

# **FINANCIAL DEVELOPMENT IN INSTITUTIONS: A CAUSAL EMPIRICAL RELATIONSHIP IN DEVELOPED AND DEVELOPING COUNTRIES**

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## **Abstract**

The fact that institutional quality is a fundamental element for economic growth is now well known and well-founded. There are also essential phenomena which in literature are not discussed and are causal within various institutions. There is a lot of literature between institutions and variables of growth, but it is still impossible to address institutions' cause. The study identifies the connections between legal, political, and economic institutions between 1990 and 2018. The causality of the three institutions was calculated in this analysis. The analysis employed various root tests of the Panel Unit, Pedroni Panel, and Dumitrescu and Hurling (DH). The findings showed that the two-way causal relationship was established in developed and developing countries between all institutional quality variables.

**Keywords:** Economic Institutions; Panel Unit; Legal Institutions; Panel Causality, Dumitrescu and Hurling (DH)

## **INTRODUCTION**

In a political economy, a new debate emerges that institutions' quality plays a crucial role in economic stability and democratic culture. Quality institutions are considered an essential element for a society in this expanding research agenda. Researchers have recently shown an interest in connecting institutions with other economic variables. There are also critical phenomena which in literature are not discussed and are causal within various institutions. There is a lot of literature between institutions and creation variables, but institutions' causality cannot yet be debated. These three types of institutions are identified and listed through government acts – legal, political, and economical. The government designs the legal frameworks for these institutions. Traditional institutions create rules to reduce uncertainty in the political world and build investors' trust in investing in a country. Judicial bodies enforce legislation protecting property rights and encouraging foreign investment. The government makes various rules and norms, such as how government power is spread through government agencies, which decide the essence of the political climate. Political institutions' efficiency discourages autocracy and encourages every person to participate actively if high quality in political institutions gives every citizen equal opportunity to use a country's economic and financial resources. If high quality in political institutions, they provide better monetary and fiscal policy and ultimately improve economic institutions. Enhancing the standard of economic institutions gives everyone the ability to grow their talents in the best way possible. The personality then becomes more imaginative and productive. This study analyses the causality among three different types of institutions. Economic activity would be promoted by including economies (Acemoglu 2012). There is a debatable question that arises in mind that which institution is more important than the other. Which one is affected more by the other?

There is a need to conduct a longitudinal study that examines the Causality among institutional quality in developing and developed Economies. The institutional attributes should be considered separately as compare to consider as a whole. It should be considered in three types, i.e., legal, political, and economical. This study is unique because it analyzed the Causality among all institutional in two different groups of countries. These groups were identified as the basis for the Human Development Index in UNDP's 2018 annual report. These groups were identified as the basis for the Human Development Index in UNDP's 2018 annual report. To investigate the collision between the three institutions. The study aims to examine the clash between the three institutions. The paper also suggests some policy recommendations based on econometric analysis to raise the standard of Institutional Quality.

**LITERATURE REVIEW**

Despite its importance, however, theoretical and empirical research regarding this issue remains relatively thin. However, the legal system, economic system, and political system are correlated with each other. But here, we have discussed some recent literature on institutions with other economic variables.

Muye and Muye (2017) examined the causality relationship among institutions, financial development, and globalization in three different trade alliances like BRICS, MINT, and ECOWAS. The study used capital market development and banking sector development as economic development indicators, and it was collected from World Bank's official website. There were three indicators collected from ICRG for institution quality used in this analysis and for globalization used KOF Index. The period for this analysis consisted of 1984 to 2013. This study employed the panel cointegration with the DOLS approach. The study also used the FMOLS technique, PMG Technique, and Panel VECM causality approach. The study concluded that cointegration and causality exist among financial development institutions and globalization in all three economic blocs. The study concluded there is a positive long-run relationship between institutions' financial development and globalization.

Nigar (2015) investigated the impact of institutional quality on economic growth varies across regions. It used panel data for nine middle and low-income economies from 1984 to 2010. The six features of the ICRG dataset are used for institutional quality and comprise government stability, corruption, democratic transparency, bureaucratic quality, rule of law and investment profile. For income inequality, this study used "Standardizing World Income Inequality Dataset (SWIID)." The other variables like trade openness, population growth, GDP per Capita, investment, and inflation were drawn through World Development Indicators (WDI). The study concluded that interacting inequality with institutions is the main factor for country development. Sustainable economic growth may be achieved through improvement in institutional quality with lowering inequality.

Adams and Klobodu (2016) examined the impact of corruption and financial growth on income inequality in 21 African countries. The study used the 1985 to 2011 time period for panel analysis and applied the PMG estimation technique. The study used domestic proxy credit to the private sector for financial development and deposit money as a central bank asset ratio. The control of corruption variable data obtained through the ICRG dataset while the Gini coefficient dataset was obtained through the "Standardized World Income Inequality Database (SWIID)." The study concluded that financial growth has a positive and significant impression on income inequality. It means that economic growth-enhancing the income inequality in Africa. At the same time, corruption harms income inequality in Africa. The study found that when interacting with the financial growth with corruption, it has a significantly negative impression on income inequality. The study concluded that quality of governance and corruption play a key role in inequality in African countries.

Baryshnikova et al. (2016) studied the impact of inequality, democracy, and GDP growth on institutional quality. It used a panel of 78 countries with a data range 1984 to 2006. The study used 12 different institutional quality indicators, including the ICRG dataset, World Governance index, and Kuncic dataset. The study found that institutional quality depends on the previous year's values of itself. The study estimated the dynamic model with difference and system GMM, which deals with the model's endogeneity problem. The study found a very complicated impact of democracy on government stability and military connection in politics. The study found that wealth has affected some institutions' indicators, but this effect is indirect with the interacting term of democracy. The study found that population size is insignificant, but resource curse has a negative impact on investment profile, which is an indicator of economic, institutional quality. The study concluded that democracy, inequality, and economic factors are more complex, challenging to counter.

Acemoglu and Robinson (2008) constructed a model that studied the effects of political institutions on economic institutions. The study examined the political power of the elite class. It argued that when elite class of a society has more political power, their decision regarding resource distribution is favored into their group. They influence de facto political power through lobbying, bribery, and the use of extralegal forces. Their investment in political institutions disturb the political equilibrium and reduces the economic performance of an economy. The study concluded that economic development could be much more extensive when economic and political reforms took place simultaneously.

Knack and Keefer (1995) inspected the economic performance through institutions. The study criticizes the "Gastil Political and Civil Liberties" dataset used for proxies of political institutions' quality. The study claimed that this dataset is insufficient to represent the quality of the institutions. The study used "International Country Risk Guide (ICRG) and Business Environmental Risk Intelligence (BERI)" datasets to compute institutions. These data sets have the vast majority of observation and detailed rating indicators. It used property rights as a proxy of institutional quality. The study concluded that property rights significantly affected the investment in a country and affected the country's growth.

Mamoon and Murshed (2006) inspected institutions' significance through trade policies across the countries using six different classifications of institutions: regulatory quality, accountability, government effectiveness, rule of law, control of corruption, and political stability (Kaufman *et al.* 2002). The study concluded that trade policies, institutional quality, and institutional development played an essential role in long-run growth.

Acemoglu and Johnson (2005) used property rights as a proxy for institutional quality. The objective of these institutions is to protect citizens against government and powerful elites to expropriation. The property rights expropriate by the government and elites. The study used instrumental variables approach and concluded that property rights substantially impact long-run growth while contracting institutions have only affected the financial sector.

Hall *et al.* (2010) established a growth model where human capital and physical capital depend on institutional quality. The study used cross-country analysis of 96 countries for the years 1980-2000 by using the "risk of expropriation" Index for institutional quality, which was published in "International Country Risk Guide (ICRG)." The study used "Average Years of Schooling per Worker" as human capital and investment per worker as physical capital. The study concluded that those countries with qualities in institutions with human and physical capital played a vital role in countries' growth. In those countries with poor performance in institutions, human and physical means does not have a significant role. The institutional reform could play a key role in economic progress and generate positive social returns for a country.

Fedderke and Luiz (2008) examined the impact of human capital on institutional quality and examined it on social capital in South Africa. The study used linguistic, religious, and racial fractionalization variables for social capital. The proxy for institutional capital used political fractionalization, political right, property rights, political instability, and different education variables that represented the human capital. The study concluded that human capital played a significant role in growth through its quality, and these qualities were determined through social and political factors. Qualities in Human capital comes through institutional development.

### **What are Institutions?**

The quality of institutions has now been well recognized and used widely in cross-country income level studies (Acemoglu *et al.*, 2001). There are still debates on what an institution is and how it can be classified. There is also an important issue: how to utilize the institution's theoretical definition in empirical research. There is no single proxy representing an institution's quality but merged indicators that capture the several dimensions of an economic system is a better option. Kuncic (2014) constructed composite indicators of institutional quality based on theoretical background. He divided the institutions into two main categories, i.e., formal and informal institutions. The traditional institutions consist of legal, political, and economical. Simultaneously, informal institutions consist of social institutions like norms, trust, civic cooperation, and belief. The informal institution is examined as social capital in literature, and it changes over the time period very slowly and takes 100 to 1000 years to change (Kuncic, 2014).

He also examined the number of available institutional indices that had some limitation on time coverage, geographic coverage, latent factors of economy, and extracting institution technique. So he made the formal institution into three groups: political, economic, and legal. These institutional variables cover the large numbers of the countries worldwide with various coverage of indicators throughout 1990 to 2010. This dataset also converts the countries into different clusters based on their institutional performance.

This study took an appropriate sample of countries worldwide, and this sample was subdivided into two groups. According to Human Development Index (HDI) report (2018) UNDP, these groups are categories into Developing and Developed Countries. This study used the same methodology to generate an updated dataset of Kuncic (2014) and increase the period up-to 2018.

## **METHODS**

### **Panel Unit Root Test**

For panel causality, it is first compulsory to examine unit-roots' presence in the data set. For this, we have taken the different Unit roots test.

### **Pedroni Cointegration Test**

Pedroni (1999, 2004) extend the Engle-Granger framework to test the Panel cointegration. In this study, we used the Pedroni Co-integration Test to check whether cointegration exists in Institutional quality variables.

### **Dumitrescu and Hurlin (DH) Panel Causality Test**

In this study, we also used the DH panel Causality methodology to analyze the causal relationship among Institutional quality variables. Suppose  $x_t$  and  $y_t$  are two stationary series. Then the following model:

$$y_t = \alpha + \sum_{w=1}^W \gamma_k x_{t-w} + \sum_{w=1}^W \beta_w y_{t-w} + \varepsilon_{l,t} \quad \dots \dots \dots \quad (1)$$

There are following causality standard form.

$$LIQ_{i,t} = \alpha_{i,t} + \sum_{w=1}^W \gamma_w LIQ_{I,t-w} + \sum_{w=1}^W \beta_w EIQ_{i,t-w} + \varepsilon_{i,t} \dots \dots \dots \quad (2)$$

$$EIQ_{i,t} = \alpha_{i,t} + \sum_{w=1}^W \gamma_w EIQ_{i,t-w} + \sum_{w=1}^W \beta_w PIQ_{i,t-w} + \varepsilon_{i,t} \dots \dots \dots \quad (3)$$

$$PIQ_{i,t} = \alpha_{i,t} + \sum_{w=1}^W \gamma_w PIQ_{i,t-w} + \sum_{w=1}^W \beta_w LIQ_{i,t-w} + \varepsilon_{i,t} \dots \dots \dots \quad (4)$$

EIQ = Economic Institutional Quality

PIQ = Political Institutional Quality

LIQ = Legal Institutional Quality

## RESULTS AND DISCUSSION

To determine the causal relationship among all institutional Quality. According to Dumitrescu and Hurlin (2012), the panel variables should be stationary at the level or first difference to determine the causality relationship among all institutional quality variables (Economic, Legal, and Political Institutional quality). The DH approach assumes that all the coefficient to be different across the cross-sections. We use other Unit Root test for this purpose in Table 1. Im, Pesaran and Shin, Levin Test; Lin & Chu Test; ADF Test and PP-Fisher Test are used to check unit roots in panel data.

Table 1: Panel Unit root test of Developing Country

Method	ElQ	PiQ	LiQ
LLC(t-stat)			
LEVEL	-6.11* (0.0)	-6.03* (0.0)	-7.30* (0.0)
IPS(w-stat)			
LEVEL	-4.44* (0.0)	-6.28* (0.0)	-8.63* (0.0)
ADF (Fisher Chi-square)			
LEVEL	118.26* (0.0)	171.24* (0.0)	217.45* (0.0)
PP (Fisher Chi-square)			
LEVEL	109.55* (0.0)	151.81* (0.0)	182.82* (0.0)

**Note:** \* show significance at the level of 1% and p-value are in parentheses.

Table 1 shows the summary of different panel unit root tests of PIQ of Developing Countries. All unit roots tests show that data of PIQ stationary at first level. So, there is no need to check the stationary level of PIQ at the first difference. Table 1 Shows a summary of different panel unit root tests of LIQ of Developing Countries. All unit roots tests show that data of LIQ stationary at level.

Similarly, there is no need to conduct a unit root test at the first difference in LIQ of Developing countries. The table shows a summary of different panel unit root tests of EIQ of Developing Countries. All unit roots tests show that data of EIQ stationary at the level and no need to conduct unit root test at first difference.

Table 2: Pedroni Residual Cointegration Test

Within Dimension	Statistic	Prob.
Panel v-Statistic	-0.119	0.547
Panel rho-Statistic	0.0117	0.504
Panel PP-Statistic	-2.0200**	0.021
Panel ADF-Statistic	-2.7238*	0.003
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Between- Dimension		
Group rho-Statistic	0.9524	0.829
Group PP-Statistic	-2.750*	0.003
Group ADF-Statistic	-3.9198*	0.0

**Note:** \*, \*\* show significance at 1% and %5 levels respectively.

The unit-roots test confirms that all variables are stationary, and the next step is to apply the panel cointegration Test. Pedroni Cointegration Test is used for this purpose. Pedroni's co-integration test suggested seven separate co-integration statistics according to the null hypothesis.: the absence of cointegration. Table 2 shows that 4 out of 7 cointegration statistics confirm that cointegration exists in all Institutional Quality variables. In other words, we concluded that there is a long-run equilibrium relationship among all Institutional Quality Variables of Developing Countries. It means that Economic Institutions, Legal Institutions, and Political Institutions are moving together in the long run.

Table 4: Long Run Coefficient of Developing Countries

Dependent Variables	EIQ			PIQ			LIQ		
	FMOLS	DOLS	GMM	FMOLS	DOLS	GMM	FMOLS	DOLS	GMM
EIQ	-	-	-	0.168* (4.19)	0.114* (2.68)	0.076* (5.42)	0.155* (4.82)	0.221* (5.83)	0.182* (11.0)
PIQ	0.396* (4.99)	0.289* (3.67)	0.065* (2.81)	-	-	-	0.256* (5.86)	0.274* (5.10)	0.408* (18.2)
LIQ	0.414* (4.65)	0.473* (4.76)	0.678* (29.3)	0.391* (6.41)	0.376* (5.29)	0.368* (21.1)	-	-	-

**Note:** t-value is in parentheses, and \* show the significant level at 1%.

These results concluded that it is possible to apply Dumitrescu and Hurlin (DH) Panel Causality method to test for the Causality among all Institutional Quality variables of developing countries.

Table 5: Pairwise DH Panel Causality Tests of Developing Countries

Null Hypothesis	W-Stat	Z <sub>bar</sub> -Stat	Prob.
LIQ → EIQ	5.6998*	8.266*	0.0
EIQ → LIQ	3.9894*	4.226*	0.0
PIQ → EIQ	5.8155*	8.539*	0.0
EIQ → PIQ	4.1729*	4.659*	0.0
PIQ → LIQ	4.4419*	5.295*	0.0
LIQ → PIQ	4.4655*	5.350*	0.0

**Note:** \* significant at the level of 1%.

According to the results shown in Table 5, a bidirectional causal relationship is found between LIQ and EIQ from 1990 to 2018 in developing countries. A bidirectional causal relationship is also found between PIQ and EIQ from 1990 to 2018 in developing countries. According to the results shown in Table 5, a bidirectional causal relationship is also found between LIQ and PIQ from 1990 to 2018 in developing countries.

Table 5: Panel Unit root test of Developed Country

Method	EIQ	PIQ	LIQ
LLC(t-stat)			
LEVEL	-8.031* (0.0)	4.744* (0.0)	-8.564* (0.0)
IPS(w-stat)			
LEVEL	-6.271* (0.0)	4.951* (0.0)	-8.979* (0.0)
ADF (Fisher Chi-square)			
LEVEL	158.312* (0.0)	143.410* (0.0)	212.075* (0.0)
PP (Fisher Chi-square)			
LEVEL	197.508* (0.0)	142.969* (0.0)	230.322* (0.0)

**Note:** \* show significance at the level of 1% and p-value are in parentheses.

Table 5 shows the summary of panel unit root tests of EIQ for developed Countries. The unit-roots tests for EIQ, PIQ and LIQ are found stationary at Level. There is no need to conduct unit root tests at first difference.

Table 6: Pedroni Residual Cointegration Test

Within-Dimension	Statistic	Prob.
Panel v-Statistic	- .4050	0.6573
Panel rho-Statistic	-1.1644	0.1221
Panel PP-Statistic	-2.4010*	0.0082

Panel ADF-Statistic	-2.2469**	0.0123
Between- Dimension		
Group rho-Statistic	-0.8982	0.1845
Group PP-Statistic	-4.4206*	0.0
Group ADF-Statistic	-5.7616*	0.0

**Note:** \*, \*\* show significant at 1% and %5 levels respectively.

The unit-roots test confirms that developed countries' Institutional Quality variables are stationary at the level, and then the next step is to apply the panel cointegration Test. Pedroni Cointegration test is used for this purpose in the Developed Countries Group. Pedroni cointegration Test proposed seven different panel cointegration statistics under the null hypothesis is the absence of cointegration. Table 6 shows that 4 out of 7 cointegration statistics confirm that cointegration exists in all Institutional Quality variables of developed countries. In other words, we concluded that there is a long-run equilibrium relationship among all Institutional Quality Variables of Developed Countries. It means that Economic Institutions, Legal Institutions, and Political Institutions are moving together in the long run. These results concluded that it is possible to apply Dumitrescu and Hurlin (DH) Panel Causality method to test for the Causality among all Institutional Quality variables of developed countries.

Table 4: Long Run Result of Developed Countries

Dependent Variables	EIQ			PIQ			LIQ		
	FMOLS	DOLS	GMM	FMOLS	DOLS	GMM	FMOLS	DOLS	GMM
EIQ	-	-	-	0.201* (5.65)	0.257* (6.58)	0.02** (2.06)	0.193* (5.26)	0.204* (4.54)	0.377* (23.0)
PIQ	0.513* (6.13)	0.534* (6.32)	0.03** (1.96)	-	-	-	0.832* (23.15)	0.820* (18.59)	0.369* (19.7)
LIQ	0.444* (5.45)	0.426* (5.16)	0.41* (24.4)	0.779* (22.94)	0.723* (19.18)	0.37* (26.8)	-	-	-

**Note:** t-value is in parentheses and \*, \*\* show the significant level at 1% and 5%, respectively.

According to the results shown in Table 10, a bidirectional causal relationship is found between LIQ and EIQ from 1990 to 2018 in developed countries. A bidirectional causal relationship is also found between PIQ and EIQ from 1990 to 2018 in developed countries. According to the results shown in Table 10, a bidirectional causal relationship is found between PIQ and LIQ from 1990 to 2018 in developed countries.

Table 10: Pairwise DH Panel Causality Tests of Developed Countries

Null Hypothesis	W-stat	Z <sub>bar</sub> -Stat	Prob
LIQ → EIQ	5.5075*	8.045*	0.0
EIQ → LIQ	3.9600*	4.281*	0.0
PIQ → EIQ	4.1645*	4.778*	0.0
EIQ → PIQ	3.9271*	4.201*	0.006
PIQ → LIQ	2.9315*	1.779**	0.075
LIQ → PIQ	3.3743*	2.856*	0.004

**Note:** \* show significance at the level of 1% and \*\* show significance at 10%.

## CONCLUSION

We analyze the Causality among all Institutional Quality Variables. For this purpose, we applied different unit root tests, Pedroni cointegration test, and Dumitrescu and Hurlin's (2012) Panel causality method to check causality among all three types of Institutional Quality variables in developing and developed economies. A study found a bidirectional causal relationship among all Institutional Quality variables in both developed and developing countries. This empirical evidence clearly shows that all intuitions are interconnected to each other. This study gives empirical evidence that different countries have different economic institutions because their institutions depend on their legal and political structure. Finally, it is essential to understand the role of the government's policies and their interventions in changing their laws, ultimately affecting their economic development.

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**Appendix I: Institutional Proxies**

Institutional Group	Sources
Legal institutions	
Property rights	The Heritage Foundation and WSJ
Religion in politics	ICRG
Legal environment	Freedom House
Law and order	ICRG
Civil liberties	Freedom House
Judicial independence	Fraser Institute
Rule of law	WB WGI
Impartial courts	Fraser Institute
Protection of property rights	Fraser Institute
Political institutions	
Political environment	Freedom House
Corruption perceptions index	Transparency international
Political rights	Freedom House
Control of corruption	WB WGI
Institutionalized autocracy	Polity IV
Military in politics	ICRG
Checks and balances	WB DPI
Democratic accountability	ICRG
Corruption	ICRG
Bureaucratic quality	ICRG
Internal conflict	ICRG
Political terror scale	Political terror scale

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Economic institutions	ICRG
Investment profile	The Heritage Foundation and WSJ
Financial freedom	Fraser Institute
Foreign ownership/investment restrictions	The Heritage Foundation and WSJ
Business freedom	Fraser Institute
Credit market regulations	WB WGI
Regulatory quality	Fraser Institute
Capital controls	Freedom House
Economic environment	Fraser Institute
Freedom to own foreign currency bank accounts	Fraser Institute
Business regulations	Fraser Institute
Labor market regulations	Fraser Institute

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Note: International Country Risk Guide (ICRG), World Bank World Governance index (WB WGI), Wall Street Journal (WSJ), World Bank Database of Political Institute (WB DPI).

**Appendix II: Sample Countries**

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Developing Countries	Developed Countries
Bangladesh	Niger
Bolivia	Nigeria
Botswana	Pakistan
Cameroon	Papua New Guinea
Egypt	Paraguay
El Salvador	Philippines
Ethiopia	Rwanda
Ghana	Senegal
Guatemala	Sierra Leone
Guyana	South Africa
Honduras	Tanzania
India	Uganda
Indonesia	Vietnam
Kenya	Zambia
Malawi	
Mali	
Morocco	
Mozambique	
Namibia	
	Algeria
	Argentina
	Australia
	Austria
	Brazil
	Canada
	Chile
	China
	Denmark
	France
	Germany
	Hungary
	Iran
	Ireland
	Italy
	Japan
	Jordan
	Malaysia
	Mexico
	Netherland
	New Zealand
	Norway
	Panama
	Peru
	Russia
	South Korea
	Sri Lanka
	Sweden
	Switzerland
	Tunisia
	Turkey
	United Kingdom
	United States
	Uruguay
	Venezuela

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