

## The Inter-relationship between Financial Empowerment, Governance and Human Development: Evidence from the G-20 Nations

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## 1- Introduction

The interaction between financial empowerment, governance, and human development has arisen in the modern global environment as a crucial nexus supporting countries' socio-economic growth. The G-20 countries, which combine the world's top economies, offer an engaging setting for investigating the complex connections between these crucial elements. The study explores the complex relationships between these three variables, taking G-20 nations as the sample size. Before diving into the significant aspects of the study, we have also mentioned the concept of the variables. Firstly, financial empowerment is the ability of people and communities to successfully use financial resources to improve their well-being and accomplish long-term goals. It is an essential notion in modern economics. It includes inclusion, financial knowledge, resilience, and access to formal financial services.

On the other hand, governance refers to the systems and procedures that enable societies to decide as a group and carry those choices out. Transparency, accountability, and the rule of law are characteristics of effective governance, and they all work to create stable institutions and favourable circumstances for socio-economic growth.

The ultimate objective of development activities is human development, a comprehensive metric that goes beyond economic progress to include indicators like education, health, and quality of life. Here, complex relationships exist between financial empowerment, governance and human development. Robust financial systems supported by responsible governance practices have the power to promote inclusive growth, lessen poverty, and facilitate resource allocation somewhat. Concurrently, improvements in human development, such as improved health and educational outcomes, can increase a country's potential to participate in and profit from its financial institutions. In the context of the G-20, this study seeks to elucidate the complex relationships between financial empowerment, governance, and human development. This research aims to provide a thorough knowledge of the synergism and the tradeoffs inherent in these connections by looking at their empirical evidence. The main goal of this research is to enhance our understanding of governance, inclusive financial systems and overall human development. It does this by analyzing the relationships, between variables using various statistical techniques such as panel unit root tests, co integration analysis, FMOLS and DOLS regressions and Granger Causality tests. This investigation specifically focuses on the G 20 countries to gain insights into the connections that influence the direction of nations in our increasingly interconnected world. The global

relevance and diverse profiles of G 20 members are utilized to provide insights, through this research.

The rest of the article structure is as follows: Section Two explores the literature survey for the existing study, Section Three discusses the data sources and model specification, Section Four discusses the evidence of the results, and Section Five draws the study's conclusion.

## **2 Literature review**

The UNDP Human Development Reports state that human development is more about increasing the richness of human existence than merely increasing the wealth of the economy where people live—the strategy centres on the people, opportunities, and options. The three elements of the UNDP's Human Development Index are a long and healthy life, knowledge, and a respectable living level. According to these, the researchers have also done a few studies. On the other hand, governance consists of Political Stability and Absence of Violence, Voice and Accountability, Rule of Law, Government Effectiveness, Regulatory Quality, and Control of Corruption. The survey done in this study covers the existing literature related to the variables taken in this study. To begin with (Hamdan et al., 2020) conducted research in Saudi Arabia to examine the connection between higher education and economic development. The study's primary objectives were to examine higher education spending policies and create a standard model to encourage investment to spur economic growth. The years 1978 to 2017 are used as the study's time frame. (Kavya & Shijin, 2020) There is no conclusive evidence to support the idea that economic growth and financial development worsen the problem of income inequality. The study, which looked at 85 countries from developed and developing regions between 1984 and 2014, included both developed and developing countries.

(Sehrawat et al., 2016), they have examined the effects of financial development and income disparity between the rural and urban areas of six SAARC nations between 1986 and 2012. The FMOLS test revealed a long-term association between the variables that both financial development and economic growth exacerbate income disparity. However, the causality test revealed a short-term relationship between financial development and increased income inequality. Again, over the years 1980–2012, (Sehrawat et al., 2014) investigated financial growth indicators and human development in India. They discovered a long-term association between the variables using the human development index and financial indicators as the variables. The Granger non-causality test reveals a unidirectional causal relationship between financial indicators and the

human development index. (Hendrawaty et al. 2022) They have examined how energy consumption and financial development affect the link between economic growth and life expectancy in ASEAN nations. Their investigation, which included the Hausmann Test, showed that energy use had a favourable effect on life expectancy. The empirical results showed that all the variables were co-integrated. Interestingly, the study concluded that fast economic expansion would shorten life expectancy in many emerging countries, with energy consumption playing a significant role. As a result, ASEAN nations will depend increasingly on non-renewable energy sources to support their economies over the long and short term. (Sarwar et al. 2020) investigated the relationship between financial development and human capital in specific emerging nations and economic growth. They studied 83 rising economies between 2002 and 2017 and discovered that financial development favoured economic growth. Human capital has a favourable effect on economic growth, just as it does for emerging economies. Economic growth is influenced favourably by human capital development and the financial sector. (Qamruzzaman et al. 2020), Investigated between 1981Q1 and 2016Q4 examined the relationship between Economic Growth, Human Capital Development, and Financial Innovation in Bangladesh, India, Pakistan, Sri Lanka, Nepal, and Bhutan. The study found long-term correlations between the variables using Granger-causality and Autoregressive Distributed Lag (ARDL) inside the error correction model (ECM). Notably, it found a connection between financial innovation, increased human capital, and economic growth in each nation in both the long and short terms. The results imply that these countries' economic growth will boost future financial innovation and investment in human capital development. The causality tests revealed a reciprocal link between financial innovation and economic growth and between the development of human capital and economic growth, both in the short and long terms, thus supporting the feedback hypothesis. Another research on the dynamics of financial development, globalisation, economic growth, and life expectancy in Sub-Saharan nations was conducted by (Shahbaz et al., 2019). It examined 16 nations between 1970 and 2012. It discovered that except for Gabon and Togo, financial development, economic expansion, and globalisation favourably influenced life expectancy in SSA nations. A comparison study on the impact of ICT and education on non-economic growth was conducted by (Habibi et al., 2020) for the Middle East and OECD nations. ICT had a beneficial influence on economic growth in both nations with higher access to education, according to the panel dataset covering the period 2000–2017 for 10 Middle Eastern and 24 OECD countries.

(Zafar et al.2021) looked at the connections between carbon emissions and remittances, export diversification, renewable energy, education, and economic growth. They concluded that with renewable energy and economic growth in the model, remittances, export diversification, and education are co-integrated with CO2 emissions. (Yang & Khan, 2021) investigated the mediating effects of finance, natural resources, and governance on environmental degradation and economic growth in the SAARC nations using panel data spanning the years 1996–2018. The study's findings supported the mediating role that finance and governance play in enhancing environmental quality, advancing economic growth that supports the phenomenon of natural resource curses, and acting similarly as a significant positive factor in environmental degradation for the SAARC region. The analysis supported the unidirectional causative relationship between environmental degradation and governance, economic growth and natural resources, and the bidirectional causation relationship between finance, environmental degradation, and natural resources. A neoclassical macroeconomic growth model was used to study the impact of globalisation by (Hammudeh et al., 2020). They further evaluated their model using specific metrics, including economic, social, and political globalisation elements. They used the CS-ARDL approach on panel data for 116 nations between 1980 and 2015. The findings revealed a U-shaped association between globalisation, including all its components and economic growth for all the income they had used in the study. They also offer evidence for the more significant effects of globalisation on financial development and quality of governance on economic growth. Using panel data from 101 nations from 1984 to 2013, (Khalid & Shafiullah, 2021) explored the bidirectional causation between governance and financial development. The study's conclusions emphasise the critical role that economic expansion plays in regulating governance by the financial sector. According to the long-run equation, financial development has a beneficial impact on governance and is resilient to varied levels of governance quality. The Granger causality test demonstrated the two-way causation between the variables and further investigated how closely financial development is related to economic growth and openness. They concluded that a rise in governance quality might speed up economic growth.

(Omri et al.2021) investigated the relationship between financial sector development and carbon emissions in the context of sound governance. The investigation aimed to determine if effective governance might moderate the detrimental impact of Saudi Arabia's economic growth on the

country's environmental quality between 1996 and 2016. The study's findings demonstrated a direct financial relationship between environmental quality and financial development and a relationship between governance indicators and carbon emissions. Overall, carbon emissions harm both financial development and institutional governance. (Kassi et al 2020) examined the moderating effect of the governance quality on the renewable energy, finance and economic growth nexus; they conducted a study between 1990-2017 for five major regions comprising 123 countries. The study constructed two composite indexes by Principal Component Analysis of Financial Development and Governance Quality. The study's results by two-stage least squares, difference-GMM, system-GMM methods and Granger non-causality test showed that financial development and governance quality enhance economic growth in all regions except America, Europe, and Central Asia, observing that the economic growth influenced by the use of renewable energy and the effectiveness of the governments of that region. Additionally, financial development and economic expansion are mutually related in all locations. There is a reciprocal relationship between growth and the utilisation of renewable energy in the Americas and Sub-Saharan Africa (SSA). The study also found that governance had a threshold impact on this association.

(Ahmed et al. 2022) looked at the significant impact of institutional quality and financial development on the expansion of the green economy in South Asian nations from 2000 to 2018. The study's findings demonstrated the persistent connection between monetary advancement, institutional excellence, and the growth of the green economy. The study finds that institutional strength and financial development are the long-term drivers of green economic growth. (Malik et al. 2021) did a study to examine the effects of good governance on financial stability and financial inclusion in Asian nations using the stakeholder theory. The study examined data from 2009 to 2017 and concentrated on three important variables: governance quality, financial inclusion, and financial stability. Principal component analysis (PCA) integrates these variables into independent indices and the Generalized Method of Moments (GMM) method to calculate the findings. Using Baron and Kenny's technique, the study also looked at the mediating function of financial inclusion in the link between governance quality and financial stability. The results of this study depict that excellent governance negatively affects financial inclusion but has a positive effect on financial stability. The stability of Asia's financial system is also positively impacted by financial inclusion. According to the research, financial inclusion mediates the relationship between good governance

and financial stability. The influence of institutional governance, trade openness, actual output, economic freedom, inflation rate, and real output growth on the development of the financial sector in a group of Asian countries from 1995 to 2018 was explored by (Ellahi et al., 2021) in their research. The study covered the period from 1995 to 2018. This study used principal component analysis to determine a uniform financial sector index. The elements that affect the development of the financial sector in the chosen Asian nations are institutional governance, trade openness, real production growth, economic freedom, and inflation rate.

As the set of literatures explores the various aspects of the connection between Financial Empowerment, Governance, and Human Development but it has never done all together to study their inter-relationship as Governance and Financial Empowerment are the major contributors in Human Development. The existing literatures explored the individual variables or the combining both the variables. The context has been also been limited and specific to certain regions consisting of developed and developing nations. The reason behind the G-20 nations which consists both developed and developing nations which is the main frame of this study.

### **3. Methodology: Data Sources, Econometric Tools and Models**

The study incorporated balanced panel data from 2000 through 2021 and collected the data from various sources. As we have considered financial empowerment as the dependent variable, we have taken the Financial Development Index as its measure from the International Monetary Fund (IMF). A key statistic measuring the nation's level of financial system sophistication and development is the Financial Development Index (FDI). It offers the perceptions of a country's general financial soundness and the efficiency and accessibility of its financial services. For the independent variables, we considered the Governance indicators and the Human Development Index, collected from World Governance Indicators of the World Bank and the UNDP (United Development Nations). For the study, we have taken parameters enlisted from the World Bank's World Governance Indicators, such as political stability, the absence of violence, the rule of law, government effectiveness, corruption control, voice and accountability, and regulatory quality. Using Principal Component Analysis, we have created a Governance Index and the Human Development Index, a detailed metric created to evaluate and compare the general state of well-being and development of nations. Health, Education, and Standard of Living make up the index.

We have taken the GDP as the control variable, collected from the World Development Indicators (2022). The details are given below in Table 1.

Table 1 Description of the Variables

Variables	Symbol	Measurement	Sources
Financial Empowerment	FD	Financial Development Index	IMF
Governance	GOV	Governance Index (PCA)	WGI
Human Development	HDI	Human Development Index	UNDP
Economic Progress	GDP	Annual GDP per capita growth	WDI

The basic form of the equation is as follows:

$$FD = f(GOV + HDI + GDP + c) \quad (1)$$

The functional form of the equation can be stated as follows:

$$FD_{it} = \alpha_0 + \beta_1 GOV_{it} + \beta_2 HDI_{it} + \beta_3 GDP_{it} + \epsilon_t \quad (2)$$

Where the FD is the dependent variable, financial empowerment in country  $i$  for the year  $t$ ,  $\alpha$  and  $\beta$  represent the parameters for the long-run elasticity for GOV, HDI, and GDP.  $\epsilon_t$  represents the error term.

For the sake of checking the stationarity and examining the panel co-integration, it is imperative to find the unit root of the data series. This study has considered two-panel unit root tests, Im-Pesaran-Shin (Im et al., 2003) and the Levin-Lin-Chu (Levin et al., 2002). The IPS and LLC tests reduce the need for a significant amount of time series observations to attain a specific power of statistics by recognising the presence of the unit root using both time series and cross-sectional data. In this study, we have also incorporated this approach because it has shown successful econometrics research for analysing the associations of the long-term variables in panel data. It is also necessary to check the co-integration between the independent variables before evaluating the model. For that, we have also carried out the panel co-integration test, as suggested by Pedroni (1999, 2004).

$$\Delta y_{it} = \alpha_i + \rho_i y_{i,t-1} + \sum_{j=1}^p \Delta y_{i,t-j} + \epsilon_{it} \quad (3)$$



We employed the FMOLS and DOLS techniques to provide precise and consistent estimates for panel data analysis. In order to solve the non-exogeneity and serial correlation issues, we applied the fully modified OLS (FMOLS) method, which was developed by (Pedroni, 1996). This approach ensures a consistent and effective estimation of the co-integration vector while effectively addressing problems like simultaneous biases and non-stationary regressors.

$$X_{it} = \alpha_i + y_{it}\beta + \varepsilon_{it} \quad (4)$$

$$Y_{it} = x_{i,tl} + \varepsilon_{it} \quad (5)$$

The causal link between the variables implemented; we have used the Granger causality tests to determine the direction of causality between the variables.

#### 4. Results and Discussion

The preliminary results and the descriptive statistics of the study has been mentioned the Appendix section.

##### 4.1 Fully Modified Ordinary Least Squares and Dynamic Ordinary Least Squares

Table 2 FMOLS and DOLS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>FMOLS</b>				
GOV	0.12	0.01	11.82	0.00
HDI	0.80	0.01	61.73	0.00
GDP	0.01	0.00	2.44	0.02
<b>DOLS</b>				
GOV	0.15	0.00	35.80	0.00
HDI	0.80	0.00	2595.17	0.00

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GDP	0.01	0.00	6.17	0.00
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Table 2 depicts the results of FMOLS and DOLS; the reason behind having a positive relation with all the variables in the FMOLS test states that financial empowerment fuels the advancement of society. It promotes better governance by giving people and communities more power and supports economic growth through higher investments and entrepreneurship. Financial empowerment also makes investing in healthcare and education possible, which improves general well-being and promotes human growth. Providing chances for revenue production and fostering an economic stability cycle also helps reduce poverty. These related factors demonstrate the enormously sound effects of financial empowerment on people and nations. In the case of DOLS, the results show the same trend because financial empowerment improves access to resources, encouraging investments in healthcare and education and furthering human growth. A further benefit of financial empowerment is active participation in governance, which fosters efficiency and openness. Together, this civic involvement and the entrepreneurship encouraged by financial empowerment increase GDP. These factors highlight financial empowerment's crucial role in promoting economic growth, societal advancement, and the development of the G-20 countries with sound governance.

#### 4.2 Granger Causality

Table 3 Granger Causality

GOV-FD	No	0.67	0.51
FD-GOV	Unidirectional	3.26	0.04
HDI-FD	No	1.62	0.20
FD-HDI	No	1.11	0.33
GDP-FD	Bidirectional	3.20	0.04
FD-GDP	Bidirectional	12.49	0.01
HDI-GOV	No	0.98	0.38
GOV-HDI	Unidirectional	2.57	0.08
GDP-GOV	No	1.49	0.23
GOV-GDP	Unidirectional	5.66	0.00
GDP-HDI	No	1.35	0.26

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HDI-GDP	Unidirectional	18.72	0.00
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Table 3 depicts the causality test, which shows a unidirectional causality between financial empowerment and governance, which means that improvements in the financial sector, such as the development of well-functioning markets and institutions, lead to better governance practices. A bi-directional causality between GDP and financial development implies that changes in GDP can influence financial development and vice versa, creating a mutually reinforcing relationship. Enhanced governance, characterised by transparency, accountability, and effective public policies, directly contributes to improved human development outcomes, including better access to education, healthcare, and essential services. Strengthened governance, marked by transparency, rule of law, and reduced corruption, can create a conducive environment for economic growth, increasing investor confidence, efficient resource allocation, and overall economic stability, positively impacting GDP growth. Advancements in human development, including better education, healthcare, and living standards, can result in a more skilled and healthier workforce, leading to increased productivity and economic growth, as reflected in higher GDP figures.

## 5. Conclusion

The study explored the Interrelationship between financial empowerment, governance and human development in the G-20 nations for 2000-2021. The unit root and co-integration tests showed the presence of unit root and co-integration among the variables. The relationship among the variables in FMOLS and DOLS comes out significant at 0.01 level, and financial empowerment has a positive relationship with all the independent and control variables of Governance, Human development and GDP, which evaluates that financial empowerment stimulates better governance policies and proper investments in the health care and education of the citizens. The causality test shows that the unidirectional causality between financial empowerment and governance is because improvements in the financial sector, such as the development of well-functioning markets and institutions, lead to better governance practices and a bidirectional causality between financial empowerment and economic progress because the changes in GDP can influence financial development, and vice versa, creating a mutually reinforcing relationship. Essentially, the interconnected growth of financial empowerment, governance, and human development reveals a route towards fair progress, constituting the cornerstone of wealthy and just communities. As the

study explores the inter-relationship between Financial Empowerment, Governance and Human Development but there are still few limitations which can be explored by other researchers in future. The test of endogeneity has been a missing factor in this study which can be implemented in the future. The context of G-20 countries is a small sample size but the study can be performed in large scale by taking a large sample of country or doing a comparative analysis between different countries.

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