THE EFFECT OF FINANCIAL INCLUSION AND FINANCIAL TECHNOLOGY ON WOMEN'S EMPOWERMENT

Lubna Khalaf *, Asma'a Al-Amarneh **, Rami Abu Wadi ***, Naderh Mryan ****

* Corresponding author, Financial and Accounting Sciences Department, Middle East University, Amman, Jordan
Contact details: Financial and Accounting Sciences Department, Middle East University, P. O. Box 11831, Amman, Jordan
** Financial and Accounting Sciences Department, Middle East University, Amman, Jordan
*** Department of Accounting, Finance and Banking, Ahlia University, Manama, Bahrain
**** Department of Economics, Hashemite University, Zarqa, Jordan

Abstract

This paper examines the impact of financial inclusion and financial technology (FinTech) on women's empowerment using panel data from 85 countries over four years, employing a comprehensive model that accounts for diverse income levels. The explanatory variables include FinTech and financial inclusion indicators, while the control variables encompass growth, inflation, education, and population growth. Key findings suggest that financial inclusion, through savings or mobile money accounts, has a significant impact on women's empowerment in high-income economies. In upper-middle-class economies, education, inflation, and owning a bank account serve as crucial factors in women's empowerment. Conversely, in lower-middle-income economies, education has a positive influence on empowerment, while financial inclusion through savings or mobile money exhibits a negative impact. The study highlights the significance of enhancing women's financial literacy to improve access to financial services backed by contemporary FinTech and promote active economic participation. It emphasizes the need for crucial context-specific tactics to achieve successful gender equality and inclusive economic development. Its originality lies in its comprehensive analysis across income levels, uncovering complex relationships between FinTech, financial inclusion, and women's empowerment.

Keywords: Financial Inclusion, Financial Technology, Women Empowerment, Sustainable Development Goals

1. INTRODUCTION

Recently, authorities, academia, and business leaders have focused on financial technology (FinTech) and financial inclusion, as well as their responsibilities in strengthening the economy to meet the Sustainable Development Goals (SDGs). Gender equality and empowerment of women and girls through equal

access to financial services and economic resources is SDG 5. It also emphasises technology-based empowerment and financial independence laws for women. Reforms that guarantee women equal rights to economic resources, in accordance with national laws, including access to financial services, inheritance rights, ownership, and control over property and natural resources (United Nations Development Programme [UNDP], 2015), can demonstrate these efforts. SDG 5 also promotes women's empowerment through information and communication technology (ICT) and the use of enabling technologies to increase their freedom and participation[1].

The World Bank estimates that 1.1 billion women out of a total of 2 billion lack access to banking services. Weak legal frameworks, restricted societal norms, lack of identifying documents, insufficient assurances, and low financial understanding hinder women (Demirgüç-Kunt et al., 2020). Legal restrictions on women's property ownership expand the financial inclusion gap in several countries (Sarma & Pais, 2011). Thus, the 2030 Agenda for Sustainable Development prioritises financial inclusion as a top policy target for most developing nations (Hess et al., 2021). Government policies are enhancing financial access, promoting gender equality, and advancing women's economic progress.

Additionally, FinTech solutions have created opportunities for women to access financial services more conveniently and securely, helping to bridge the gender gap and enhance privacy and protection (Loko & Yang, 2022). As shown by Sahay et al. (2020), digital financial inclusion has proven effective in reducing traditional gender disparities in financial access.

Recent attention has focused on financial inclusion and FinTech's impact on women's empowerment, economic resilience, and well-being. Financial inclusion, FinTech, and women's empowerment are closely linked, and this study utilizes empirical evidence and global data to demonstrate this connection. The study examines how financial inclusion and FinTech empower women. The literature will be evaluated to establish a theoretical framework and study model, which will be tested using panel data analysis on 85 nations over four years (2011, 2014, 2017, and 2021). After discussing the results, judgments and policy recommendations will be made.

The structure of the paper is as follows. Section 2 reviews related literature. Section 3 describes the empirical study approach. Section 4 discusses the econometric method used to evaluate FinTech and financial inclusion's impact on women's empowerment worldwide. Section 5 presents the research findings, and Section 6 ends the study.

2. LITERATURE REVIEW

2.1. Financial inclusion

Financial inclusion is vital to achieving the SDGs worldwide (Demirgüç-Kunt et al., 2020). Thus, developing nations are encouraging it more (Hess et al., 2021). The phrase "financial inclusion" was

originally introduced in 1993 to emphasise the potential of bank branch closures limiting banking services (Leyshon & Thrift, 1995). Financial inclusion, according to the United Nations (UN) (2016), is the continuous provision of affordable financial services to the poor, enabling them to participate in the formal economy. Ozil (2018) increases this to encompass universal formal financial services. Financial inclusion, according to Sarma and Pais (2011), allows simple access to official financial systems.

Financial inclusion means offering usable and cheap financial services to individuals and businesses, especially low-income groups and small and medium enterprises (SMEs), such as payments, savings, credit, and insurance. Financial inclusion enables people to utilize financial systems without significant barriers, according to Leyshon et al. (2008) and Carbó et al. (2005). According to Demirgüç-Kunt and Klapper (2012), inclusion requires free access to regulated services, including savings, credit, and insurance.

Financial services help impoverished households avoid poverty and manage economic shocks, such as job loss (Demirgüç-Kunt et al., 2017). Financial inclusion also reduces inequality, stabilises, and increases growth (Wang & Guan, 2017). An inclusive financial system lowers transaction costs, interest rates, long-term growth, and innovation (Beck et al., 2007). Debnath et al. (2024) concluded that financial inclusion enhances economic growth and reduces inequality in South Asia, using data from the World Bank, International Monetary Fund (IMF), and UNDP.

Furthermore, access to finance lowers the proportion of the working poor and supports entrepreneurship. For firms, it facilitates investment and business expansion (Demirgüç-Kunt et al., 2015).

2.2. Financial technology

According to Arner (2014), the term "FinTech" dates back to the 1990s when Citigroup launched the "Financial Services Technology Consortium" to promote technological collaboration in finance. Freedman (2006) defines FinTech as systems for modeling, valuing, and processing financial instruments. Schueffel (2016) views it as a new financial sector that utilizes technology to enhance financial activities, while Dorfleitner et al. (2017) define it as businesses that combine financial services with innovative technologies.

Arner (2014) divides FinTech evolution into three stages: FinTech 1.0 (1866–1987), when financial institutions first used technology; FinTech 2.0 (1987–2008), when banks digitized traditional services; and FinTech 3.0 (2008–present), characterized by startups providing direct financial services to the public.

Research indicates that FinTech lending has a significant impact on business growth and financial access, as evidenced by studies in Jordan (Alkhazaleh et al., 2023). Other studies, such as AlHares and AlBaker (2023) and Siddiqui and Rivera (2022), highlight that strong corporate governance fosters financial innovation and performance, as banks with highly educated, finance-oriented directors tend to offer more innovative financial products. The availability, accessibility, and security of FinTech services have

---

[1] https://www.undp.org/sustainable-development-goals/gender-equality

a significant and positive impact on customer satisfaction and consequently improve bank returns and economic growth in Jordan (Alkhazaleh & Haddad, 2021).

2.3. Women's empowerment

The multilayered social process of empowerment gives people control over their lives and choices (Page & Czuba, 1999). Sustainable global development requires SDG 5 on gender equality. Gender inequality influences economic growth and long-term development through education and employment (Klasen, 2002; Klasen & Lamanna, 2009).

According to the UN study Turning Promises into Action, the SDGs cannot be achieved without empowering women and maintaining gender equality (Banerjee, 2019). Women are empowered when they can make strategic life choices, according to Kabeer (1999). Numerous studies have investigated empowerment as a strategy to enhance women's economic status, mobility, and decision-making (Afrin et al., 2008). Women's financial health improves with financial instruments like personal bank accounts (Ashraf et al., 2010; Swamy, 2014). Similarly, Injas and Hijab (2021) highlighted the financial effects of inequality by finding that Palestinian women professionals' career advancement chances and economic involvement are restricted by gender-based discrimination.

2.4. Women's empowerment and financial technology

Khmous and Besim (2020) found that being male, wealthy, and older increases the likelihood of financial inclusion in Middle East and North Africa (MENA) countries, whereas the share of Islamic banking decreases it. Fungáčová and Weill (2015) observed that Chinese women are less likely to hold formal accounts or loans but equally likely to save formally. Asuming et al. (2019) highlighted that women and youth should be prioritized in financial inclusion policies, given demographic and economic factors.

Sahay et al. (2020) demonstrated that FinTech enhances financial inclusion and reduces gender gaps compared to traditional finance. FinTech improves privacy and security for unbanked women, according to Loko and Yang (2022). Adegbite and Machethe (2020) confirmed that digital financial inclusion closes gender discrepancies. Digital financial services promote female financial inclusion, but impacts differ by country, according

to Khera et al. (2022). FinTech development also boosts women's employment and income equality (Loko & Yang, 2022; Sioson & Kim, 2019). Thus, following Loko and Yang (2022), the study proposes:

H1: Women's empowerment helps financial technology adoption.

2.5. Women's empowerment and financial inclusion

The Global Partnership for Financial Inclusion (GPFI) reflects the global effort to advance inclusive finance. The G20 leaders recognized financial inclusion as a cornerstone of global development and launched the GPFI's Financial Inclusion Action Plan (GPFI, 2017). Beck et al. (2008) emphasized that access to financial services boosts economic performance, and gender equality is key to achieving this progress (SDGs).

Financial inclusion empowers women by fostering monetary independence (Dobra, 2011; Littlefield et al., 2003). Khandker (1998) demonstrated that microfinance programs in Bangladesh enabled female clients to increase their household consumption and reduce poverty. Swamy (2014) found that women participating in self-help groups in India experienced higher income gains than men. Moreover, financial services enhance women's authority in household decision-making (Karlan et al., 2016) and strengthen their bargaining power (Dupas & Robinson, 2013).

However, both demand- and supply-side barriers persist (Napier et al., 2013). On the demand side, women face challenges such as low income, lack of confidence, and social norms. On the supply side, documentation requirements, limited bank branches, and male-oriented service models hinder access (Global Banking Alliance for Women [GBA], 2015; Stevenson & St-Onge, 2005). Many institutions still perceive women as less creditworthy (Aterido et al., 2013; Ellis et al., 2007). These constraints make women more reliant on informal lenders and community savings groups (International Labour Organization [ILO], 2016). Thus, following Dobra (2011), the study proposes:

H2: There is a positive relationship between financial inclusion and women's empowerment.

3. RESEARCH METHODOLOGY

To determine the impact of FinTech and financial inclusion on women's empowerment, we develop the following model:

$$WOM_{it} = \beta_0 + \beta_1 FinTech_{it-1} + \beta_2 Financial\ inclusion_{it} + \sum_{k=1}^{k} \alpha_k x_{k,i,t} + u_i \tag{1}$$

where, *WOM* represents women's empowerment; *FinTech* includes digital payments and credit and debit card transactions; and *Financial inclusion* involves access to and use of formal financial services. Current finance- and technology-inequality literature uses *x* control variables. The control variables are gross domestic product per capita growth (*GDP*), inflation (*INF*), education (*EDU*), and population growth (*POP*) (Park & Mercado, 2018).

Ultimately, u_i represents the error term, which has a zero mean and one variance.

This model analyzes the impact of *FinTech* and access to financial services on *WOM*. A panel data analysis of 85 nations, conducted over four years (2011, 2014, 2017, 2021), investigated the correlation between *WOM*, assessed through economic participation and opportunities, and *FinTech* and *Financial inclusion*. *WOM* assesses economic

engagement and prospects. Our model utilized the growth rate, as indicated by the yearly variation in per capita *GDP*, the inflation rate, represented by the consumer price index, secondary school enrollment as a proxy for educational attainment, and the annual percentage change in population as control variables. To mitigate endogeneity, control variables were temporally lagged. This survey quantified *FinTech* by the proportion of respondents possessing credit or debit cards (*CRD_DEB*). Two determinants evaluate *Financial inclusion.* Initially, the proportion of respondents possessing an account with a bank or financial institution; thereafter, the proportion who had obtained loans for any purpose from any source over the past year. The dependent and explanatory variables are subsequently delineated, followed by a description of the research design and methodology.

Demir et al. (2022) modelled how FinTech and inclusion affect income inequality. This study investigates the impact of *FinTech* and *Financial inclusion* on reducing gender gaps. We employed panel data analysis to examine *WOM* over four years (2011, 2014, 2017, 2021). Alternative studies have used alternative methodologies. Hemmen (2019) analyzes FinTech innovation drivers for financial inclusion among emerging women using a mono-method qualitative interview approach. Gupta et al. (2024) utilized structured questionnaire data to evaluate the role of FinTech in financial inclusion among Indian working women.

Before estimation, several tests were performed to aid in model selection and ensure the accuracy of the estimated parameters.

3.1. Data

Data on *WOM* were sourced from the Gender Gap Reports (2011, 2014, 2017, 2021), FinTech and financial inclusion data from the Findex, and control variables from the World Development Indicators database.

In 2015, the World Bank classified 85 nations by income. In 2015, lower-middle-income economies had a gross national income (GNI) per capita between \$1,026 and \$4,035, while higher-middle-income economies had a GNI per capita between \$4,036 and \$12,475. Over \$12,476 per capita in high-income economies.

3.2. Dependent variable

High unemployment, slow economic development, and high debt affect macroeconomic conditions in many countries. Women face regulatory discrimination in different economies, limiting their labour market participation. For women to engage equally in economic development, labour norms must be updated. Modifying the retirement age, expanding paid maternity leave, eliminating the gender pay gap in promotions and remuneration, and guaranteeing social security payments are possible changes.

Moreover, many workplaces are male-dominated, and sociocultural and institutional practices exclude women based on their gender. These practices confine women to specific professions or supporting roles in the labor market. In some economies, women frequently work within a limited range of occupations that are socioculturally accepted. Such sociocultural barriers, accompanied by rising unemployment and poverty, have detrimental effects on the social fabric. Additionally, political unrest in developing and underdeveloped countries aggravates these challenges, directly affecting women's rights, particularly their freedom to work.

3.3. Explanatory variables

FinTech is measured by the ownership of *CRD_DEB* and engagement in digital payments, while financial inclusion is measured by having an account in a financial institution and utilizing formal financial services, such as borrowing and saving.

The following table presents all variables used in this study, along with their definitions.

Table 1. Variables description

Variable	WOM	Economic participation and opportunity indicator
Dependent variable		
FinTech	Having a credit or debit card (*CRD_DEB*)	The percentage of respondents who say they own a credit or debit card
	Digital payments (*DIG*)	Made a digital payment to an internet retailer for a transaction
Financial inclusion	Having an account (*ACC*)	The percentage of respondents who report having an account (by themselves or together with someone else) at a bank or another type of financial institution
	Borrowing some money (*BOR*)	The percentage of respondents who report borrowing any money (by themselves or together with someone else) for any reason and from any source in the past year
Control variables		
Saved at a financial institution or using a mobile money account (*SAV*)		The percentage of respondents who say they have saved money in the last year using a mobile money account or at a bank, or at another financial institution
GDP		The annual percentage change in per capita GDP
Inflation (*INF*)		Consumer price index
Education (*EDU*)		Secondary school enrolment rate
Population growth (*POP*)		Annual percentage change in population

4. RESULTS

Our empirical strategy aims to investigate the impact of *FinTech* and *Financial inclusion* on *WOM* globally. Specifically, our econometric methodology comprises three main models, each based on the income category of each country. Accordingly, we developed three sub-models based on the correlation matrix results, which indicated the presence of multicollinearity among the explanatory variables. To address this issue, Eq. (1) is separated into three equations: one

regarding high-income-level economies and two regarding upper-middle-income economies, and three regarding lower-middle-income economies. These models are tested for each category as follows.

4.1. High-income level economies

A panel data analysis is performed on 35 countries over four years (2011, 2014, 2017, and 2021).

We include all high-income level economies according to data availability.

4.1.1. Correlation for high-income level economies

The correlation matrix indicates multicollinearity among the explanatory factors. Table 2 shows the results.

Table 2. Correlation results for high-income level economies

Variable	WOM	POP	INF	GDP	EDU	BOR_15	CRD_DEB	DIG	F_I_ACC	SAV
WOM	1									
POP	-0.1430	1								
INF	0.0940	0.1559	1							
GDP	0.0431	-0.2157	0.2399	1						
EDU	0.0924	-0.3949	-0.2748	-0.0893	1					
BOR_15	0.0089	0.05393	-0.1345	-0.0113	0.1010	1				
CRD_DEB	0.4404	0.0412	0.1265	-0.0714	0.1781	0.3268	1			
DIG	0.4634	0.0094	0.1274	-0.0806	0.1901	0.3342	0.9384	1		
F_I_ACC	0.4573	0.0880	0.1437	-0.0077	0.1541	0.3471	0.8486	0.9150	1	
SAV	0.1381	0.1272	0.0349	-0.0995	0.0723	0.7830	0.4807	0.4895	0.4477	1

Source: Authors' estimation based on World Bank data.

To avoid the collinearity problem, Eq. (1) is separated into three equations, one regarding *Financial inclusion* and two regarding *FinTech*, as follows:

Model 1: Financial inclusion model

$$WOM_{it} = \beta_0 + \beta_1 ACC_{it} + \beta_2 SAV_{it} + \beta_3 BOR_{it} + \beta_4 GDP_{it} + \beta_5 INF_{it} + \beta_6 EDU_{it} + \beta_7 POP_{it} + u_{it} \quad (2)$$

Model 2: FinTech model

$$WOM_{it} = \beta_0 + \beta_1 DIG_{it} + \beta_2 SAV_{it} + \beta_3 BOR_{it} + \beta_4 GDP_{it} + \beta_5 INF_{it} + \beta_6 EDU_{it} + \beta_7 POP_{it} + u_{it} \quad (3)$$

Model 3: FinTech model

$$WOM_{it} = \beta_0 + \beta_1 CRD_{DEB_{it}} + \beta_2 SAV_{it} + \beta_3 BOR_{it} + \beta_4 GDP_{it} + \beta_5 INF_{it} + \beta_6 EDU_{it} + \beta_7 POP_{it} + u_{it} \quad (4)$$

4.1.2. Hausman test for high-income level economies

As indicated in Table 3, the Hausman test for model specification supports the fixed effect model because its p-value is greater than 5%.

Table 3. Hausman specification test for high-income level economies

Model	Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
1	Cross-section random	34.403892	7	0.0000
2	Cross-section random	16.089172	7	0.0243
3	Cross-section random	27.274082	7	0.0003

4.1.3. Empirical results in high-income economies

Equations (2)–(4) were computed using panel data from 2011, 2014, 2017, and 2021 using generalised least squares (GLS). GLS reduces serial correlation and heteroskedasticity, making it efficient and consistent in standard error estimations.

Table 4 reveals that *FinTech* and *Financial inclusion* are statistically significant with the predicted sign. The F-statistic shows 1% statistical significance for the models.

Table 4. Random effects results of the determinants of *FinTech* and *Financial inclusion* in high-income economies

Variable	Model 1			Model 2			Model 3		
	Estimated parameters	t-statistic	p-value	Estimated parameters	t-statistic	p-value	Estimated parameters	t-statistic	p-value
Intercept	0.48	7.88	0.00	0.53	5.77	0.00	0.52	10.37	0.00
POP	-0.23	-0.66	0.51	0.18	0.27	0.79	0.04	0.12	0.90
INF	0.00	0.03	0.98	-0.23	-1.03	0.31	-0.05	-0.73	0.47
GDP	-0.15	-0.91	0.36	-0.21	-0.94	0.35	-0.08	-0.52	0.61
EDU	0.05	1.53	0.13	0.06	1.42	0.17	0.05*	1.71	0.09
SAV	0.00	0.04	0.97	0.03	0.52	0.61	0.02	0.49	0.63
BOR	0.02	0.58	0.56	-0.07	-1.00	0.32	0.00	0.05	0.96
ACC	0.18***	3.47	0.00						
DIG				0.14**	2.13	0.04			
CRD_DEB							0.12***	3.55	0.00
Durbin-Watson (D-W)	1.80			1.66			1.70		
F-statistic	21.99			12.89			22.20		
Prob. (F-statistic)	0.00			0.00			0.00		
Number of observations	100			100			100		

*Note: Significance level: *** < 0.01; ** < 0.05; * < 0.10. Dependent variable: WOM.*

According to the results reported in Table 4, the intercept in the models remains constant while all independent variables are zero. For all three models (Models 1, 2, and 3), the intercept is statistically significant. This suggests the existence of other important factors, not included in the models, that may influence *WOM*. These undetected variables could be cultural, social, or economic.

In *FinTech* and *Financial inclusion*, *POP* has no statistically significant effect on *WOM*. The *POP* has no meaningful effect on *WOM* in Model 1, as the coefficients are negative.

The results also demonstrate that *INF* does not significantly affect *WOM*. This implies that *FinTech* and *Financial inclusion* affect *WOM* independently of *INF*. *GDP* has no statistically significant effect on *WOM*. *GDP* coefficients are negative in all three models, suggesting a negative link.

The *EDU* shows a moderately positive connection with *WOM*. The coefficient for education in Model 3 has a p-value greater than 0.10. Education may empower women, but the data is weak.

Additionally, the results for the variable measuring savings (*SAV*), which refers to savings at a financial institution or using a mobile money account, indicate an insignificant relationship with *WOM*. Across the three models, the coefficients are remarkably close to zero, and the p-values are greater than five percent.

The *BOR* has little effect on *WOM*. *ACC* variable boosts *WOM*. Female empowerment may depend on access to formal financial services.

In Model 2, *DIG* has a significant impact on *WOM*, with a p-value of 0.04. Suggestion that digital payment techniques may empower women. The *CRD_DEB* variable was also statistically significant in Model 3, with a p-value less than 0.01.

Financial services like accounts, *DIG*, and *CRD_DEB* empower women in *FinTech* and *Financial inclusion*, although *GDP*, *INF*, and *POP* do not. These aspects demonstrate the importance of *Financial inclusion* and current *FinTech* in gender equality and *WOM*. This shows the importance of *Financial inclusion* and current *FinTech* in gender equality and *WOM*.

4.1.2. Upper-middle-income level economies

A panel data analysis is performed on 24 countries over a four-year period (2011, 2014, 2017, 2021). We include all high-income level economies according to data availability.

4.2.1. Correlation for middle-income level economies

The correlation matrix indicates multicollinearity among the explanatory factors. Table 5 shows the results.

Table 5. Correlation results for middle-income level economies

Variable	WOM	SAV	POP	INF	GDP	ACC	EDU	DIG	CRD_DEB	BOR
WOM	1									
SAV	-0.0440	1								
POP	-0.2475	0.0089	1							
INF	0.1944	-0.1664	0.1490	1						
GDP	0.2801	-0.0975	-0.3550	0.3666	1					
ACC	0.1413	0.5572	0.1343	0.2396	-0.0851	1				
EDU	0.2915	0.1719	-0.5781	-0.3557	0.0781	-0.0897	1			
DIG	0.1682	0.5238	0.1238	0.2718	-0.0639	0.9269	-0.0993	1		
CRD_DEB	0.0634	0.5945	0.0349	0.1624	-0.1267	0.9182	-0.0226	0.8784	1	
BOR	-0.0608	0.5457	-0.2311	-0.1360	-0.1380	0.3910	0.2116	0.3286	0.4044	1

Source: Authors' estimation based on World Bank data.

4.2.2. Hausman test for middle-income level economies

The Hausman test for model specification supports the random effect model because its p-value is greater than 5%, as shown in Table 6.

Table 6. Hausman specification test for middle-income level economies

Model	Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
1	Cross-section random	10.033309	7	0.1867
2	Cross-section random	8.293173	7	0.3075
3	Cross-section random	9.954369	7	0.1912

4.2.3. Empirical results in middle-income economies

Equations (2)–(4) were approximated using panel data from 2011, 2014, 2017, and 2021 using GLS. Since it reduces serial correlation and heteroskedasticity, GLS is an efficient method that produces consistent standard error estimates.

Table 7 shows that *FinTech* and *Financial inclusion* variables are statistically significant with the expected sign. At a 1% significance level, the F-statistic indicates that the models are statistically significant.

Table 7. Random effects results of the determinants of *FinTech* and *Financial inclusion* in middle-income economies

Variable	Model 1			Model 2			Model 3		
	Estimated parameters	t-statistic	p-value	Estimated parameters	t-statistic	p-value	Estimated parameters	t-statistic	p-value
Intercept	0.52	11.46	0.00	0.53	9.01	0.00	0.53	11.59	0.00
POP	-0.15	-0.21	0.83	0.69	0.96	0.34	0.17	0.24	0.81
INF	0.57**	2.25	0.03	0.69*	2.05	0.05	0.60**	2.28	0.03
GDP	-0.22	-1.04	0.30	-0.12	-0.57	0.57	-0.16	-0.75	0.46
EDU	0.06*	1.68	0.10	0.09**	2.19	0.03	0.06	1.62	0.11
SAV	-0.07	-1.01	0.32	-0.04	-0.43	0.67	-0.06	-0.90	0.37
BOR	0.07	0.85	0.40	-0.04	-0.30	0.77	0.07	0.93	0.36
ACC	0.11**	2.21	0.03						
DIG				0.07	1.34	0.19			
CRD_DEB							0.09	1.54	0.13
D-W	1.77			1.16			1.70		
F-statistic	2.62			1.76			2.20		
Prob. (F-statistic)	0.02			0.12			0.04		
Number of observations	65			45			65		

Note: Significance level: *** < 0.01; ** < 0.05; * < 0.10. Dependent variable: WOM.

According to the results reported in Table 7, the intercept value in the models remains constant when all independent variables are zero. For all three models (Models 1–3), the intercept is statistically significant. This result suggests that there are other important factors not included in the models that might influence *WOM*.

The results of the *POP* variable have a statistically insignificant impact on *WOM* across all three models. Additionally, the coefficients in the model (Model 1) are negative for *POP*.

The result of the *INF* variable has a significant influence on *WOM*. This means that the changes in *WOM* are related to inflation rates within the scope of the study. Conversely, the *GDP* variable has a statistically insignificant impact on *WOM* across all three models. Additionally, in all three models, the *GDP* coefficients are negative, indicating a potential negative relationship.

Models 2 and 3 reveal a weak, positive correlation between *EDU* and *WOM*. This suggests that education could empower women.

Saving in a bank or using a mobile money account (*SAV*) and borrowing money vary little with *WOM*.

In Model 1, owning an account (*ACC*) has a beneficial effect on *WOM*. Access to formal financial services can empower women.

The results of both *DIG* and having a *CRD_DEB* variable indicate a statistically insignificant impact on *WOM*.

In general, summary findings indicate that education and inflation may have a significant positive impact on *WOM* within the context of *FinTech* and *Financial inclusion*. Also, having a financial account (*ACC*) shows a significant impact in some of the models.

However, the remaining macroeconomic variables, such as *GDP, SAV, BOR, DIG*, and access to a (*CRD_DEB*), do not significantly affect *WOM*, at least within the context of this study.

4.3. Lower-middle-income level economies

A panel data analysis is performed on 26 countries over four years (2011, 2014, 2017, and 2021). We include all lower-middle-income economies, based on data availability.

4.3.1. Correlation for lower-middle-income level economies

The correlation matrix indicates multicollinearity among the explanatory factors. Table 8 shows the results.

Table 8. Correlation results for lower-middle-income level economies

Variable	WOM	SAV	POP	INF	GDP	ACC	EDU	DIG	CRD_DEB	BOR
WOM	1									
SAV	0.1889	1								
POP	0.0506	-0.1152	1							
INF	-0.0777	-0.1746	0.2810	1						
GDP	-0.2847	-0.1655	0.1038	-0.0898	1					
ACC	-0.0101	-0.0368	-0.0673	0.1223	-0.1273	1				
EDU	0.0348	-0.0959	-0.5246	-0.1792	-0.1668	0.1653	1			
DIG	0.2289	0.1237	-0.1296	0.1521	-0.1800	0.6808	0.0462	1		
CRD_DEB	0.1657	0.0460	-0.1303	0.1454	-0.1169	0.8366	0.0579	0.7497	1	
BOR	0.1497	0.7089	-0.0922	-0.1945	-0.1587	0.0307	-0.0262	0.0922	0.1766	1

Source: Authors' estimation based on World Bank data.

4.3.2. Hausman test lower-middle-income level economies

Table 9 reveals that the Hausman test for model specification supports the random effect model because its p-value is over 5%.

Table 9. Hausman specification test for lower-middle-income level economies

Model	Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
1	Cross-section random	8.581840	7	0.2841
2	Cross-section random	11.409163	7	0.1217
3	Cross-section random	10.215085	7	0.1767

4.3.3. Empirical results in lower-middle-income economies

Equations (2)–(3) were approximated using panel data from 2011, 2014, 2017, and 2021 using GLS. Table 10 shows that *FinTech* and *Financial inclusion* factors are statistically significant with the expected sign. At a 1% significance level, the F-statistic indicates that the models are statistically significant.

Table 10. Random effects results of the determinants of *FinTech* and *Financial inclusion* in lower-middle-income economies

Variable	Model 1			Model 2			Model 3		
	Estimated parameters	*t-statistic*	*p-value*	*Estimated parameters*	*t-statistic*	*p-value*	*Estimated parameters*	*t-statistic*	*p-value*
Intercept	0.59	9.04	0.00	0.63	9.76	0.00	0.58	8.87	0.00
POP	0.53	0.49	0.62	1.27	1.11	0.27	0.51	0.47	0.64
INF	-0.07	-0.50	0.62	-0.02	-0.15	0.88	-0.08	-0.54	0.59
GDP	-0.35	-1.22	0.23	-0.25	-0.81	0.42	-0.32	-1.13	0.26
EDU	0.09*	1.92	0.06	0.04	0.75	0.46	0.09*	1.80	0.08
SAV	-0.30***	-2.98	0.00	-0.24**	-2.35	0.02	-0.31***	-3.03	0.00
BOR	0.21*	1.76	0.08	0.18	1.52	0.14	0.22*	1.80	0.08
ACC	-0.06	-1.05	0.30						
DIG				-0.10*	-1.99	0.05			
CRD_DEB							-0.04	-0.51	0.61
D-W	1.55			1.29			1.41		
F-statistic	2.29			2.00			2.06		
Prob. (F-statistic)	0.04			0.08			0.06		
Number of observations	60.00			44.00			60.00		

Note: Significance level: *** < 0.01; ** < 0.05; * < 0.10. Dependent variable: WOM.

Table 10 shows that when all independent variables are zero, the model's intercept value is constant. Models 1–3 have statistically significant intercepts. This suggests that the models may overlook critical aspects that affect *WOM*.

In Table 10, *POP*, *INF*, and *GDP* have statistically insignificant effects on *WOM* across all three models. However, *EDU* and saving at a financial institution or utilising a mobile money account (*SAV*) statistically affect *WOM*.

The *BOR* variable is marginally significant in Models 1–3. The *ACC* variable and the *CRD_DEB* variable have a statistically insignificant impact on *WOM*. However, the *DIG* variable is marginally significant in Model 2.

In general, education may empower women in *FinTech* and *Financial inclusion*. Saving or using mobile money accounts may also discourage *WOM*. However, borrowing may benefit.

5. DISCUSSION

In line with the global push for inclusive financial services, this study emphasizes their role in empowering women economically (Beck et al., 2008). The findings emphasise the importance of modern financial mechanisms in women's economic empowerment. Since each income category has unique strengths and limitations, it is worthwhile to classify factor impacts by income level.

FinTech and financial inclusion empower women, with variances across income levels in the study population. Savings and mobile money accounts are crucial to financial inclusion in high-income nations. Many international financial agencies, such as the World Bank, have emphasized the importance of these financial tools. These nations should invest in FinTech and develop ways to improve women's access to formal financial services. These countries can provide financial solutions for a wide range of people. Financial inclusion will reach global levels.

However, the study's findings indicated that circumstances in upper-middle-income nations differ. The factors affecting WOM are based on other foundations due to the unique challenges and characteristics of these nations' economies, as well as their emphasis on other areas such as education, financial literacy, financial management, and combating inflation. Thus, it can be said that eliminating the gender gap relies on the efforts made by numerous nations in this category, including China, Malaysia, Jordan, Turkey, and others, to promote financial culture and women's educational empowerment. Remarkably, these nations have announced numerous successes in FinTech and financial inclusion in recent years.

The study found that the challenges facing the final group of countries, classified as lower-middle-income countries, are more complex. Although mobile money and savings are important tools for financial inclusion and WOM in comparison to other countries, these factors unexpectedly had a negative impact. Therefore, in our opinion, these countries need to make a clear commitment to educational programs and increasing women's financial literacy in order to fully and thoughtfully engage women in the economy. It is indisputable that financial inclusion strategies face challenges in nations like Bangladesh, Egypt, India, Ukraine, and many more.

In conclusion, it can be stated that this study highlights the importance of developing comprehensive policies tailored to diverse economic environments, considering each one's unique challenges and its respective political and financial capacities. Since education has a demonstrable positive impact on WOM on cultural, social, and financial levels, there can also be agreement on the significance of promoting financial culture and education in each of these nations (Kabeer, 1999). Numerous studies have demonstrated the long-term benefits of education for increasing WOM and, consequently, eliminating the gender gap.

Thus, decision-makers must understand the diverse and complex relationships within each classification, according to income levels, to develop policies related to comprehensive development, WOM, and improving various economic indicators. Therefore, to develop effective policies related to comprehensive development, WOM, and improving various economic indicators, decision-makers must comprehend the complex relationships within each income level classification. Thus, economic policies, financial inclusion policies, and financial culture must be tailored to implement FinTech programs in a manner that aligns with the economic environment and challenges of each country group (Sahay et al., 2020).

6. CONCLUSION

Based on a sample from 85 countries across four years (2011, 2014, 2017, 2021), to study the relationship between women's empowerment, measured by economic participation and opportunity, and FinTech and financial inclusion. FinTech refers to digital payments and the use of credit and debit cards, while financial inclusion involves utilizing formal financial services.

Increased knowledge, credit or debit cards, formal financial services, and digital payment systems may empower women in high-income economies, according to panel data analysis. Women's empowerment in upper-middle-class economies is influenced by inflation, education, and access to formal financial services. We found that education may empower women in FinTech and inclusivity. Saving and mobile money accounts may also hinder women's empowerment. In contrast, borrowing money may benefit lower-middle-income economies.

In high-income economies, education, access to formal financial institutions, and digital tools, such as FinTech, empower women; however, inflation and financial literacy still hinder many. To bridge this gap, governments and institutions can focus on expanding financial education, innovating inclusive financial products, and building accessible digital payment systems, while also addressing inflation and encouraging responsible borrowing. By working together, stakeholders can ensure that these solutions are adapted to fit different cultural and economic contexts, thereby supporting women's empowerment.

However, this research has certain limitations that should be acknowledged. The analysis relies on aggregate country-level data, which may overlook within-country variations and contextual differences affecting women's empowerment. The 2011–2021 study period may not completely represent recent FinTech advances or post-pandemic financial inclusion patterns. Data constraints prevented measurement of cultural norms, digital infrastructure quality, and policy efficacy. Future studies could utilize micro-level data, qualitative methods, or country-specific case studies to gain a deeper understanding of FinTech, financial inclusion, and women's empowerment.

In conclusion, FinTech can empower women by tackling gender inequities in financial inclusion with focused initiatives, strong policy frameworks, and continued financial literacy and education. These measures will enable women to fully engage in economic development and achieve the SDGs, especially gender equality and inclusive growth. Future research should empower women. Results reveal that models may overlook other elements affecting women's empowerment. Social norms, government regulation, and macroeconomic factors.

REFERENCES

Adegbite, O. O., & Machethe, C. L. (2020). Bridging the financial inclusion gender gap in smallholder agriculture in Nigeria: An untapped potential for sustainable development. *World Development, 127*, Article 104755. https://doi.org/10.1016/j.worlddev.2019.104755

Afrin, S., Islam, N., & Ahmed, S. U. (2008). A multivariate model of micro credit and rural women entrepreneurship development in Bangladesh. *International Journal of Business and Management, 3*(8), 169–185. https://doi.org/10.5539/ijbm.v3n8p169

AlHares, A., & AlBaker, Y. (2023). Corporate governance and effect in FinTech: Evidence from Gulf Cooperation Council banking sector. *Corporate & Business Strategy Review, 4*(1), 99–111. https://doi.org/10.22495/cbsrv4i1art9

Alkhazaleh, A. M. K., & Haddad, H. (2021). How does the FinTech services delivery affect customer satisfaction: A scenario of Jordanian banking sector. *Strategic Change, 30*(4, special issue), 405–413. https://doi.org/10.1002/jsc.2434

Alkhazaleh, A., Assaf, A., Shehada, M., Almustafa, E., & Allahham, M. (2023). Analysis of the impact of FinTech firms' lending on the expansion of service base companies in Jordan. *Information Sciences Letters, 12*(8), 55–65, Article 37. https://doi.org/10.18576/isl/120837

Arner, D. W. (2014). *FinTech and RegTech: Opportunities and challenges.* Asian Institute of International Financial Law University of Hong Kong. https://aiifl.law.hku.hk/wp-content/uploads/ppt/JFR-Arner_Douglas_ppt.pdf

Ashraf, N., Karlan, D., & Yin, W. (2010). Female empowerment: Impact of a commitment savings product in the Philippines. *World Development, 38*(3), 333–344. https://doi.org/10.1016/j.worlddev.2009.05.010

Asuming, P. O., Osei-Agyei, L. G., & Mohammed, J. I. (2019). Financial inclusion in Sub-Saharan Africa: Recent trends and determinants. *Journal of African Business, 20*(1, special issue), 112–134. https://doi.org/10.1080/15228916.2018.1484209

Aterido, R., Beck, T., & Iacovone, L. (2013). Access to finance in Sub-Saharan Africa: Is there a gender gap? *World Development, 47*, 102–120. https://doi.org/10.1016/j.worlddev.2013.02.013

Banerjee, G. (2019). Financial inclusion, women empowerment and entrepreneurship: A special emphasis to India. *Malaysian E Commerce Journal, 3*(3), 18–21. https://doi.org/10.26480/mecj.03.2019.18.21

Beck, T., Demirguc-Kunt, A., & Honohan, P. T. (2008). *Finance for all? Policies and pitfalls in expanding access* (A World Bank Policy Research Report No. 41792). World Bank. https://doi.org/10.1596/978-0-8213-7291-3

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth, 12*, 27–49. https://doi.org/10.1007/s10887-007-9010-6

Carbó, S., Gardener, E. P., & Molyneux, P. (2005). *Financial exclusion.* Palgrave MacMillan. https://doi.org/10.1057/9780230508743

Debnath, P., Bhuyan, A. K., Das, K., Das, S., Baig, M. I., Kanoo, R., Debi, H., & Saha, A. (2024). Impact of financial inclusion on economic development in emerging South Asian countries. *Risk Governance and Control: Financial Markets & Institutions, 14*(3), 57–67. https://doi.org/10.22495/rgcv14i3p6

Demir, A., Pesqué-Caçola, D., Altunbas, Y., & Murinde, V. (2022). FinTech, financial inclusion and income inequality: A quantile regression approach. *The European Journal of Finance, 22*(1), 86–107. https://doi.org/10.1080/1351847X.2020.1772335

Demirgüç-Kunt, A., & Klapper, L. (2012). *Measuring financial inclusion: The Global Findex Database* (Policy Research Working Paper No. 6025). World Bank. https://doi.org/10.1596/1813-9450-6025

Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2017). *Financial inclusion and inclusive growth: A review of recent empirical evidence* (Policy Research Working Paper No. 8040). World Bank Group. http://documents.worldbank.org/curated/en/403611493134249446

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Van Oudheusden, P. (2015). *The Global Findex Database 2014: Measuring financial inclusion around the world* (Policy Research Working Paper No. 7255). World Bank Group. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2594973

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2020). The Global Findex Database 2017: Measuring financial inclusion and opportunities to expand access to and use of financial services. *The World Bank Economic Review, 34*(Supplement), S2–S8. http://documents.worldbank.org/curated/en/491271624538346557

Dobra, A. (2011). Microfinance: Champion in poverty alleviation and failure in female empowerment. *Internationale Politik und Gesellschaft, 3*, 134–144. https://library.fes.de/pdf-files/ipg/2011-3/12_dobra.pdf

Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (Eds.). (2017). Definition of FinTech and description of the FinTech industry. In *FinTech in Germany* (pp. 5–10). Springer. https://doi.org/10.1007/978-3-319-54666-7_2

Dupas, P., & Robinson, J. (2013). Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics, 5*(1), 163–192. https://doi.org/10.1257/app.5.1.163

Ellis, A., Cutura, J., Dione, N., Gillson, I., Manuel, C., & Thongori, J. (2007). *Gender and economic growth in Kenya: Unleashing the power of women.* World Bank. https://surl.li/zdgolb

Freedman, R. S. (2006). *Introduction to financial technology.* Elsevier.

Fungáčová, Z., & Weill, L. (2015). Understanding financial inclusion in China. *China Economic Review, 34*, 196–206. https://doi.org/10.1016/j.chieco.2014.12.004

Ghosh, S., & Vinod, D. (2017). What constrains financial inclusion for women? Evidence from Indian micro data. *World Development, 92*, 60–81. https://doi.org/10.1016/j.worlddev.2016.11.011

Global Banking Alliance for Women (GBA). (2015). *Measuring women's financial inclusion: The value of sex-disaggregated data.* Data2X. https://data2x.org/wp-content/uploads/2019/08/MeasuringWomensFinInclusion-ValueofSexDisaggData.pdf

Global Partnership for Financial Inclusion (GPFI). (2017, July). *Financial inclusion action plan.* https://www.gpfi.org/publications/g20-financial-inclusion-action-plan-fiap-2017

Gupta, P., Kar, B. P., Tripathy, M., & KL, M. (2024). Role of Fintech in financial inclusion among working women in India: An empirical study. *Library Progress International, 44*(3), 22898–22904. https://doi.org/10.48165/bapas.2024.44.2.1

Hemmen, N. (2019). *FinTech & financial inclusion: How the drivers of financial inclusion and FinTech innovation impact women in developing regions* [Master's thesis, Copenhagen Business School (CBS)]. https://research-api.cbs.dk/ws/portalfiles/portal/59796342/638270_Master_Thesis.pdf

Hess, J., Klapper, L., & Beegle, K. (2021). *Financial inclusion, women, and building back better.* World Bank. https://doi.org/10.1596/35870

Injas, M. A., & Hijab, I. M. (2021). Job satisfaction among female media professionals in Palestine and the obstacles they face in practicing their work. *Middle East Journal of Communication Studies, 1*(2), 95–127. https://doi.org/10.71220/2585-001-002-003

International Labour Organization (ILO). (2016). *Engaging informal women entrepreneurs in East Africa: Approaches to greater formality.* https://surl.li/iigpop

Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change, 30*(3), 435–464. https://doi.org/10.1111/1467-7660.00125

Karlan, D., McConnell, M., Mullainathan, S., & Zinman, J. (2016). Getting to the top of mind: How reminders increase saving. *Management Science, 62*(12), 3393–3411. https://doi.org/10.1287/mnsc.2015.2296

Khandker, S. R. (1998). *Fighting poverty with microcredit: experience in Bangladesh.* Oxford University Press.

Khera, P., Ng, S., Ogawa, S., & Sahay, R. (2022). Measuring digital financial inclusion in emerging market and developing economies: A new index. *Asian Economic Policy Review, 17*(2), 213–230. https://doi.org/10.1111/aepr.12377

Khmous, D. F., & Besim, M. (2020). Impact of Islamic banking share on financial inclusion: Evidence from MENA. *International Journal of Islamic and Middle Eastern Finance and Management, 13*(4), 655–673. https://doi.org/10.1108/IMEFM-07-2019-0279

Klasen, S. (2002). Low schooling for girls, slower growth for all? Cross-country evidence on the effect of gender inequality in education on economic development. *The World Bank Economic Review, 16*(3), 345–373. https://doi.org/10.1093/wber/lhf004

Klasen, S., & Lamanna, F. (2009). The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. *Feminist Economics, 15*(3), 91–132. https://doi.org/10.1080/13545700902893106

Leyshon, A., & Thrift, N. (1995). Geographies of financial exclusion: Financial abandonment in Britain and the United States. *Transactions of the Institute of British Geographers, 20*(3), 312–341. https://doi.org/10.2307/622654

Leyshon, A., French, S., & Signoretta, P. (2008). Financial exclusion and the geography of bank and building society branch closure in Britain. *Transactions of the Institute of British Geographers, 33*(4), 447–465. https://doi.org/10.1111/j.1475-5661.2008.00323.x

Littlefield, E., Morduch, J., & Hashemi, S. (2003). Is microfinance an effective strategy to reach the Millennium Development Goals? *Focus Note, 24.* https://www.cgap.org/sites/default/files/CGAP-Focus-Note-Is-Microfinance-an-Effective-Strategy-to-Reach-the-Millennium-Development-Goals-Jan-2003.pdf

Loko, B., & Yang, Y. (2022). FinTech, female employment, and gender inequality. *IMF Working Papers, 2022*(108). https://doi.org/10.5089/9798400210655.001

Napier, M., Melamed, C., Taylor, G., & Jaeggi, T. (2013, February). *Promoting women's financial inclusion: A toolkit.* Department for International Development (DFID) and Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ). https://surl.li/tdlkaz

Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329–340. https://doi.org/10.1016/j.bir.2017.12.003

Page, N., & Czuba, C. E. (1999). Empowerment: What is it? *The Journal of Extension, 37*(5), Article 2. https://surl.lu/xzrdgb

Park, C.-Y., & Mercado, R., Jr. (2018). Financial inclusion, poverty, and income inequality. *The Singapore Economic Review, 63*(1), 185–206. https://doi.org/10.1142/S0217590818410059

Sahay, R., von Allmen, U. E., Lahreche, A., Khera, P., Ogawa, S., Bazarbash, M., & Beaton, K. (2020). The promise of FinTech: Financial inclusion in the post COVID-19 era. *Departmental Papers, 2020*(9). https://doi.org/10.5089/9781513512242.087

Sarma, M., & Pais, J. (2011). Financial inclusion and development. *Journal of International Development, 23*(5), 613–628. https://doi.org/10.1002/jid.1698

Schueffel, P. (2016). Taming the beast: A scientific definition of FinTech. *Journal of Innovation Management, 4*(4), 32–54. https://doi.org/10.24840/2183-0606_004.004_0004

Siddiqui, Z., & Rivera, C. A. (2022). FinTech and FinTech ecosystem: A review of literature. *Risk Governance and Control: Financial Markets & Institutions, 12*(1), 63–73. https://doi.org/10.22495/rgcv12i1p5

Sioson, E. P., & Kim, C.-J. (2019, April). *Closing the gender gap in financial inclusion through FinTech.* Asian Development Bank Institute (ADBI). https://www.adb.org/publications/closing-gender-gap-financial-inclusion-through-fintech

Stevenson, L., & St-Onge, A. (2005, April 8). *Support for growth-oriented women entrepreneurs in Kenya.* International Labour Organization (ILO). https://www.ilo.org/public/libdoc/ilo/2005/105B09_28_engl.pdf

Swamy, V. (2014). Financial inclusion, gender dimension, and economic impact on poor households. *World Development, 56*, 1–15. https://doi.org/10.1016/j.worlddev.2013.10.019

United Nations (UN). (2016). *Digital financial inclusion: International Telecommunication Union (ITU).* https://www.un.org/esa/ffd/wp-content/uploads/2016/01/Digital-Financial-Inclusion_ITU_IATF-Issue-Brief.pdf

United Nations Development Programme (UNDP). (2015). *Human development report 2015: Work for human development.* https://hdr.undp.org/content/human-development-report-2015

Wang, X., & Guan, J. (2017). Financial inclusion: Measurement, spatial effects and influencing factors. *Applied Economics, 49*(18), 1751–1762. https://doi.org/10.1080/00036846.2016.1226488

Yoshino, N., & Morgan, P. (2017). *Overview of financial inclusion, regulation, and education* (ADBI Working Paper Series No. 591). Asian Development Bank Institute (ADBI). https://doi.org/10.2139/ssrn.2838114

APPENDIX

Table A.1. Countries categories

Category	Country
High-income countries	Austria, Belgium, Canada, Chile, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Rep., Latvia, Lithuania, Malta, the Netherlands, New Zealand, Poland, Portugal, Saudi Arabia, Singapore, the Slovak Republic, Slovenia, Spain, Sweden, the United Arab Emirates, the United Kingdom, the United States, Uruguay
Upper-middle-income countries	Albania, Argentina, Armenia, Brazil, Bulgaria, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Georgia, Jordan, Kazakhstan, Lebanon, Malaysia, Mauritius, Moldova, Panama, Peru, Romania, Russian Federation, South Africa, Thailand, Türkiye
Lower-middle-income countries	Algeria, Bangladesh, Bolivia, Cambodia, Egypt, the Arab Republic, El Salvador, Ghana, Honduras, India, Indonesia, Iran, the Islamic Republic, Kenya, the Kyrgyz Republic, Mongolia, Nepal, Nicaragua, Nigeria, Pakistan, the Philippines, Senegal, Sri Lanka, Tajikistan, Tanzania, Ukraine, Zambia, Zimbabwe