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GOVERNANCE AS A MODERATING MECHANISM IN DEMAND-SIDE DETERMINANTS OF FINANCIAL INCLUSION

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Abstract
The purpose of this study is to evaluate the role of robust governance as a moderator in demand-side determinants of financial inclusion. To accomplish this purpose, data have been collected for 55 countries over the period 2010-2020. IMF and World bank databases have been employed for data collection. For data analysis, the Driscoll and Kraay (1998) estimator and panel-corrected standard errors techniques have been used. Findings revealed a positive association of human development and the level of income with financial inclusion. Moreover, governance positively moderates the association between the human development index and financial inclusion. On the contrary, the combined effect of the level of income and governance on financial inclusion is negative. It means, level of income fails to raise the level of financial inclusion in the presence of poor governance in the sample countries. Because poor governance worsens income inequality, especially in developing economies. Findings are useful for policy formulation. Special attention should be given to strengthening the institutional base, as it will be helpful to boost financial inclusion.

Keywords: Financial inclusion, Demand-side determinants, Governance, PCSE,

1. Introduction

Financial inclusion as a subject of research is of immense importance. It promotes financial stability, social progress, and economic growth by facilitating market expansion and a reduction in unemployment (Feghali et al., 2021). It also enhances investment levels, technological innovation, and strengthens social inclusion. Moreover, the health service policies and the government policies are supported for the successful implementation (Ajefu et al., 2020). For the other 2030 SDGs financial inclusion is known as the key enabler. Hence, for financial development, financial inclusion is considered as an important building block (Le et al., 2019).

Factors affecting financial inclusion have been analyzed by many researchers (Siddik et al., 2015; Zins & Weill, 2016; Uddin et al., 2017; Soumaré et al., 2016; Tuesta et al., 2015; Akudugu, 2013; Chithra and Selvam, 2013), focusing either on the country level (Aterido, Beck, and Iacovone, 2011; Demirguc-Kunt & Klapper, 2015) and the individual level (Fungacova & Weill, 2015; Zins and Weill, 2016). Some researchers have examined both country-level as well as individual-level factors which have an impact on financial inclusion (Allen et al., 2016; Park & Mercado, 2018).

Various demand-side (at the user's end) and supply-side (at the provider's end) factors influencing financial inclusion have been examined using the global Findex database (Mohammad et al., 2017; Allen et al., 2016; Camara & Tuesta, 2015; Fungacova & Weill, 2015; Tuesta et al., 2015; Efobi et al., 2014; Demirguc-Kunt et al., 2013; Demirguc-Kunt & Klapper, 2012). Demand-side determinants of financial inclusion include the level of income of a country (Evans and Alenoghena, 2017), trust (Ghosh, 2021), and the level of Human development (Kabakova and Plaksenkov, 2018). Past studies revealed that the level of income is positively linked with financial inclusion (Ardic et al. 2011; Demiguc-Kunt and Klapper, 2012; Sha'ban, Girardone and Sarkisyan, 2020). Similarly, social trust is found to be a positive factor for financial inclusion (Xu, 2020). Furthermore, human development acts as a catalyst for financial inclusion (Ababio et al., 2020), but the literature includes few studies investigating

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the link between demand-side determinants and financial inclusion (e.g., Data & Singh, 2019; Ababio et al., 2020; Abdelghaffar et al., 2022), which means the link between demand-side determinants and financial inclusion is underexplored.

Besides these studies, the literature supports the role of regulations for the enhancement of the level of financial inclusion. For example, Hawkins (2006) highlighted that the regulatory interventions boost financial stability and financial inclusion. It means that for the enhancement of financial inclusion, financial entities hosted by an institutional environment play a substantial part. Trust in financial intermediaries is restored through institutional quality, which leads to higher financial inclusion (Honohan, 2008; Rojas-Suarez, 2010). Hence, a Strong regulatory framework, political stability, and effective government stabilize the financial system (Francis, 2003). Likewise, for the financial transaction's performance, strong rule of law, effective regulatory quality, accountability, and stable political conditions play an important role in the country (Pérez-Cárceles et al., 2019; Zulkhibri et al., 2017). Hence, financial inclusion is more of a governance issue than a financial one (Pandya, 20).

The role of governance is insufficiently addressed in the financial inclusion research. With the help of robust institutional quality, digital financial inclusion becomes stronger, and it is studied in Sub-Saharan Africa and SADC countries (Awa & Khadre, 2024). When governance is weak, it unfortunately undermines the reforms and increases the inequalities even in the environments where the financial reforms and ICT are expanding. Further, prior literature mostly examined governance as an explanatory variable (Ali et al., 2016; Zulkhibri and Ghazal, 2017). The current study is new in the field that to the first to examine governance as a moderator in the relationship between under-explored demand-side determinants of financial inclusion. This study is important as it contributes to the moderation analysis in financial inclusion literature, and there is a scarcity of studies considering the potential moderators in financial inclusion literature (Warsame et al., 2021).

2. Literature Review

2.1. Financial Inclusion and the Level of the Human Development

The level of human development has been measured through a composite index, including living standards, health and education as main factors. Financial inclusion cannot be achieved without human development. Lack of investment in physical and manpower results in loss of welfare and productivity (Osei-Assibey, 2009). Furthermore, Beck & Brown (2012) found a positive impact of income, education, and wealth on bank card or account holding at the household level. The HDI's education component represents financial literacy and helps make informed financial decisions and improve financial capability (Klapper, Lusardi, and Panos, 2013). Similarly, a positive link between education and financial inclusion has been documented (Kabakova and Plaksenkov, 2018).

Past literature documented a positive association between financial inclusion and human development (Sarma, 2008; Blando, 2013; Nanda and Kaur, 2016). In a recent study, Abdelghaffar et al. (2023), while examining the financial inclusion-human development link, discovered a strong correlation between financial inclusion and human development and a difference in their association across different income groups. The findings of Datta and Singh (2019) were similar, depicting a positive and high correlation between human development and financial inclusion across the majority of countries. In another study, Raza et al. (2019) confirmed that a positive link exists between economic development and financial inclusion. This indicates a positive association between human development (i.e., an element of economic development) and financial inclusion.

Further, the link between HDI and financial inclusion has been examined by Ababio et al. (2021). They found that a low Human development level results in a low financial inclusion level, proving a positive association. Further, they discovered a bidirectional association

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between HDI and financial inclusion, as financial inclusion also leads to human development through the banking sector. Similarly, Geraldes, Gama, and Augusto (2021), using a fuzzy set qualitative comparative analysis, found that human development and education of finance are essential requirements for financial inclusion. Sha'ban et al., (2019) also proved a positive link between HDI and financial inclusion using a global sample of 95 countries. Laha (2015) tested the link between human development and financial inclusion and found a positive influence of human development on financial inclusion, confirming the fact that a high level of human development leads to a high level of financial inclusion. Hence, it is hypothesized.

H1: Level of Human Development positively influences Financial Inclusion

2.2. Level of income and Financial Inclusion:

In high-income countries, the utilization and demand for financial products and services are higher, and their financial systems are more integrated (Ardic et al. 2011; Owen et al., 2018). It means that variation in having a bank account is well explained by the level of income worldwide. This fact is confirmed by Dermiguc-Kunt et al. (2012). As the level of income is examined, the significant relationship with financial inclusion in past studies, such as Sha'ban, Girardone, and Sarkisyan (2020) confirmed a positive impact of the level of income on financial inclusion. Moreover, countries with medium income per capita reflect a higher financial development stage as per the findings of Ginevicius et al. (2019). The financial inclusion stage is a reflection of cyclical movements associated with the per capita income level and socioeconomic development (Nanda, 2017).

Further, past literature reveals that the level of financial inclusion is determined by income per capita, literacy level, income inequality, and urbanization (Sarma and Pais, 2011). For the enhancement of financial inclusion, the level of income plays an important role (Shaban et al., 2019). In another study, Adetunji and David-West (2019) studied the level of income as a determinant of financial inclusion and found that income level is a driver of informal savings. A positive link between the level of income and financial inclusion has been proven in the literature. More savings, asset security, and risk mitigation are the results of high-income levels, as they encourage more participation in the financial sector individually as well as collectively. The level of income has proved the strongest determinant of financial inclusion (Chithra et al., 2013; Fungáčová et al., 2015; Tuesta et al., 2015). A highly inclusive financial system exists in countries where the level of income is high, while a low level of income leads to financial exclusion because people are mostly illiterate and poor. It means that to access and use financial products and services, the financial status of people matters, as poor people face access difficulties (Chinoda et al.,2018).

Past studies confirmed that income is a demand-side determinant of financial inclusion, boosting financial inclusion (Munene et al., 2017; Kumar et al., 2019; Islam & Simpson, 2018; Morgan & Trinh, 2019; Bongomin et al., 2016; Ababio et al., 2020). Susilowati and Leonnard (2019) investigated the impact of level of income, gender, age, education, and job type on ownership and the use of financial services. They examined the positive relationship of level of income and extent of ownership with use of financial services. On the basis of findings in the past literature, it is hypothesized.

H2: Level of Income positively influences Financial Inclusion.

2.3. Governance as moderator of determinants of Financial Inclusion link:

Governance is a combination of institutions and traditions exercising authority in a country. Governance is deemed to be a dimension deciding norms and rules required to regulate behavior at the individual as well as collective level. Inside the framework of collective action, these rules and norms created and decided by governance act as guidelines for public, private, and civic actions and decisions. Precisely, for the observance of collaborative association between institutions and societies, governance is a set of monitored and well-coordinated

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activities (Termeer et al., 2010). Robust institutions offer an empowering environment for the growth of the private sector, building and maintaining trust through inclusive, transparent, accountable, and effective practices (World Bank, 2018). Thus, through sound governance practices, institutions can spur positive change within society. They ensure the protection of property rights, facilitate economic transactions, and protect against expropriation, which leads to high economic returns (Dawson, 1998). Further, good governance exhibits good corruption control (Kazemi & Azman-Saini, 2017) and promotes economic freedom through sound strategies (Quazi, 2007).

For the enhancement of financial inclusion, financial entities hosted by an institutional environment play an important role. Institutional factors support the activities of economic concerns, especially banks. Future planning of banks regarding investment projects depends on political stability, as banks will not be willing to make capital investment in the presence of political instability. For the stability and growth of financial institutions, inadequate governance acts as a barrier. The empirical support for the above assertions has been provided by Nguyen et al. (2012) and Park (2012). Moreover, trust in financial intermediaries is restored through institutional quality, which leads to higher financial inclusion (Honohan, 2008; Rojas-Suarez, 2010).

Sustainable human development can be attained through good governance (Davis, 2017). Further, existing studies investigating the links between governance, human development, and financial inclusion documented that good governance enhances the level of human development and reduces poverty, which leads to higher financial inclusion (Evans, 2018). In a similar vein, Hussain, Yahya, & Waqas (2021) investigated the role of the stimulating effect of governance on the financial literacy-financial inclusion link. They revealed a reinforcing interaction effect of financial literacy and governance on financial inclusion. Recently, Ojeyinka, T. A. (2025) examined the human capital development and poverty relationship with the moderating role of institutional quality. Their findings documented that institutional quality weakens the association between HCD and poverty. Similarly, Khan et al. (2025) also confirmed a significant positive combined effect of human capital and governance on financial accessibility. On the above-mentioned literature, the following hypothesis has been proposed;

H3: Governance strengthens the human development level and financial inclusion relationship.

Integration of a sound regulatory and macroeconomic environment catalyzes financial inclusion development and promotion (Evans, 2018). A rise in income per capita with a strong regulatory framework removes barriers to financial access (World Bank, 2008). It means a non-linear association between income level, governance, and financial inclusion. The findings of Usman et al. (2022) supported the argument of an effective interaction effect of income level and governance. They reported a significant and positive combined effect of control of corruption and income level on environmental quality. So, based on the above-mentioned literature, the following hypothesis has been proposed;

H4: Governance strengthens the relationship between the income level and financial inclusion.

3. Data Collection and Methodological Approach

3.1. Sample & Data collection:

For gathering the dataset, 55 countries have been selected out of 189 countries contained within the Financial Access Survey. This selection is purely on the basis of the availability of data for the variables of interest. Appendix (Table A) shows the list of countries. The data concerning all the variables under investigation were collected over a period of eleven years, from 2010 to 2020.

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3.2. Variables' Descriptions

3.2.1. Financial Inclusion Index Estimation:

To study the recent advancement in financial inclusion, this study utilized the IMF's Financial Access Survey, containing annual, cross-country, Supply-side data regarding various financial inclusion dimensions.

In this investigation, the researcher constructed an index with the help of a combination of three dimensions: availability, accessibility, and use.

1. The access dimension of financial inclusion, which has the ATM total branches and the ATM branches per 100,000 adults.
2. The financial inclusion accessibility dimension of financial inclusion, which has the ATM branch number per 1000 Km^2.
3. The use of the actual financial services which have the outstanding deposits and outstanding loans both by the banks which scaled through the GDP.

The researcher employed the same approach as adopted by past researchers (Park and Mercado 2018a; Camara and Tuesta 2014; Svirydzenka 2016; De Sousa 2015). To construct an index of financial inclusion, the procedure mentioned in the past studies, such as Svirydzenka (2016) for the generation of financial development indices, Park et al. (2018) for the construction of the Human Development Index, and the financial inclusion index, has been followed. An equally weighted composite index was generated, and a non-parametric approach was used, consisting of three steps. The common scale on the first step ranges from 0 to 1. To attain this common scale, six financial inclusion indicators were normalized using data-based normalisation.

$$CapI^{n}_{i,t,c} = \frac{I_{i,t,c} - Min(I_i)}{Max(I_i) - Min(I_i)} \qquad (1)$$

In Equation 1, the financial inclusion indicator value I is represented by $I_{i,t,c}$, t signifies period, c symbolizes country; $Max(I_i)$ and $Min(I_i)$ the indicator i indicates the highest and the lowest values over the sample of countries. Therefore, the normalized value across the given range of the sample is the indicator value for deviation, which has the financial inclusion level for the country relative to the maximum and minimum levels. A higher value indicates greater financial inclusion $I_{i,t,c}$, but within the range of 0 and 1.

Three-dimensional indices, namely availability index, accessibility index, and use index, were calculated with the help of six normalized indicators in the second step. The arithmetic mean of the two related indicators was employed for the index calculation of dimensions.

A composite financial inclusion index is calculated with the help of the geometric mean by aggregating the three indices of availability, accessibility, and use dimensions as follows:

$$Financial\ inclusion\ index = (\text{Availability index} \times \text{Accessibility index} \times \text{Use index})^{(1/3)} \qquad (2)$$

The value of the financial inclusion index computed lies between 0 and 1, where 0 is for absolute financial exclusion and absolute financial inclusion is represented by 1.

3.2.2. Human Development Level:

The level of human development was measured through HDI, which consists of key dimensions such as health, education, and standard of living. The UN Human Development the source of this data is through report. Shaban et al. (2019) used the same proxy in their study.

3.2.3. Income Level:

This variable was measured through GNI per capita growth (Ababio et al., 2020; Mercado, 2016; Uddin et al., 2017), with the data source being the IMF World Economic Outlook. Recently, Khera et al. (2021) and Ababio et al. (2020) used it.

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3.2.4. Governance:

The researcher used a composite index as a proxy for governance. For data collection, the Worldwide Governance Indicators Database of the World Bank was used. The main indicators of governance are the effectiveness of government, rule of law, control of corruption, quality and voice accountability of regulatory quality, and the stability of the political system. For index construction, the PCA approach was employed by the researcher. Past studies, i.e., Zulkhibri et al. (2017), Kwenda et al. (2019), Nagpal et al. (2020), and AH Malik et al. (2022) have used it.

3.2.5. Control Variables:

Market size, Urbanization, Level of inflation, and age dependency were used as control variables. Data are available on the World Bank site. Market size was measured through population size as used by Beck and Feyen (2013). Urbanization was measured through the urban population level to the total population. The Level of inflation was measured through the GDP deflator. Demand-side financial services are adversely affected by inflation (Rojas-Suarez 2010; Allen et al. 2014) as it creates income inequality and discourages saving behavior, resulting in lower financial inclusion (Neaime, 2018; Allen et al.,2014; Omar et al.,2020). The ratio of dependents on the working-age population is taken as the age dependency ratio. Dependents are younger than 15 or older than 64, and working ages 15-64. The data have been retrieved from the World Bank site. FDI has been added as a control variable. The net inflows of FDI as a percentage of the GDP are known as FDI (Abor et al., 2024).

3.3. Econometric Model:

$$FI_{i,t} = \alpha + \beta_1 HDI_{i,t} + \beta_2 GNI_{i,t} + \beta_3 CV_{i,t} + c_i + c_t + \mu_{i,t} \quad (1)$$

$$FI_{i,t} = \alpha + \beta_1 HDI_{i,t} + \beta_2 GNI_{i,t} + \beta_3 CV_{i,t} + \beta_4 GOV_{i,t} + \beta_5 HDI_{i,t} \times GOV_{i,t} + \beta_6 GNI_{i,t} \times GOV_{i,t} + c_i + c_t + \mu_{i,t} \quad (2)$$

Where the dependent variable, $FI_{i,t}$, is the financial inclusion index of country i at time t; c_i and c_t are country and time fixed effects, respectively; and $\mu_{i,t}$ is the error term. HDI stands for the human development index, GNI signifies GNI per capita growth, and CV represents control variables.

3.4. Techniques:

Panel data techniques have been applied for data analysis. Following recent studies, this investigation employed the Cross-sectional dependence test, followed by stationarity, heteroscedasticity, and serial correlation tests. On the basis of the results of these tests, estimation techniques have been chosen. Following Islam et al. (2021) and Shetewy et al. (2022), the researcher employed a PCSE i.e., panel corrected standard errors, and a non-parametric covariance matrix estimator of Driscoll & Kraay, (1998) model for the analysis.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Descriptive statistics of demand side determinants of financial inclusion are reported in Table 1. According to the reported figures, the average value for the financial inclusion index is 0.301755, and the standard deviation is 21.02 %. The minimum value for the financial inclusion index is zero and the maximum value is 1. The mean value for the human development index is 0.71183, with 17.016 % variations from mean value. 0.372 is the minimum value of the human development index, and 0.962 is the maximum value. The average value for GNI per capita is 16458.05 US dollars; the minimum value is 210 US dollars, and the maximum value is 91710 US dollars, with a standard deviation of 21750 US dollars. It means Income varies greatly across the sample countries, and greater income inequality exists. The mean value for governance is 0.3547 shows 14.89 % deviations from mean value. The average market size is 49.4 million people; the standard deviation for market size is 178 million people, with 0.361575 million as the minimum and 1400 million people as the maximum value. Market size also

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shows greater variations across the sample countries. The mean value for urban population is 41.008, inflation is 8.34761, and age dependency ratio is 71.9570. All the control variables have greater standard deviation, which means these variables vary greatly across the sample countries.

Table 1. Descriptive Statistics (Demand Side)

Variable	Obs	Mean	Std. Dev.	Min	Max
FI	605	0.30175	0.210212	0	1
HDI	605	0.71183	0.170162	0.372	0.962
GNI (US $)	605	16458.06	21750.04	210	91710
GX	605	0.3547	0.1489	0	1
MS (Million)	605	49.4	178	0.361575	1400
UPOP (%)	605	41.00828	16.21358	10.642	85.517
INF (%)	605	8.347613	28.64117	-26.2961	604.9459
ADR (%)	605	71.95707	18.80516	35.39976	106.6241
FDI (%)	605	4.6874	8.8661	-37.1726	103.3374

Note: FI represents financial inclusion, HDI stands for human development index, GNI symbolizes gross national income, GX represents governance index, MS stands for market size, UPOP signifies urban population, Inf symbolizes inflation, ADR represents age dependency ratio and FDI denotes foreign direct investment

4.2. Correlation Matrix

The correlation matrix is reported in Table 2. As per the reported correlations, the human development index is positively associated with financial inclusion. It means an increase in HDI would lead to an increase in financial inclusion. GNI per capita is negatively but weakly correlated with financial inclusion, which indicates that due to income inequality, an increase in income fails to promote financial inclusion; instead, demote it. Governance is positively and strongly associated with financial inclusion, which means good governance is a tool to boost financial inclusion. All the control variables i.e., market size, inflation, and age dependency ratio, are negatively associated with financial inclusion, except urbanization, which is positively associated with financial inclusion. Moreover, the correlation coefficients among independent variables are less than 0.8, which means there is no multicollinearity in the model under investigation.

Table 2. Correlation Matrix

	FI	HDI	GNI	GX	MS	UPOP	INF	ADR	FDI
FI	1								
HDI	0.3492	1							
GNI	-0.0968	0.09737	1						
GX	0.3278	-0.12459	-0.05233	1					
MS	-0.2889	0.35768	-0.00648	-0.24896	1				
UPOP	0.4374	-0.31374	-0.06995	0.342916	-0.31519	1			
INF	-0.1070	-0.01722	0.000879	0.026633	0.07671	-0.0536	1		
ADR	-0.6892	0.300641	0.066976	-0.24203	0.371674	-0.37836	0.04276	1	
FDI	0.1230	-0.0171	0.0565	0.1428	-0.1640	0.0593	-0.0392	0.0275	1

Note: FI represents financial inclusion, HDI stands for human development index, GNI symbolizes gross national income, GX represents governance index, MS stands for market size, UPOP signifies urban population, Inf symbolizes inflation, ADR represents age dependency ratio

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4.3. Cross-section Dependence Test

Shorter time span panels often suffer from cross-section dependence (Andrews, 2005). The sample under this investigation also has a small-time span, i.e., T=11, and the Pesaran CD test was employed to check the presence of cross-section dependence. This test has been chosen because it is suitable for balanced as well as unbalanced panels (Pesaran, 2004). Table 3. reports the results of Pesaran CD test. Table 3 shows that all the variables are significant at 1% level of significance except GNI per capita and governance. It means the majority of variables under this study suffer from cross-sectional dependence.

Table 3. Cross-section dependence Test

Variable	CD-test	p-value
FI	49.691	0.000***
HDI	75.902	0.000***
GNI	1.418	0.156
GX	0.864	0.388
MS	93.287	0.000***
UPOP	99.454	0.000***
INF	21.687	0.000***
ADR	42.651	0.000***
FDI	7.66	0.000***

4.4. Stationarity Test

Following Wei et al. (2023), Reilly and Murphy (2023), Ali, Anwar and Nasreen (2017), Gorlach and Le Roux (2013), De Hoyos and Sarafdis (2006), this study employed both the first-generation panel unit root test with demean option as well as second generation panel unit root tests which include the Pesaran cross-sectional ADF (CADF) panel unit root tests and the Pesaran cross-sectional IPS (CIPS) offered by Pesaran (2007). Results are reported in Table 4. It is evident from the reported results that all the variables are stationary at level i.e. I (0).

Table 4. Stationarity Tests

	CADF	CIPS	ADF	IPS	LLC
Var	Stat	Stat	Stat	Stat	Stat
FI	-3.351***	-2.697**	-3.459***	-8.9237***	-5.0921***
HDI	-1.653	-2.4180***	-1.426*	-4.378***	-5.4535***
GNI	-2.935***	-3.3730***	-7.346***	-13.3808***	-3600***
GX	-2.053**	-2.6430***	-2.1717**	-3.1325***	-8.5106***
MS	-2.871***	-1.552**	-4.5963***	-24.8697***	-36.2603***
UPOP	-3.285***	-2.8480***	-22.333***	-12.3181***	-17.8987***
INF	-3.047***	-2.9200***	-1.5653*	-2.465***	-10.0234***
ADR	-3.042***	-1.468*	-5.6875***	-73.6085***	-19.925***
FDI	-3.146***	-2.710***	-2.1072**	-1.6896**	-6.1226***

4.5. Heteroskedasticity & Autocorrelation Test

Modified Wald test for group-wise heteroskedasticity and Wooldridge autocorrelation test have been applied to test for heteroskedasticity and autocorrelation. The table 5. shows the results for these tests. Both the test shows p-values are significant at 1% level of significance, which means the estimated model suffers from both heteroskedasticity as well as autocorrelation.

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Table 5. Heteroskedasticity and Autocorrelation Test

Modified Wald test for groupwise heteroskedasticity		Wooldridge test for autocorrelation	
Stat	Prob	Stat	Prob
190000	0.0000***	70.036	0.0000***

4.6 Fixed or Random effect testing

To choose an appropriate model for testing, Breusch and Pagan LM test and Hausman test were applied. LM test is used as a decision criterion for pooled or random effect. Table 6 shows a significant p-value for the LM test, which favors the use of random effect. Moreover, the p-value of the Hausman test is also significant. It means the fixed effect model is the most suitable one.

Table 6. Breusch & Pagan LM and Hausman Test

Breusch and Pagan LM test		Hausman test	
Stat	Prob	Stat	Prob
2104.5	0.0000***	71.58	0.0000***

5. Estimation results

Table 7. Shows the estimation results of Driscoll–Kraay standard errors estimator (columns 1 & 3) and Panel-corrected standard errors estimator (columns 2 & 4). In Table 7, the equally weighted financial inclusion index has been used as the dependent variable, and columns 1 & 2 report the direct effects of demand-side factors while columns 3 & 4 report the results of the inclusion of the moderator.

According to the reported figures in Table 7, the coefficient of the human development index is significant and positively related to financial inclusion in all the columns. It means that as the level of human development increases, the level of financial inclusion also goes up. Better living standards, education, and health conditions can enable people to easily access and use financial services (Datta & Singh, 2019). Ababio et al. (2020) also advocated this fact by their finding that a lack of human development results in a low level of financial inclusion. Mais Shaban et al. (2020) also reported a positive association between human development and financial inclusion. This result is consistent with past literature (Thathsarani et al., 2021; Matekenya et al., 2020; Ababio et al., 2020; Datta and Singh, 2019; Sarma and Pais, 2008). The access barrier theory provides evidence for this positive association between human development and financial inclusion. Lack of human development acts as a barrier to financial inclusion (Huang et al., 2024). Low level of human development results in low level of financial inclusion (Ababio et al., 2020). This result supports hypothesis H1.

The coefficient of level of income is positive and significant (column 3), which means an increase in the level of income results in an increase in the level of financial inclusion. These results are consistent with past studies such as Demirguc-Kunt & Klapper (2012) and Shaban, Girardone & Sarkisyan (2020). According to the access barrier theory, lack of income is a barrier to financial inclusion. A highly inclusive financial system exists in countries where the level of income is high, while a low level of income leads towards financial exclusion because people are mostly illiterate and poor (Chinoda et al., 2018). It means that to access and use financial products and services, the financial status of people matters, as poor people face more difficulties in accessing financial services (Chinoda et al., 2018). This result confirms hypothesis H2.

The coefficient of governance is negatively associated with financial inclusion (column 3), which means governance fails to raise the level of financial inclusion instead results in a decrease in financial inclusiveness. A possible justification could be that tight regulations

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enhance compliance costs and make it more difficult for poor earners to access financial services (Isern & de Koker, 2009). Sarma and Pais (2011) confirmed the adverse effect of regulations on financial inclusion. Malik et al. (2022) also found that governance quality negatively affects financial inclusion. These findings are inconsistent with Ben Khelifa (2021) and Nagpal et al. (2020). They found a positive impact of governance on financial inclusion. The combined effect of human development and governance is positive and significant (columns 3, 4), which means human development in the presence of good governance can lead to an increase in the level of financial inclusion. Effective human development is linked with governance (Kaufmann et al., 2010). Good governance amplifies the effect of human development on financial access (Khan et al., 2025). Past studies confirmed a significant interaction effect of human development and governance; e.g., Ojeyinka, T. A. (2025) documented the moderating role of institutional quality on the link between human capital development and poverty. Similarly, Khan et al. (2025) also reported the same results. Hence, hypothesis H3 is accepted. Institutional theory offers theoretical support for these findings. This theory relies on a comprehensive set of structures, processes, and policies (Buckland, 2012), which is helpful to understand the role of governance in attaining high-level financial inclusion. Good governance paves the way towards sustainable development, including human development (Davis, 2017). For human well-being, sound policies can be developed and successfully implemented in the presence of a sound governance system (Khan, 2015; Omri and Mabrouk, 2020). These policies pertain to being more knowledgeable, living a long and healthy life, and having a high standard of living (Khan, 2015). These policies enable a huge number of people to access and use financial services (Datta & Singh, 2019).

Table 7. Estimation results for demand-side determinants of financial inclusion

	(1)	(2)	(3)	(4)
VARIABLES	D-K SE	PCSE	D-K SE	PCSE
HDI	0.593***	0.403**	0.550***	0.687***
	(0.115)	(0.173)	(0.153)	(0.235)
GNI	4.92e-	-9.79e-	0.0019***	0.0006
	(0.0002)	(0.0002)	(0.0005)	(0.0004)
GX			-0.231*	-0.296
			(0.122)	(0.209)
HDI*GX			0.562*	0.567*
			(0.270)	(0.324)
GNI*GX			-0.0052***	-0.0026**
			(0.0013)	(0.0012)
POP	-0.321***	-0.373***	-0.318***	-0.0882*
	(0.0406)	(0.0587)	(0.0317)	(0.0490)
Upop	0.0042**	0.0025	0.0037*	0.0120***
	(0.0017)	(0.0031)	(0.0018)	(0.0023)
Inflation	-0.0002***	-0.0001***	-0.0003***	-0.0001**
	(5.95e-)	(5.07e-)	(6.11e-)	(5.65e-)
FDI	0.0003	-2.09e-	0.0004	-0.0002
	(0.0002)	(0.0005)	(0.0002)	(0.0005)
ADR	-0.0001	-0.0008	-0.0004	-0.0004
	(0.0006)	(0.0012)	(0.0006)	(0.0014)
Constant	4.894***	0.847	0.968**	0.958
	(0.741)	(0.9517)	(0.395)	(0.949)

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Observations	605	605	605	605
R-squared	0.3552	0.8209	0.3671	0.838
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Region FE	yes	yes	yes	yes
Number of ID	55	55	55	55

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The interaction term of level of income and governance is significant and negative (columns 3 & 4), which means that in the presence of weak governance, the positive impact of level of income on financial inclusion diminishes. Welfare policies pertaining to improvement in the standard of living cannot be adequately developed and successfully implemented in the presence of ineffective government and the absence of structural change (Khan, 2015). Hence, there is a decrease in the level of financial inclusion. This outcome is as per the expectations, because poorly designed and implemented policies fail to produce desired outcomes (Ayoub et al., 2021). Besides, in the presence of poor governance practices, the level of income of the poor falls (Doumbia, 2019), and corrupt governments favor such projects that are in the interest of a few instead of supporting the poor (Alesina and Rodrik, 1994). Additionally, due to corruption, the price of everything goes up, including financial services (Khan, 2015), making them out of the reach of the poor. In such a scenario, the poor fail to access and use financial services. Hence, there is a decrease in the level of financial inclusion.

According to the institutional theory, in the presence of poor governance, the level of income of the poor falls (Doumbia, 2019). Besides, due to corruption, the price of everything goes up, including financial services (Khan, 2015), making them out of the reach of the poor. The poor suffer more due to the failure of welfare policies pertaining to improvement in the standard of living, in the presence of ineffective government and the absence of structural change (Khan, 2015). Hence, the level of financial participation of the poor remains low. Thus, these policies must be sustained through income for the poor (Khan, 2015) to raise the level of financial inclusion.

Market size and inflation are negatively associated with financial inclusion, while urbanization is positively associated with financial inclusion. A bigger population and high inflation result in a decrease in financial inclusion, while more urbanization leads to more industrialization, which raises the income level of individuals as well as their participation in the formal financial institutions.

5. Conclusions and Policy Implications

In the current study, the researcher investigated the demand-side determinants of financial inclusion with governance as a moderator, which gives a new insight into the prior literature. On analyzing the impact of demand-side factors of financial inclusion, the coefficients of the human development index and level of income are significant and positively related to financial inclusion. It means better living standards, education, and health conditions can enable people to easily access and use financial services (Datta & Singh, 2019). Moreover, results showed the combined impact of human development and governance is significant and positive , which clearly indicates that human development in the presence of good governance can lead to an increase in the level of financial inclusion. Because effective human development is linked with governance (Kaufmann et al., 2010). For human well-being, sound policies about being more knowledgeable, a higher living standard, long and healthy life can be developed in the presence of a sound governance system (Omri and Mabrouk, 2020).

Contrarily, the interaction term of level of income and governance shows significant and negative which shows that in the presence of weak governance, level of income fails to raise the level of financial inclusion in the sample countries. Because poor governance worsens

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income inequality, especially in developing economies (Xu et al., 2021; Canh et al., 2020), and favors such projects that are in the interest of a few instead of supporting the poor (Alesina and Rodrik, 1994). In such a scenario, the use of financial services and poor access. Hence, there is a decrease in the level of financial inclusion. Findings of this investigation support the role of governance as a moderator, as it influences the investigated links.

Policy recommendations can be derived from these results to improve strategies of financial inclusion. A sound political and legal system promotes transparency and democracy, which is an effective way to reduce financial system fragility (Boudriga et al. 2009). It is helpful to restore investor confidence in financial institutions and to encourage them to be a part of financial activities. Adoption of e-governance is also indispensable in the current era. Similarly, financial inclusion policies focusing on gender equality can raise the participation of women in the financial system and can generate many social and economic benefits. Special attention should be given to increasing financial education and the income level of the marginalized section of society. Well-designed policies to minimize income inequality and promote financial literacy can enhance human development as well as raise the level of financial inclusion.

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Appendix

Table A. List of Countries

Afghanistan, Angola, Armenia, Bangladesh, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Chad, Côte d'Ivoire, Djibouti, Fiji, Finland, Georgia, Ghana, Guinea, Guyana, Haiti, Honduras, India, Kenya, Kyrgyz Rep., Lao, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Moldova, Mongolia, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Rwanda, Senegal, Sudan, Tajikistan, Tanzania, Togo, Uganda, Uzbekistan, Vietnam, Yemen, Zambia, Zimbabwe