires. For each latent variable a different set of questions may be developed and all can be combined into a questionnaire. The questions are commonly termed as items. The other type of variable that can be analyzed by SEM, is observed variable. This type of variables can be observed directly.

SEM has several significant advantages while estimating models containing latent and/or observed variables. With an assumption of observation independence SEM allows integration of conveniences and regression. Thus SEM construct a single model with a divergent relations i.e. multivariate multiple regression. Moreover, the latent factors are driven from item specific variances (Rappaport et al., 2020). SEM allows researchers to research on framework that has a final outcome variable but may have multiple interdependence within the model. Moreover, SEM is capable of estimating the relationships in confirmatory analysis. Thus SEM can estimate a complete research

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<sup>1</sup> The dataset was cleaned up by removing inaccurate, duplicate, obsolete, and incomplete observations.

model with multiple dependency points at the same time rather than constructing different models for each dependency points. As in practice each factors relating to certain happening may be interrelated, constructing different models may mislead the results. Even though, in traditional style, construction and estimation of different models are possible, the possibility of misled results due to ignorance of some factors while considering others are retained. The short coming can be removed by SEM as it considers all possible complexity of the relationship at the same go.

Moreover, partial least square based SEM provides researchers with the approach that can predict impact or causal effect of one variable or construct on the other (Hair, Risher, Sarstedt, & Ringle, 2019). That is the reason researchers are using SEM while they are to estimate complex and multilevel relationship models. In recent years, the tool has gained popularity among breastfeeding researchers as well (for example, J. L. Guo, Wang, Liao, & Huang, 2016; Spitzmueller et al., 2016) as it is capable to estimate the complex relationships and ideas of different factors on determining breastfeeding practices.

## **4. Data analysis and Results**

### **4.1 Evaluation of multivariate assumptions**

We began by analyzing the demographic characteristics of participants after receiving the data. Then we have reversed the reverse-encrypted items with standard procedure and carried out several pre-estimation tests to confirm that the data is ready and appropriate to verify readiness for multivariate analysis, such as multicollinearity tests, using correlation and variance influential factors (VIF). Low potential risk of multicollinearity is indicated by a correlation coefficient between constructs of less than 0.90 (Hair, Black, Babin, Anderson, & Tatham, 2006) and a Variance Influence Factor (VIF) of less than 10 (O'brien, 2007). However, the VIF is better to be lower than 3.3 to be free common method bias<sup>2</sup> (CMB) risks (Kock, 2015). Any presence CMB can lead to erroneous decisions depending on spurious correlation (Vishwanath, 2017), as well as cause type II error (Bozionelos, 2018).

We judged measurement models which included reliability measures such as, Cronbach's Alpha and Dijkstra-Henseler's rho; convergent validity measures such as, item loadings, composite reliability and average variance extracted (AVE) and discriminant validity measures such as, Fornell-Larcker criterion and Heterotrait-Monotrait Ratio. All the testes and criteria judged the reliability and validity of the model (Hair Jr, Hult, Ringle, & Sarstedt, 2016). The results of could indicate the fitness of our data for multivariate analysis. We fairly got assured about the absence of multicollinearity after finding the data fit for multivariate analysis, the constructs as true and accurate, and went for structural equation model path analysis, which was constructed in accordance with the TPB system, in this case. To meet the study

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<sup>2</sup> A phenomenon that is normally induced by the SEM measurement system rather than the relational results of the variables. (Kock, 2015).



objectives we had to investigate several linear relationships simultaneously between EBF factors, which could be done with a variance-based multi-group structural equation model (SEM) (Khayer, Talukder, Bao, & Hossain, 2019). SEM approach is able to handle different construction phases at a time when other modules, like multiple regressions, are inappropriate and have limited capacity in this respect (Teo, Tan, Ooi, Hew, & Yew, 2015). SEM driven path coefficients can indicate the association between variables while significance to the association is indicated by *t* and/or *p* values.

## 4.2 The respondent characteristics

At the beginning we analyzed the demographic details of the participants of the participants. Despite differences in percentage of participation, we found that respondents from all social groups were included in the study, which was typical in the health literature. (Bhowmik, Biswas, & Woldegiorgis, 2019; Su & Ouyang, 2016).

Table 1: The demographic details

Variable	Category	N=291 (n%)	
Age	18-25 Years	89(30.6%)	0.125
	26-33 Years	132(45.4%)	
	34-41 Years	48(16.5%)	
	42-49 Years	22(7.6%)	
Income	\$500 or lower	14 (4.8%)	0.076
	\$500-\$1000	78 (26.8%)	
	\$1000-\$1500	48(16.5%)	
	\$1500+	23(7.9%)	
	Not to disclose	128(44.8%)	
	Muslim	168(57.7%)	0.004
	Hindu	56(19.2%)	
	Buddhist	33(11.3%)	
	Christian	22(7.6%)	
	Others	12(4.1%)	
Home districts	Rajbari	23(7.9%)	0.010
	Shariatpur	25(8.6%)	
	Barisal	25(8.6%)	
	Noakhali	15(5.5%)	
	Jessore	15(4.8%)	
	Jhalokati	11(3.8%)	
	Brahmanbaria	12(4.1%)	
	Khulna	21(7.2%)	
	Bagerhat	18(6.2%)	
	Chandpur	24(8.2%)	
	Feni	11(3.8%)	
	Comilla	19(6.5%)	
	Rangamati	9(3.1%)	
	Barguna	18(6.2%)	
	Lakshmipur	9(3.1%)	
	Madaripur	21(7.2%)	
Tangail	5(1.7%)		

	Chittagong	6(2.1%)	
	Dhaka	4(1.4%)	

### **4.3 Names and acronyms of variables**

In this analysis, we looked at a variety of factors. For easing reading difficulties, we present the variable list and their respective acronyms here below:

<b>Acronym</b>	<b>Variable Name</b>
PE	Performance Expectancy
FL	Financial Literacy
FC	Facilitating Conditions
SI	Social Influence
IN	Intention
SE	Security
AFS	Access to Financial Services

#### **4.4 Evaluating of multivariate assumptions**

As part of preliminary analysis we undergo multivariate assumptions before we estimate the our hypothesis (Ooi, Lee, Tan, Hew, & Hew, 2018). The conducted various tests to validate the multivariate assumptions such as, Fornell-Larcker criterion and VIF etc.

*Table 3. Correlation coefficient of variables in accordance to Fornell-Larcker criterion*

	<b>AFS</b>	<b>PE</b>	<b>FL</b>	<b>FC</b>	<b>SI</b>	<b>IN</b>	<b>SE</b>
AFS	0.717						
PE	-0.280	0.689					
FL	0.519	0.345	0.792				
FC	0.811	0.276	0.255	0.866			
SI	0.265	0.434	0.067	0.297	1.000		
IN	0.445	0.239	0.498	0.346	0.278	0.786	
SE	0.229	-0.199	0.323	0.539	-0.087	0.576	0.689

Multicollinearity in research data is a serious problem that can distort research results and lead to misleading conclusions (Islam et al., 2018). The issue can be confirmed by checking the correlation coefficients driven by Fornell-Larcker criterion (Khayer et al., 2019) which is presented in Table 4. By checking the pairwise values we find that all are lower than 0.90. The correlation coefficients lower than 0.90 significantly represent a very low chance of multicollinearity between the variables (Hair et al., 2006). Thus we find that our variables qualify the multicollinearity issue and suitable for multivariate analysis. Despite of such confirmation, we additionally check variance inflation factor (VIF) to make the issue more confirmed.

To be free from multicollinearity risk VIFs should be lower than 3.3 (Kock, 2015; O'brien, 2007). In our results we found all the VIFs ranging from 1.0 to 1.838. Thus the computed values are below the standard value which is desirable and which recommends that the variables and data were free from the risks of common method and multicollinearity. This represents the fitness of the data for multivariate analysis.

#### **4.4 Measurement model**

We deployed frequently used methodologies in literature for determining convergent and discriminant validity as well as internal reliability, to ensure that our model would be accepted as reliable. The methods deployed were Cronbach's Alpha, Dijkstra-Henseler's rho ( $\rho_A$ ), item loadings, average variance extracted (AVE), Fornell-Larcker criterion etc. The reliability of the data was tested by Cronbach's Alpha, Dijkstra-

Henseler’s rho ( $\rho_A$ ). The convergent validity was confirmed by verifying the item loadings, composite reliability and AVE, Heterotrait-Monotrait Ratio (HTMT ratio) etc. The discriminant validity was verified with correlations driven by Fornell-Larcker criterion (Fornell & Larcker, 1981; Henseler, 2017). The criteria assess the degree to which the conflicting constructs vary. To validate the criteria it is essential that AVE square root becomes greater than correlation between variables. We additionally measured discriminant validity be HTMT as developed by Henseler, Ringle, and Sarstedt (2015). Table 5 contains the outputs revealed from all the criteria mentioned above which were found to be valid and as desired in most cases.

*Table 4. Results of reliability and convergent validity measures.*

<b>Constructs</b>	<b>Item loading range</b>	<b>Cronbach's</b>		<b>Composite</b>	
		<b>Alpha</b>	<b>rho_A</b>	<b>Reliability</b>	<b>AVE</b>
AFS	0.753-0.878	0.876	0.945	0.836	0.589
PE	0.762-0.712	0.856	0.867	0.867	0.634
FL	0.782-0.836	0.987	0.934	0.957	0.579
FC	0.731-0.876	0.828	0.834	0.808	0.684
SI	1.000-1.000	1.000	1.000	1.000	1.000
IN	0.787-0.826	0.865	0.805	0.835	0.678
SE	0.794-0.845	0.798	0.936	0.906	0.745

Note: Please see Table 2 for variable names elaboration: AVE=Average Variance Extracted

The above Table 4 contains measures that were undertaken to presents the measure of discriminant validity, convergent validity and reliability.

In summary, the found proof of reliability, convergent and discriminant validity about our constructs. Therefore, we were confident that our constructs were valid and reliable and thus fit for further use in multivariate analysis.

## **4.5 The structural model**

In this study we assess role of father’s factors in EBF success. As there is a potential to vary EBF practice among mothers who had vaginal and who had cesarean delivery. Due to that potential we estimate a total of three SEMs. In the first we assess the facts based on the complete sample whereas we split the sample based on delivery mode and recheck the issues in another two SEMs. The results of the first SEM is presented in the facing Table 5.

*Table 5. Path coefficients of SEM*

<b>Hypothe</b>	<b>Path</b>	<b><math>\beta</math></b>	<b>SD</b>	<b>t-value</b>	<b>P-value</b>
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H2	PE->IN	0.018	0.031	1.359	0.043
H3	FL->IN	0.546	0.103	21.635	0.000
H4	FC->IN	0.182	0.031	10.451	0.000
H5	SI->IN	0.437	0.257	1.192	0.054
H6	SE->IN	0.579	0.039	25.358	0.000
H7	IN->AFS	0.471	0.074	45.871	0.000

Note: SD= Standard Deviation; Please see Table 2 for variable names elaboration.

Table 5 shows that the empirical investigation financial literacy is having a strong positive effect on intention to use financial services as the path coefficients ( $\beta$  values) from financial literacy to intention to use financial services is found to be 0.546 which was significant at 1% level. This means that the BMWs who are literate in using financial services are more prone to use those. More specifically, any effort to enhance financial literacy may increase their intention to use by around 54.6%. The path coefficient ( $\beta$  values) from performance expectancy to intention variable was found to be 0.018 ( $p < 0.01$ ), which specify the importance performance expectancy to user intention. Consequently, facilitating conditions was found to significantly boost their usage intention as the path coefficients of has a significant positive role while  $\beta$  was found to be 0.471 ( $p < 0.05$ ). It means the stronger a BMW intend to have access to financial services at destination countries, the higher is the chance to do that. The intention to use financial services are boosted by his/her believes to level of financial literacy, performance expectancy of financial services, facilitating condition of financial services, social influence about using financial services and security believes.

## 5 Conclusions

The study explores the impact of financial literacy on access to financial services in regard to BMWs in their destination country. It used a conceptual framework in the light of UTAT model and utilized SEM methodology for empirical estimation. For empirical investigation the study conducted a survey on 291 BMWs. The study found that financial literacy has a important and strong positive impact on boosting intention of the BMWs to use financial services which is consequently translated into their access

to financial services.

This study is important as it gives important insights for the policymakers. The policymakers should take initiative to enhance financial literacy of existing and potential migrant workers. For that purposes, different online and offline training or educational programs may be suggested.

Although the study is having an important practical and theoretical contribution in the body of literature by extending the conceptual ground of financial literacy, it is not free from flaws. It ignored many variables which may impact on the intention of BMWs to use financial services. Moreover, it ignored the moderating role of gender and income class which may be found important in this regard. It is expected that future researchers will consider the issue and make more valuable suggestions for the policymakers.

## **Appendix A: The questionnaire**

A critical assessment of financial literacy of migrant workers and their access to financial services in destination countries

### Questionnaire for Expatriates

This questionnaire is developed with the intention to critically assess the financial literacy of migrant workers and their access to financial services in their destination countries. The study will contribute to conceptualize literacy situation in financial behavior, uses and accessibility to financial services in the destination countries. The study will help policy makers of Bangladesh to formulate proper policies for expatriates. We as the researchers also announce that, the information provided by the participants will

be kept secret and used only for research purposes.

Do you agree to participate to the survey in free consent?

A) Yes B) No

\* Selecting "A" to redirect you to next part of the survey \* Selecting "B" will make you abort from the study.

Please fill/select the appropriate answer									
1.	Name								
2.	Age								
A	Less than 15	B	16-25	C	26-35	D	36-45	E	More than 46
3.	Income per month								
A	\$500 or lower	B	\$500-\$1000	C	\$1000-\$1500	D	\$1500+	E	Not to disclose
4.	Your religion								
A	Muslim	B	Hindu	C	Buddhist	D	Christian	E	Others
5	Your Home District								
6	Year of first immigration								
7	Total years working overseas								

Please choose the correct option in following sections that matches your opinion. 1=Strongly disagree; 2= disagree, 3= neutral 4= agree, 5= highly agree

Variable	Code	Measure	Source
Performance Expectancy	PE1	Financial Literacy is an essential for my financial transactions	(Alomari & Abdullah, 2023)
	PE2	I believe that financial literacy helps me to conduct my financial tasks quickly.	
	PE3	Financial literacy may help increasing my productivity.	
	PE4	I found financial literacy and technology to remit my money more securely to my country.	
	PE5	I found financial literacy helpful for making better investment plan.	
Financial Literacy	FL1	I can read, write and understand the financial issues, terms and characters.	(Baidoo et al., 2018; Sultana & Roshid, 2020)
	FL 2	I can do basic financial calculations.	
	FL2	I know about financial investment and return.	
	FL3	I can calculate interest rate and return.	
	FL4	I have necessary level of financial literacy.	
	FL5	I can handle my financial decisions.	
Facilitating	FC1	I have basic knowledge to use	(Alomari & Abdullah,

Conditions		financial technologies.	2023)
	FC2	I have basic resources to gain financial literacy.	
	FC3	The e-learning resources are reasonable priced which helps me gaining financial literacy.	
Social Influence	SI1	My countrymates think I should have financial knowledge to have better access to finance at my host country.	(Alomari & Abdullah, 2023)
	SI2	My family members believe that I should have better financial literacy to better deal with my money.	
	SI3	Important people (my foreign friends and countrymates) could assist me gaining financial literacy.	
	SI4	Being financially literate is a status symbol now-a-days.	
Intention	IN1	I intend to use financial technologies and financial services at my current host country.	(Samar & Mazuri, 2019)
	IN2	I predict to use financial technologies and financial services at my current host country in next months.	
	IN3	I plan to use financial technologies and financial services at my current host country in next months.	
Security	SE1*	I face security problems in using my bank account.	(Alomari & Abdullah, 2023)
	SE2*	I feel my sensitive information can be stolen.	
	SE3	I feel safe to provide my confidential details to the financial service providers.	
Access to Financial Services	AFS1	I have account(s) with banking and/or non-banking financial institutions at my destination country.	(Baidoo et al., 2018; Samar & Mazuri, 2019; Xu & Zia, 2013)
	AFS2	I have account(s) with banking and/or non-banking financial institutions at my home country.	
	AFS3	I use mobile banking services at my destination country.	
	AFS4	I use mobile banking services at my home country.	
	AFS5	I use internet banking services at my destination country.	
	AFS6	I use internet banking services at my	



		home country.	
	AFS7	I have one or more credit/debit cards	
	AFS8	I will continue using more of the financial services.	

\*This item is reverse coded

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