Article

Inclusive Human Development and Governance Nexus: Causality Analysis of Selected Asian Countries

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Abstract: This study investigates the role of governance in inclusive human development in the case of twenty-four selected Asian countries, using panel data for the time period from 2010 to 2017. The inequality-adjusted human development index, developed by the United Nation Development Program, has been used as a proxy for inclusive human development. In addition, six indicators of governance have been used as independent variables in a regression model, along with three control variables. We have tested the stationarity of our data using panel unit root tests such as Leviv-Lin-Chu and Augmented Dickey Fuller. The Pearson correlation matrix helps us find out the correlation among variables. The findings show a mixed level of correlation among the variables (i.e., high, low, and moderate). Furthermore, our results show that a strong causal relationship among the variables exists. One of the most important findings is that there is bi-directional causality between the inclusive human development index (IHDI) and development expenditure. The IHDI causes more government investment in development projects, whereas more development expenditure in the country achieves a higher IHDI. Trade openness and development expenditure have a bi-directional causal relationship. Finally, economic governance causes political governance in the case of our selected Asian countries.

Keywords: inclusive human development; governance; Asian countries

JEL Classification: O16; O15; C23; G3

1. Introduction

According to the United Nations Development Program, human development is defined as "the procedure toward developing human beings decisions", with said decisions permitting them to "start a continued and flawless growth, to be educated, to acknowledge", just as "economic freedom, other secured civil liberties" (Turner 2011). Good governance is one of the main elements of prosperous development in any country. According to recent development literature, researchers are gradually using this term, mostly for good governance. The world's governance is made up of all those features of the way a state is ruled (Sharma 2007). Governance has a significant role to play in economic stability, a strong legal system, better education, environmental safety, education, the creation of a good business environment, and many more things (Landell-Mills and Serageldin 1991; Brautigam 1991; Boeninger 1992). It can be managed at different levels in a progressive layer. Organization is currently being tested in different zones, from the water frameworks to edge security and also to trade frameworks as well. One of the most noteworthy pieces of organization is to break things down from an improvement point of view. According

to Rodrik (2001, p. 4), "At the point when for one point of view of the trade framework—and the organization challenges it presents—from a developmental perspective, it turns out to be certain that the legislatures of creating nations and a significant number of the northern NGOs (non-governmental organizations) share similar objectives: strategy self-rule to seek after one's own qualities and needs, destitution, lightening, and human improvement in an ecologically reasonable way". The strong association between the organization and individual improvement was first conveyed in an inspiring statement by the United Nations Development Programme (UNDP) in 1997. "Organization has become a debated issue as verification mounts on the fundamental as it plays in choosing social prosperity" (Graham et al. 2003, p. 1). The problem is communicated as: "Appropriate administration is indispensable not basically to ensure the law and to secure it across the world by sifting through bad behavior, yet notwithstanding keeping up and developing social and monetary structure". The UNDP arrangement archive likewise bolsters the job of administration in the improving advancement of human improvement with the accompanying articulation. For it is just with acceptable administration that we can discover answers for destitution, imbalance, and instability. The UNDP accepts that building the limit with respect to administration is fundamental to a maintainable human turn of events. In addition, a reasonable individual improvement cannot be accomplished without acceptable administration, just as administration cannot be sound unless it continues the human turn of events. Governance and human development are the two terms: parts of a whole and constant.

In the 1980s, good governance became a significant issue in development, as it could be practical for an extensive range of problems and relationships. In 2003, the World Bank published a report titled "Better Governance for Development in the Middle East and North Africa", which stated that the growth issue is not absolute but that good governance plays a vital role in reassuring economic development and presenting dynamic social services.

Governance—"a reliable voice and accountability, an effective government, political stability, an effective regulatory system, fighting corruption, and the rule of law"—is beneficial in accomplishing a huge level of economic progress contributing to a striking situation for savings and investment. In addition, good governance can decrease the conflicts that affect global trade. According to the World Bank's World Governance Indicator (WGI), if we compare the power of the MENA region to other areas in the world, it positions below the average. MENA's score, as usual, indicates that the area does not rank over the 50th percentile in any of the six "governance indicators".

Poor governance can delay economic progress and human development due to useless rule of law, political instability, and corruption control. If economies want to increase the relief of their people, then states have to progress their economic evolution and human development. Governance is the main component for wealth expansion in any nation, in particular virtuous governance. It is for conquering better economic growth and human development in any economy; the presence of good governance is vital, particularly in developing nations (Turner 2011). Usually, governance has a significant part in the extent of, for example, organization, economic constancy, the legal system, education, health, environment protection, the creation of a good business environment, and many more areas. All of these stated extents represent the undeveloped condition of a developed country (Landell-Mills and Serageldin 1991; Brautigam 1991; Boeninger 1992). Governance has significant consequences on the endurance of economic evolution and development as well as human welfare, in the very long run. Many authors have studied this enormous effect, such as Kaufmann and Kraay (2002), Pradhan (2011), Sebudubudu and Botlhomilwe (2012), and Turner (2011). Governance is an ancient concept. However, in the currently developmenting literature, researchers are progressively using this term, mainly for good governance. It is worth mentioning that governance is defined by different authors and associations, and mostly, the term "governance" encompasses all those features of the way a country is governed (Sharma 2007).

The intention of this study is to investigate the causal relationship between inclusive human development, governance, trade openness, and development expenditure for a panel of twenty-four selected Asian countries for the time period from 2010 to 2017. There is a vast body of literature available that discusses the role of governance in promoting inclusive human development. Most of the studies are based on country-level analysis, while some are based on panels of emerging and developed countries. The current study has its own margins and contributions to the existing literature on governance and inclusive human development relationships. Firstly, the current study is based on a panel of Asian countries, which includes developing and developed Asian countries. Secondly, it tries to examine the role of governance in inclusive human development by adding the roles of compositeness, trade openness, and development expenditures. All three of these factors play a vital role not only in governance but also in inclusive human development. More development expenditures and a high volume of trade enhance inclusive human development. From the literature, it is evident that competitive markets play an important role in inclusive human development. Hence, adding these three variables and looking at the relationship between governance and inclusive human development has sound policy implications.

2. Literature Review

2.1. Human Development and Governance

Pradhan (2011) found that good governance is an important factor that can be helpful for the progress of human development in the Indian economy. A study by Kesar and Jena (2022) examined the role of governance as an indicator of human development. The major finding of this study is that the three indicators have a positive effect. Moreover, good performance in governance provides an effective impact on the HDL.

Hulme et al. (2015) examined the association between governance and development issues in Asia. The cross-section data on governance have been taken from the World Bank, and their analysis includes development indicators. They found that governance has an effective impact on the development indicator, which means that the development indicator has a significant impact on governance. Cheema and Maguire (2001) concluded that external factors act via democratic governance entry factors to supply strategic offerings and use symptoms to measure their relative progress. Indicators can be treasured tools in informing external companions and recipients of help of what works and what does not work.

Asongu and Nwachukwu (2017) examined the impact of globalization on inclusive development. This study basically focuses on the income aspects of countries, whether they are poor or rich; legal backgrounds; landlockedness; and political solidity. Econometric techniques such as fixed effects techniques and Tobit regressions were used, and the researchers found that proper domestic and foreign policies are used to remove constraints, and financial resources should be associated with the development of governance to progress globalization and ensure inclusive human development.

In the past, human development was improved through economic growth, but in the current situation, human development could be improved through government performance. The government has the right to give attention to labor quality and the welfare of the people. If governments give appropriate attention to these two factors, human development will be improved. Moreover, Keser and Gökmen (2018) investigated the relationship between governance and human development in the case of 33 members of the European Union from 2002 to 2012. The study found that good governance has a positive impact on human development, whereas better governance improves the performance of any country.

Ouma and Nadzanja (2019) measured the effect of government expenditure on human development. The study used the 19 common markets of eastern and southern Africa countries. They used the random effect model and the two-step generalized method of moments (GMM). They found that fiscal policy and governance have a significant and

positive impact on human development. The result does not imply an economic condition, but rather they focused on the social condition of eastern and southern African countries. Pahlevi (2017) measured the impact of governance and expenditure on human capital in Indonesia. He used expenditures on health and education for human development in 33 provinces from 2008 to 2012. The research study concluded that expenditure and governance have a significant effect on human development and have a positive impact. Pradhan (2012) measured the relationship between corruption and HDI in Nepal. The study identified some reasons behind the relationship between corruption and HDI. These reasons are the working rule of law, political party ineffectiveness, a culture of science, and a lack of government intervention. The study also found a "W"-shaped correlation trend between HDI and corruption based on past interfaces.

Caron et al. (2012) examined changes in the quality of governance in twenty-seven European countries at the state level. The proportion of good governance is explained by the indicators of governance voice and accountability, corruption, government effectiveness, and the protection of the law. The study concluded that there is a significant relationship between the governance index and the social variable. In this study, the authors stated that good governance has a significant impact on economic growth.

Akçay (2006) investigated the relationship between corruption and human development. Their study found that corruption is a sign of institutional weakness and inefficient economic, social, and political outcomes. It reduces foreign direct investment, which results in a lack of development by reducing and enhancing inflation, depreciating currencies, and reducing expenditure in the health and education sections. Therefore, government plays an important role in overcoming these problems. Scholl and Schermuly (2020) examined the impact of corruption on GDP and HDI. The study found that corruption has a negative impact on HDI and that GDP has a positive impact on HDI. In addition, Gomes and Barros (2019) examined the impact of corruption and HDI in the Brazilian context for the time period 2010–2018. They found that public corruption increases more than private corruption because of the accountability and transparency in the public sector. The data show that there is a high correlation between greater corruption and a lower index of human development, which may suggest problems with accountability in the private sector. Brada et al. (2019) measured the relationship between corruption and HDI in 45 developing countries using data from 1990 to 2018. Their study found corrupt countries will receive less foreign direct investment and that GDP shows a significant relationship with HDI, while on the other hand, corruption has a negative effect on HDI.

Akram et al. (2011) examined the connection between poverty, governance, and income inequality in Pakistan using data from 1984 to 2008. They concluded that there is a significant association between poverty and income inequality, while poor governance has a significant relationship with poverty in the long time period, but in the short time period, it does not have a positive impact on poverty. Finally, Uddin and Joya (2007) examined the connection between governance and development, finding that good governance leads to high per capita income, which improves social indicators. Furthermore, they explained that strong political institutions lead to good governance, which will attain a high per capita income.

2.2. Human Development Index and Development Expenditure

Haq and Zia (2009) examined the association between governance and the poor growth of Pakistan. Time series data were taken from 1996 to 2005 to examine this relationship. For estimation, they used the interpolation method, and they found that poverty and income inequality are increasing, while the poor's income share and consumption are decreasing. Ordinary least squares is used to estimate the connection between governance and pro-poor growth. The results showed that there is a significant connection between governance and pro-poor growth. Furthermore, poverty and disparity could be reduced through good governance. Sudirman (2017) measured the relationship between education and health expenditure on the human development index using data from 2001 to 2015 for the

provinces in Jambi. The author used a multiple regression equation to check the connection between the variables, and he found that there is no positive association between education and human development, while on the other hand, there is a significant impact of health expenditure on human development. Omodero (2019) measured the relationship between general government spending and human development in Nigeria using time series data from 2003–2017. The results have shown that capital expenses have a negative impact on the human development index, while corruption has no influence on human development. In addition, there should be a focus on the investment in capital for the development of Nigeria.

2.3. Human Development Index and Competitiveness

Human development has a positive relationship with competitiveness. The ultimate goal of human activity should be human growth, which aims to provide people with the ability to live healthier, longer, and more fulfilling lives. Thus, if a country manages its competitiveness well, improved human wellbeing should be the main result to be anticipated. Competitiveness has become a new paradigm in economic growth in recent years. At a time when effective government action is hampered by fiscal restrictions and the private sector has considerable obstacles to competing in both domestic and international markets, competitiveness encompasses both the limitations and challenges provided by global competition (World Economic Forum 2015).

Muchdie (2017) studied the contingent relationship between global competitiveness, human development, and happiness. Cross-sectional data were taken from one hundred and twenty-three countries. The study concludes that the association between happiness and human development is a significant one. Lonska and Boronenko (2015), in their study, describe the linkage between competitiveness and human development. The authors explain that their study focuses on world comparative research. The study concluded that good competitiveness does not depict high economic growth contains. Reyes and Useche (2019) studied the relationship between competitiveness, human development, and economic growth in twenty countries. Data from 2006 to 2015 were utilized. They found that there is a strong connection between competitiveness in human development and economic growth. Finally, human activity and nations' development are the main focus of competitiveness.

2.4. Human Development Index and Trade Openness

Trade liberalization literature usually supports the idea that it drives economic development. In contrast, a significant subfield of international economics is becoming more and more interested in socio-economic problems (Greenaway et al. 2002; Falvey et al. 2012). In accordance with Nunn's (2007) research, which examined the relative quality of national institutions (security, law, and governance), we therefore expand the analysis of human development to include trade openness. Additionally, this strategy is consistent with research on the influence of social, institutional, and political variables on economic growth. Free access to the cheap cost of inputs that may be imported from other countries is another way that trade liberalization enables the industries of developing nations to become more efficient and competitive. Liberalization makes it easier for companies to innovate and manufacture goods utilizing new technology, which raises the demand for their exports. With a rise in exports, labor costs have increased. In doing so, it raises the quality of living for the labor class by increasing both their income and employment in the industrial sector (Mustafa et al. 2017).

Mustafa et al. (2017) measured the relationship between trade openness, economic growth, and human development. They used data from 1990 to 2011 for 12 Asian economies. They used simultaneous equation systems and the three-stage least-squares method. They found that in Asia, trade openness has a positive impact on economic growth and human development. There is a huge success of trade liberalization policies in the region of Asia for higher growth and outside distributional policies would improve income distribution and

human development. In similar research, Rizavi et al. (2020) investigated the relationship between openness, economic growth, and human development from 1990 to 2007 for South Asian countries. The study found that openness and FDI have a strong positive impact on economic growth. This paper strictly follows the endogenous growth theory and trade policies' effects on growth in the long run. Moreover, Afza and Nazir (2007) examined the impact of economic competitiveness and HRD. Their study found that the role of human resource management as a tool to improve the economic competitiveness in the South Asia region may attract foreign capital inflow and boost economic growth. Finally, Mustafa et al. (2017) measured the effect of growth, human development, and trade using data for 12 developing Asian countries from 1970 to 2011. They found that human development contributes positively to economic growth in Asia but does not appear to have a positive influence on human development.

3. Data and Methodology

3.1. Data Sources and Variable Construction

Out of the total number of Asian countries, the study selected 24 countries whose data are available (see Appendix A Table A1). The sample period of the study is 8 years, ranging from 2010 to 2017. The latest conceivable sample period was taken depending on the accessibility of data from the 24 countries. The study used principal component analysis for the construction of the three dimensions of governance and, finally, the overall governance index. The Atkinson (1970) family of inequality measures provides the foundation for the distribution-sensitive class of composite indices that Foster et al. (2005) used to develop the IHDI. It is calculated as a geometric mean of dimensional indices that have been inequality-adjusted. The IHDI takes into consideration the amount of inequality in each HDI dimension by "discounting" the average value of each dimension. When there is no disparity among persons, the IHDI value is equal to the HDI value, but as inequality increases, it decreases and eventually drops below the HDI value. The IHDI evaluates the degree of human development after taking inequality into consideration. The HDI is an average of human development achievements across the nation in the three key areas of health, education, and income. Like all averages, it masks differences in human development within a nation's population. It is possible for two nations with various achievement distributions to have the same average HDI score. By "discounting" the average value of each dimension in accordance with the degree of inequality, the IHDI considers not only the average successes of a nation in terms of health, education, and income, but also how those achievements are divided among its population (Table 1).

$$IHDI_{i,t} = \propto_o + \beta_1 GovI_{i,t} + \beta_2 COM_{i,t} + \beta_3 TO_{i,t} + \beta_4 DE_{i,t} + u$$

The following table shows the variable descriptions, their types, and data sources.

Table 1. Definition and data sources of variables.

Abbreviation	Variable Name	Variable Type	Data Source
IHDI	Inclusive Human Development Index	Dependent Variable	World Bank
GovI	Governance Index	Independent Variable	WGI
VAC	Voice and Accountability	Independent Variable	WGI
PS	Political Stability	Independent Variable	WGI
GE	Government Effectiveness	Independent Variable	WGI
RQ	Regulatory Quality	Independent Variable	WGI
ROL	Rule of Law	Independent Variable	WGI
COC	Control of Corruption	Independent Variable	WGI
COM	Competitiveness	Independent Variable	WGI

Table 1. *Cont.*

Abbreviation	Variable Name	Variable Type	Data Source
TO	Trade Openness	Independent Variable	WDI
DE	Development Expenditure	Independent Variable	WDI
EG	Economic Governance	Independent Variable	WGI
IG	Institutional Governance	Independent Variable	WGI
PG	Political Governance	Independent Variable	WGI

3.2. Empirical Methodology

Panel Unit Root Tests

It is common practice to use simple unit root tests in time series analysis to overcome the problem of spurious results, and panel unit root tests have become exceptionally popular in econometric analysis since the 1990s. There is vast research work on the stationarity of panel data due to the availability of new datasets such as Penn World Tables. Panel unit root tests possess higher power and consider the heterogeneity problem, while simple unit root tests do not exhibit this property. The power of a test depends on the variation in the data, and panel data have significantly more variations across cross-sections and time due to the higher number of observations and larger cross-sections. Whereas heterogeneity is concerned with panel data because of several cross-sections, time series analysis deals with a single entity.

Quah (1992, 1994) initially developed the panel unit root test; later, Breitung and Mayer (1994) promoted the same idea. Levin and Lin (1992, 1993) also contributed to the literature, but these tests have several limitations, such as Quah's (1992, 1994) test, which does not consider the issue of serial correlation and considers infinite N and T. Similarly, the application of Breitung and Mayer's method (1994) requires infinite N and fixed T, which is not suitable for panel data because micropanels have been changed to macropanels nowadays. It also ignores the heterogeneous residual distribution of individual effects. Levin et al.'s (2002) test removes the drawbacks of previous tests with some modifications. Furthermore, there are two categories of panel unit root tests. This classification is based on the cross-sectional dependence criterion. The tests that are based on cross-sectional independence are known as "first-generation tests". Among first-generation tests, some exhibit a common unit root process, while others are based on an individual unit root process. These are further divided into two categories known as non-stationarity tests and stationarity tests based on differences in the null hypothesis. Second-generation tests allow cross-sectional dependence, and these tests are further subdivided into factor structure approaches and other approaches. The first-generation tests have some similarities and differences. The LLC and IPS both follow the ADF procedure but both have different alternative hypotheses. Levin, Lin, and Chu (LLC) and the Breitung, and Hadri tests have a common unit root process, meaning that all cross-sections possess common autocorrelation coefficients, whereas Im, Pesaran, and Shin and the Fisher-ADF and PP tests follow an individual unit root process. These differences in tests can generate different results. Therefore, researchers should use two or more tests for better results. The current study employs the LLC and IPS tests. However, IPS performs better than LLC because it resolves the issue of serial correlation in LLC and permits heterogeneity.

4. Results and Discussion

4.1. Descriptive Statistics

We can see the mean, maximum, minimum, and standard deviation of the data, which show the trend of the data. In order to check the data for normality, skewness, kurtosis, and the Jarque–Bera test have been applied. All the indicators confirm the data's normality. Furthermore, if the mean is larger than the standard deviation, then the data are underdispersed, meaning that they are less scattered and the average value is consistent,

and if the mean is smaller than the standard deviation, the data are over dispersed, meaning the average value is less consistent (Table 2).

Table 2. Descriptive statistics.

	COC	COM	DE	GE	IHDI	PS	ROL	RQ	TO	VAC
Mean	−0.214180	4.246501	−0.515828	0.018073	0.605911	−0.534635	−0.188596	−0.115469	−0.315798	−0.366308
Median	−0.532885	4.217300	−1.123257	−0.070000	0.617000	−0.660000	−0.409855	−0.250000	−0.659988	−0.583671
Maximum	2.179523	5.716929	6.445974	2.240000	0.913000	1.620000	1.830000	2.260000	4.353258	2.180000
Minimum	−1.672876	3.227508	−5.590123	−1.620000	0.352000	−2.810000	−1.550000	−2.240000	−3.917247	−1.722627
Std. Dev.	0.925283	0.570956	2.608220	0.865965	0.146289	0.891432	0.813091	0.883805	1.713198	1.016543
Skewness	1.020572	0.683458	0.960631	0.809390	0.169093	0.241467	0.879904	0.566506	0.923097	0.891413
Kurtosis	3.032449	3.321307	3.209124	3.185609	2.169996	3.095229	2.940130	3.069214	3.291959	2.899522
Jarque–Bera	33.33859	15.77359	29.87982	21.23918	6.426206	1.938349	24.80405	10.30805	27.94938	25.50854
Probability	0.000000	0.000376	0.000000	0.000024	0.040232	0.379396	0.000000	0.005776	0.000001	0.000003
Sum	−41.12262	815.3281	−99.03889	3.470000	116.3350	−102.6500	−36.21049	−22.17000	−60.63314	−70.33114
Sum Sq. Dev.	163.5243	62.26428	1299.337	143.2300	4.087471	151.7784	126.2733	149.1922	560.5943	197.3718
Observation	192	192	192	192	192	192	192	192	192	192

Note: Inequality-adjusted human development index (IHDI), competitiveness (COM), development expenditure (DE), trade openness (TO), governance effectiveness (GE), control of corruption (COC), political stability (PS), rule of law (ROL), voice and accountability (VAC), regulatory quality (RQ), economic governance (EG), institutional governance (IG), and political governance (PG).

4.2. Pearson Correlation Matrix

The value of correlation lays between 0–1; the closer the value is to 0 means the lowere the correlation among the variables, while the closer the value is to 1 shows a higher correlation among the variables. If the value is exactly 1, it means perfect collinearity among the variables, which is one of the signs that the assumption of regression analysis has not been fulfilled. The results show that some of the variables are highly correlated such as DE and COC, ROL and DE, TO and RQ, TO and COC, ROL and COC, and TO and DE. The correlation among those variables is more than 90 percent. Furthermore, some of the variables have low correlation with each other, such as PS and COM, PS and IHDI, and RQ and PS. The correlation among those variables is less than 50 percent. Some of the variables have a moderate correlation with each other; their values are greater than 50 percent but less than 90 percent (Table 3).

Table 3. Pearson correlation matrix.

Variables	COC	COM	DE	GE	IHDI	PS	ROL	RQ	TO	VAC
CC	1.000000									
COM	0.587674	1.000000								
DE	0.962194	0.624751	1.000000							
GE	0.910632	0.713392	0.932106	1.000000						
IHDI	0.499039	0.668665	0.571787	0.636849	1.000000					
PS	0.479046	0.394190	0.539397	0.530321	0.429348	1.000000				
ROL	0.933084	0.662862	0.956422	0.919141	0.533083	0.528951	1.000000			
RQ	0.719667	0.678473	0.847969	0.807258	0.710895	0.422299	0.798854	1.000000		
TO	0.925776	0.639825	0.990070	0.923391	0.611368	0.536627	0.945642	0.900270	1.000000	
VA	0.811232	0.367228	0.814837	0.691504	0.269046	0.407381	0.803852	0.621015	0.788239	1.000000

4.3. Results of Panel Unit Root

The study utilized two panel unit root tests in order to test the stationarity of the data. The second column of the table shows the results of the LLC panel unit root test, which shows that all of the variables are stationary at I(0). The calculated value of LLC was compared with the tabulated values computed using an asymptotic Chi-square distribution. Some variables are stationary at I(0) at 1% significance, while some are at the 5% significance level. Similarly, the results of the ADF-Fisher panel unit root test show the same results, as all of the variables are at I(0) at the 1% and 5% significance levels. The results of both tests confirm that all of the variables are at I(0) (Table 4).

Table 4. Results of the unit root tests.

Variables	Levin, Lin, and Chu (LLC)	ADF-Fisher Chi-Square
IHDI	−18.0358 *	64.1987 *
COM	−11.0333 *	27.8355 *
DE	−4.56698 *	26.5048 *
TO	−3.10754 **	14.6128 ***
GE	−6.76706 *	34.8641 *
COC	−4.29074 *	26.8834 *
PS	−17.7264 *	42.7354 *
ROL	−8.06792 *	40.1437 *
VAC	−6.19445 *	33.0448 **
RQ	−4.26079 *	15.6878 **
EG	−18.1208 *	57.3753 *
IG	−24.4516 *	62.4627 *
PG	−16.3474 *	58.3481 *
GovI	−18.1209 *	57.3757 **

Note: The probabilities for the Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. * 1 percent significance level, ** 5 percent significance level, and *** 10 percent significance level.

4.4. Panel Granger Causality

The study used a panel Granger causality test to check the direction of causality between the dimensions of the governance index and developmental expenditure, competitiveness, trade openness, and IHDI. In this analysis, we only consider the three dimensions of the governance index instead of indicators of the governance index. The causality can be of two types: unidirectional and bi-directional. Unidirectional causality is when one variable causes the change of another variable, while in bi-directional causality, both variables cause each other to change. F-statistics is the major criterion that shows the acceptance and rejection of the null hypothesis. By looking into the *p*-values, we come to different conclusions: some variables are bi-directional, while others show a unidirectional causal relation in the case of the selected Asian countries. The study found unidirectional causality between economic governance and development expenditures, meaning that in the case of economic governance, there are more developmental expenditures in the selected Asian countries. Most importantly, there is bi-directional causality in the IHDI and development expenditure, which means that both variables cause each other. The IHDI causes more government investments in development projects, whereas more development expenditure in the country achieve the IHDI. The literature supports the above results in that, in the case of better political governance, there will be more developmental expenditure. A stable government can develop policies for developmental projects in that country. Trade openness and development expenditure have a bi-directional causal relationship with each other, meaning that both cause the increase of the other variable. Stable economic governance

causes a higher IHDI, which means that in cases of stable economic governance, the country will achieve a better IHDI. Furthermore, economic governance causes political governance in the selected Asian countries. From the literature, it is also evident that if the economic policies of any government are going in the right direction, there will be a better political situation for the ruling party. All of the dimensions of the governance index are dependent on each other; either the dimensions show a uni- or bi-directional relationship in the case of the selected Asian countries.

The governance index is based on three dimensions: institutional governance, political governance, and economic governance. Each dimension is based on further indicators, i.e., political governance is based on two indicators: political stability and voice and accountability, whereas institutional governance is based on the rule of law and corruption control and economic governance is based on regulation quality and government effectiveness (Table 5).

Table 5. Granger causality test by dimension of the governance index.

Null Hypothesis	Obs	F-Statistic	Prob.	Conclusion
IHDI does not Granger Cause COMP	168	1.44409	0.2312	No Causality
COMP does not Granger Cause IHDI		0.62696	0.4296	No Causality
IHDI does not Granger Cause DE	168	6.80078	0.0012	**Bi-directional Causality**
DE does not Granger Cause IHDI		4.47387	0.0065	
IHDI does not Granger Cause ECOGOV	168	0.45883	0.4991	No Causality
ECOGOV does not Granger Cause IHDI		10.99640	0.0017	**Unidirectional Causality**
INSTGOV does not Granger Cause IHDI	168	0.08269	0.7740	No Causality
IHDI does not Granger Cause INSTGOV		0.28708	0.5928	No Causality
POLGOV does not Granger Cause IHDI	168	11.2169	8.7212	**Unidirectional Causality**
IHDI does not Granger Cause POLGOV		0.49951	0.4807	No Causality
TO does not Granger Cause IHDI	168	1.77920	0.1841	No Causality
IHDI does not Granger Cause TO		0.23373	0.6294	No Causality

Note: The maximum lag length is 1.

5. Conclusions and Policy Options

This study investigates the role of governance in inclusive human development in the case of the twenty-four selected Asian countries using the panel data for the time period from 2010 to 2017. The inequality-adjusted human development index, developed by the UNDP, has been used as a proxy for inclusive human development. In addition, six indicators of governance were used as independent variables in each regression model along with three control variables, i.e., trade openness, competitiveness, and developmental expenditure. There are three major dimensions of governance: political governance, economic governance, and institutional governance. Each dimension is based on two indicators, just as political governance is based on two indicators, i.e., political stability and voice and accountability. Economic governance is based on two indicators, i.e., regulation quality and governance effectiveness, while institutional governance is based on two indicators, i.e., the rule of law and the control of corruption. Principal component analysis was used to develop dimensions and an overall governance index.

The study used two panel unit root tests, LLC and ADF, to check for stationarity in the data. The results of the panel unit root test show that all of the variables have the same order of integration. Furthermore, all of the variables are stationary at I (0). Moreover, the study used a Pearson correlation matrix to find out the associations among the variables. The findings show a mixed level of correlation among the variables, as some of the variables are highly correlated, such as development expenditure (DE) and control of corruption (COC), rule of law (ROL) and development expenditure (DE), trade openness (TO) and regulatory quality (RQ), trade openness (TO) and control of corruption (COC), rule of law (ROL) and control of corruption (COC), and trade openness (TO), and development

expenditure (DE). Furthermore, some of the variables have a low correlation with each other, such as political stability (PS) and competitiveness (COM) and political stability (PS) and the inclusive human development index (IHDI), regulatory quality (RQ), and political stability (PS). Some of the variables have moderate correlations with each other; their values are greater than 50 percent but less than 90 percent.

Finally, our results show that a strong causal relationship among the variables exists. One of the most important findings is that there is bi-directional causality between the inclusive human development index (IHDI) and development expenditure, which means that both variables cause each other to change. The IHDI causes more government investment in development projects, whereas more development expenditure in the country achieves the IHDI. The literature supports this result: in the case of better political governance, there will be more developmental expenditure (Hassan et al. 2020; Ahmad and Saleem 2014; Keser and Gökmen 2018; Caron et al. 2012). A stable government can develop policies for the developmental projects in that country. Trade openness and development expenditure have a bi-directional causal relationship with each other, meaning that both cause the increase in the other.

Our results are in line with the research of Mustafa et al. (2017) and Rizavi et al. (2020). Stable economic governance causes a higher IHDI, which means that in cases of stable economic governance, the country will achieve a better IHDI. Furthermore, economic governance causes political governance in the selected Asian countries. From the literature (Uddin and Joya 2007; Brada et al. 2019), it is also evident that if the economic policies of any government are going in the right direction, there will be a better political situation for the ruling party. All of the dimensions of the governance index are dependent on each other; all of the dimensions show a unidirectional or bi-directional relationship in the case of the selected Asian countries.

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Data Availability Statement: No new data have been used.

Appendix A

Table A1. List of the countries.

Sr. No.	Countries
1	Azerbaijan
2	Armenia
3	Bangladesh
4	Bhutan
5	Cyprus
6	China
7	Georgia
8	Israel
9	Indonesia
10	India
11	Iran

Table A1. *Cont.*

Sr. No.	Countries
12	Japan
13	Jorden
14	Kyrgyz Republic
15	Kazakhstan
16	Lao PDR
17	Myanmar
18	Nepal
19	Philippines
20	Pakistan
21	Sri Lanka
22	Singapore
23	Tajikistan
24	Turkey

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