Can The Fragility of States Influence The Relationship Between Economic and Human Development?

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Abstract

The institutional governance of countries is a subject intensely explored in recent literature, particularly regarding the influence that governance exerts on economic and social equilibrium. This study investigates the influence that the fragility of nation states has on the link between human and economic development of 129 states, between 2008 to 2022. Basic regression techniques and static panel methods are used (Pooled OLS, Robust regression, Fixed and random effects, Panel-corrected standard errors regression, Prais-Winsten regression) and the Fragile State Index captures the states fragility in terms of social, economic and social challenges. Empirical findings indicate that the more fragile the states, the lower the level of human development, while economic prosperity and government spending lead to improved human development. This study is helpful for policymakers and government authorities to whom it presents evidence of the importance of reducing the fragility of countries, as a premise for human and economic development.

Key words: governance, state fragility, economic growth, human development, government expenditure
J.E.L. classification: O11, O15, H53

1. Introduction

In humanity's efforts to improve people socio-economic conditions, the Sustainable Development Goals are important in guiding the public policies of nation states for the 2030s agenda (United Nations, 2024; Mombeuil and Diunugala, 2021, p. 311). Specifically, 17 Sustainable Development Goals have been adopted by the United Nations countries in 2015 and they include the major themes of human, economic, social and environmental development that contemporary society is facing. Under SDG 1, poverty eradication is a goal aimed at changing the status of groups vulnerable to poverty. SDG 3 identifies the goal of ensuring a healthy life for individuals and promoting their well-being at any age, against the background of major discrepancies between different regions of the world in the field of healthcare and different opportunities for access to health services. SDG 4 promotes quality, inclusive and equitable education, which can make a major contribution to changing life expectancy for the better and to the development of numeracy or literacy skills, considered premises for harmonious human development. The encouragement of sustainable economic growth, proclaimed by SDG 8, aims to support the growth of GDP per capita, labour productivity, employment measures and reduction of unemployment. SDG 16 proclaims the importance of a peaceful society with effective, accountable and inclusive institutions at all levels. From the brief description of these objectives provided by the Sustainable Development Goals, it follows that the themes of human development, economic growth and state governance are part of the contemporary concerns of governments, aware of the importance of configuring public policies that target these essential objectives.

The Human Development Index (HDI) is built to provide a development measure, based on three categories of indicators, referring the longevity, education and income (Luchters and Menkhoff, 2000, p. 267). The indicator has gained a consistent reputation over time and has even become a competitor of the Gross Domestic Product (GDP) in characterizing the degree of development of nation states (Kalimeris et al, 2020, p. 1; Unnikrishnan and Jagannathan, 2015, p. 19). However, GDP retains the supremacy in the doctrinal struggle over welfare and well-being indicators, even if the HDI valences make it suitable for highlighting the area of human development, essential in the general equation of country development. On the other hand, the human and economic development of countries cannot be conceived without strong institutions, governance playing an essential role in ensuring the economic and social balance of contemporary societies (Massuga et al., 2024, p. 28567; Ha et al., 2023, p. 610).

Developing on this understanding, this study intends to explore a critical research question: *Does the state fragility affect the relationship between economic and human development?*

The aim of the study is to investigate the relationship between economic and human development with the mediator effect of the countries' governance, respectively of the fragility of the states. We add some control variables referring to the demographic conditions, the dependent persons and the degree of urbanization. The research includes 129 countries during the period 2008-2022. The main findings of this study can be summarized as follows: economic development leads to higher human development and enhancements in governance, more precisely, a decrease in the fragility of states contribute to growth in human development. These findings turn together the topics and evidence presented, presenting a comprehensive view of the subject matter.

This paper aids to literature on economic and human development, respectively governance, in several senses. First, it connects in a holistic manner these major topics on economic and human development, over a considerable period and many states. Second, this study considers the effect that governance in terms of state fragility has on the relationship between economic and human development. Third, this study explores the impact on human development of variables regarding the demographic conditions, as age dependency ratio and urbanization. This approach provides useful insight for policymakers on the influences and mechanisms by which economic development and governance affect human development.

The paper is organised on the succeeding sections: literature review, data and research methodology, results and discussions, conclusions and bibliographical citations.

2. Literature review

Based on a prior literature, this section describes the theoretical background of the linkage between human development, economic growth and countries' governance.

The governance of nation states positively influences human development, which in the past was improved through economic growth, and in the current period it is improved through government performance (Stylianou et al., 2023, p. 3). The way in which nation states are managed, economically, socially and politically, affects the level of human development, because education and health policies are the prerogative of governments, responsible for their adequate development and implementation. In addition, governments that succeed in developing economic policies with a positive impact on economic growth contribute to raising the population's standard of living. At the political and security level, good governance ensures a climate for human development.

This circumscribes the first hypothesis of the research:

Hypothesis 1 ***(H_1)***: Countries governance provides premises for increasing the level of human development.

The causal relation between economic and human development is often investigated in the recent studies, that considers the Gross Domestic Product as an essential indicator of economic development and also as a measure of well-being (Dedecek and Dudzich, 2022, p. 193). Although there are opinions that conceptually differentiate economic development from economic growth and a consensus cannot be identified on the meaning of the mentioned terms, Gross Domestic Product per capita is often considered as a proxy for welfare performance or for the relative efficiency of an economy, despite the new wave of the "new welfare" theory and against the backdrop of the myopic approach to GDP as an welfare indicator (Kalimeris et al, 2020, p. 1).

The Human Development Index (HDI) issued by the United Nations Development Programme (2024) is considered a major indicator for assessing a nation's overall standard of living and well-being (Ogujiuba et al., 2024, p. 527). The dimensions that HDI captures refer to a combination of variables that render the quality of life in terms of health and longevity, through life expectancy, complemented by indicators specific to education, through the number of real and expected years of school, as well as a dimension of individuals' income, which ensures the premises of a decent standard of living.

A positive relationship between GDP and HDI is confirmed by previous studies, which demonstrate that GDP contributes to the increase of national income (Kizilkaya et al., 2024, p. 186), to the decrease of unemployment and the increase of wages, given that people choose to spend money on education, food and health, which contribute directly to human development (Khan et al., 2019, p. 19294).

Another macroeconomic indicator, represented by government expenditure, plays an important role in development, through the impact it has on the growth of HDI, through mechanisms to reduce poverty, reduce inequalities, increase the income of individuals, reduce unemployment and a spike in economic growth (Masduki et al., 2022, p. 1). Public social expenditure, referring the health, education and social protection spending, reduces the inequalities, inequity in education, life expectancy and income distribution, which leads to the increase of HDI (Miranda-Lescano et al., 2024, p. 363).

Considering these, we can formulate the following hypothesis of this study:

Hypothesis 2 ***(H_2)***: Rising GDP per capita lead to increased human development.

Hypothesis 3 ***(H_3)***: Government expenditure contributes to the growth of human development.

3. Research methodology

This section describes data and methodology used to explore the mediator effect of countries governance on the relationship between human and economic development. We use a global data panel between 2008 to 2022, consisting of 129 countries, whose selection was made based on the available data. The list of these countries is presented in Appendix 1, while Table no. 1 shows the source of the data.

Table no. 1 Variables and data sources

Variables	Description	Data source
HDI – Human Development Index	Index based on several indicators: long and healthy life (Life expectancy at birth), knowledge (Expected years of schooling, Mean years of schooling) and a decent standard of living (GNI per capita PPPUSD) Score: 0 (low) – 1 (high)	United Nations Development Programme (2024)
GOVERNANCE - Fragile State Index	Index developed on social indicators (Demographic pressures, Refugees and internally displaced persons, Group grievance, Human flight and brain drain), economic indicators (Uneven economic development, Economic decline, Poverty and economic disparity) and political indicators (State legitimacy, Public services, Human rights and rule of law, Security apparatus, Factionalized elites, External intervention) Score: 0 (stability) – 120 (instability)	Fund for Peace, Fragile State Index (2024)
GDPPP - Gross domestic product per capita	Gross domestic product per capita, constant prices, Purchasing power parity; 2017 international dollar, Units	International Monetary Fund, The World Economic Outlook (WEO) database (2024)
GOV_EXP – Government expenditure to GDP	General government total expenditure, Percent of GDP	International Monetary Fund, The World Economic Outlook (WEO) database (2024)

DEPENDENCY – Age Dependency Ratio	Percentage of working-age population (proportion of dependents per 100 working-age population), the ratio of dependents, represented by people younger than 15 or older than 64, to the working-age population (those ages 15-64)	World Bank, World Development Indicators (2024a)
URBAN - Urban population	Percentage of total population, people living in urban areas, percentage of total population	World Bank, World Development Indicators (2024b)

Source: Author's processing in STATA

The variables used are chosen based on the previous literature (presented in the previous section), which considers the Human Development Index (HDI) as a reference index of human development, that captures indicators on a long and healthy life, education and income of individuals. HDI is the dependent variable of the model, and the core explanatory variables are the following:

- To manage the governance of nation states, the Fragile State Index (GOVERNANCE) developed by the Fund for Peace is used, which is a composite index based on a mix of social, economic and political variables.
- Economic development is examined using GDP per capita (GDPPP), which illustrates the economic performance of states and reflects their prosperity.
- Government expenditure (GOV_EXP) is employed to provide information on government efforts to achieve the economic and social objectives of the countries being studied.

Prior research in human development area allows the identification of two control variables used to highlight demographic aspects regarding age dependency ratio (Putkaradze et al., 2020, p. 89) and urbanization (Tripathi, 2021, p. 1053). To determine the influence that the state's involvement has in supporting vulnerable groups, age dependency ratio is used (DEPENDENCY) and to capture the influence that demography has on human and economic development, the urban population percentage indicator is used (URBAN).

The descriptive statistics of the variables are presented in Table no. 2, from which it follows that for all the variables used, there is a high heterogeneity between states, given that the ranges of values of the indicators register large differences between their minimum and maximum. The heterogeneous nature of the data lies in the fact that the countries studied are classified in all categories of economic development in terms of income (high, medium and low) and present differences in terms of human and economic development. In terms of human development, the HDI index is between 0.318 and 0.967, with an average of 0.726 and a standard deviation of 0.160, which shows a significant dispersion from the average. The analysis of the evolution of the degree of fragility of nation states, quantified by the Fragile State Index, shows a very wide range of values of the fragility of governance from the minimum of 14,630 (which denotes the most solid states) to the maximum of 114 (which shows the most fragile state), in terms of social indicators regarding demographic pressures and the structure of demographic groups, economic indicators and the degree of poverty, as well as political indicators, referring to public services, state legitimacy, rule of law etc. The same situation of heterogeneity between states is valid for the variables that render economic development (GDPPP, GOV_EXP), as well as for the variables that present the demographic situation of people dependent on government support and the degree of urbanization (DEPENDENCY and URBAN).

Table no. 2 Descriptive statistics of the variables

Variables	N	Min	Max	Mean	Std. dev.
HDI	1935	0.318	0.967	0.726	0.160
GOVERNANCE	1935	14.630	114	65.580	24.583
GDPPP	1935	6.863	11.695	9.426	1.161
GOV_EXP	1935	3.790	66.44	31.404	12.053
DEPENDENCY	1935	16.172	109.24	58.650	17.203
URBANIZATION	1935	15.326	100	60.428	22.403

Source: Author's own processing based on data from table no. 1

To determine the impact of governance and economic development on human development, this study gradually performs the following basic regression techniques and panel static models in STATA (Pooled OLS, Robust regression, Fixed and random effects, Panel-corrected standard errors regression, Prais-Winsten regression), based on the equation:

$$\mathrm{HDI}_{i,t} = \propto_0 + \propto_1 \mathrm{GOVERNANCE}_{i,t} + \propto_2 \mathrm{GDPPP}_{i,t} + \propto_3 \mathrm{GOV\_EXP}_{i,t} + \propto_4 \mathrm{DEPENDENCY}_{i,t+} + \propto_5 \mathrm{URBAN}_{i,t} + u_{i,t} \quad (1)$$

where *i* represents the country, *t* is the period (years), *variables* as they are set in *Table no 1*, α_1 is constant (intercept), $\alpha_{1,2,3,4,5}$ are the coefficients of the estimated parameters and $u_{i,t}$ is the error term.

4. Results and discussions

First, to verify the data validity and the robustness of the regressed results of the study, the basic classical linear regression model expectations are tested. The stationarity of data (Table no. 3) is based on the Levin-Lin-Chu tests, appropriate for available panel data (Levin et al., 2002, p. 1), whose results show that the null hypothesis is rejected that all panels contain unit roots.

Table no. 3 Stationarity of the variables

Variables	LLC test (Levin-Lin-Chu unit root test)	Conclusion
HDI	-18.740***	Stationarity
GOVERNANCE	-10.142***	Stationarity
GDPPP	-10.423***	Stationarity
GOV_EXP	-20.769***	Stationarity
DEPENDENCY	-28.270***	Stationarity
URBAN	-8.996***	Stationarity

Notes: ***, ** and * denote significance at 1, 5 and 10 percent level respectively.
Source: Author's own processing based on data from table no. 1

Second, we test the multicollinearity between variables (Table no. 4), whose conclusions denote that the variables are not correlated (except for HDI and GDPPP for which the value of the correlation coefficients is high, but explainable by the meaning of the variables and the interaction between them).

Table no. 4 Correlation matrix of the variables

Variables	HDI	GOVERNANCE	GDPPP	GOV_EXP	DEPENDENCY	URBAN
HDI	1.00					
GOVERNANCE	-0.85	1.00				
GDPPP	0.96	-0.84	1.00			
GOV_EXP	0.64	-0.62	0.61	1.00		
DEPENDENCY	-0.77	0.55	-0.74	-0.40	1.00	
URBAN	0.78	-0.68	0.81	0.50	-0.57	1.00

Source: Author's own processing based on data from table no. 1

We prove heteroskedasticity of data (Table no. 5), based on the White, Cameron & Trivedi (Cameron and Trivedi, 1990) and the Breusch-Pagan (Breusch & Pagan, 1979) tests.

Table no. 5 Results of heteroscedasticity and autocorrelation analysis

Test	Chi2 / F-stat	p-value	Result	Conclusion
White's test	433.77	0.000	Reject H_0: Homoscedasticity	Heteroscedasticity
Breusch-Pagan test	21.44	0.000	Reject H_0: Constant variance	Heteroscedasticity
Wooldridge test	21.70	0.000	Reject H_0: No first order autocorrelation	Serial correlation

Source: Author's own processing based on data from table no. 1

The serial correlation (Table no. 5) is explored through the Wooldridge test (Wooldridge, 2002, p. 1), which demonstrates that the null hypothesis of no serial correlation is declined and that there is serial correlation in data.

All the variables are normally distributed, based on skewness and kurtosis probabilities (Table no. 6).

Table no. 6 Skewness and kurtosis tests for normality

Variables	Pr(Skewness)	Pr(Kurtosis)	Adj chi2
HDI	0.000	0.000	253.67***
GOVERNANCE	0.000	0.000	280.61***
GDPPP	0.000	0.000	301.63***
GOV_EXP	0.000	0.000	146.63***
DEPENDENCY	0.000	0.000	158.09***
URBAN	0.000	0.000	291.66***

Notes: ***, ** and * denote significance at 1, 5 and 10 percent level respectively.
Source: Author's own processing based on data from table no. 1

There are premises of a long-term relationship between the studied variables (Table no. 7), as shown by the applied cointegration tests (Kao, 1999, p. 1; Pedroni, 2004, p. 597; Westerlund, 2005, p. 297).

Table no. 7 Cointegration of the variables

Kao cointegration test	Statistic	Pedroni cointegration test	Statistic	Westerlund cointegration test	Statistic
Modified Dickey-fuller t	3.046***	Modified Phillips-Perron t	13.209***	Variance ratio	-2.695***
Dickey-fuller t	0.634	Phillips-Perron t	-11.345***		
Augmented Dickey-fuller t	1.157	Augmented Dickey-fuller t	-9.868***		
Unadjusted modified Dickey-fuller t	1.730**				
Unadjusted Dickey-fuller t	-0.538				

Notes: ***, ** and * denote significance at 1, 5 and 10 percent level respectively.
Source: Author's own processing based on data from table no. 1

Cross-sectional dependence analysis (Table no. 8), based on the Pesaran test (Pesaran, 2004, p. 1) denotes that data are cross-sectionally dependent.

Table no. 8 Cross-sectional dependence between the variables

Variables	Pesaran test	Result	Conclusion
HDI	279.53***	Reject H_0: cross-section independence	Cross-sectional dependence
GOVERNANCE	128.41***	Reject H_0: cross-section independence	Cross-sectional dependence
GDPPP	184.27***	Reject H_0: cross-section independence	Cross-sectional dependence
GOV_EXP	60.78***	Reject H_0: cross-section independence	Cross-sectional dependence
DEPENDENCY	2.40**	Reject H_0: cross-section independence	Cross-sectional dependence
URBAN	na	na	Cross-sectional dependence

Notes: ***, ** and * denote significance at 1, 5 and 10 percent level respectively; na – not applicable.
Source: Author's own processing based on data from table no. 1

Several important findings arise from the regression methods displayed in Table no. 9. First, it follows that all variables are statistically significant and exerts influence on the dependent variable, represented by HDI.

Table no. 9 Results of interactions between human development, economic development and governance

Dependent variable - HDI	OLS – Pooled OLS	RE - Robust regression	FE – Fixed effects	RE – Random effects	PCSE – Panels corrected standard errors	PRAIS – Prais - Winsten regression
GOVERNANCE	-0.0010***	-0.0010***	-0.0004***	-0.0005***	-0.0010***	-0.0002***
GDPPP	0.0909***	0.0902***	0.0851***	0.0879**	0.0909***	0.0898***
GOV_EXP	0.0009***	0.0011***	0.0001**	0.0001***	0.0009***	0.0001***
DEPENDENCY	-0.0014***	-0.0015***	-0.0002***	-0.0005***	-0.0014***	-0.0010***
URBAN	0.0001*	0.0002***	0.0037***	0.0022***	0.0001***	0.0014***
Constant	-0.0158	-0.0147	-0.2658***	-0.1785***	-0.0158	-0.1382**
R^2	0.95	-	0.87	0.91	0.95	0.96
Hausman test	-	-	0.000		-	-

Source: Author's own processing based on data from table no. 1

The improvement of the governance of the analysed states, more precisely the decrease of the fragility of the countries, leads to the improvement of the level of human development, which confirms the **H_1 hypothesis** (which assumed that enhanced governance would lead to improved human development). The more the fragility of the state is mitigated and the institutions become resilient (they are properly controlled, led and empowered), the more the premises for improved human development are created, as citizens benefit from quality health services and education. In addition, in states where fragility is decreasing, conditions are created for higher incomes per person, prosperity and reduction of inequalities, which contributes to the improvement of human development.

The results reveal that increasing GDP per capita has a positive and significant impact on human development in the sample countries. These results confirm that **H_2 hypothesis** can be accepted. Hypothesis H_2 implied that rising GDP per capita leads to increased human development. The positive influence that GDP per capita has on HDI can be explained by the fact that economic growth leads to job creation, reduction of poverty and unemployment, which creates conditions for citizens to obtain income and greater social stability, contemptuous of sustainable human development. Economic growth allows governments to invest in health and education, both in infrastructure and in the quality of services, and thus creates the opportunity to achieve the health and education conditions specific to human development.

We find that the growth of government expenditure contributes to the growth of human development, thus validating the **H_3 hypothesis**. Hypothesis H_3 referred to the fact that increasing government spending generates higher human development. Government spending provides support programs and infrastructure in education and health, as well as public services that contribute to human development. Governments can allocate funds for job creation programs, social programs, support for vulnerable groups or reduction of inequalities.

As regards the control variables, it is found that the age dependency ratio negatively influences human development, given that an increase in the number of people who are dependent on government support, in relation to the population able to work, leads to a deprivation of public resources that could generate benefits in terms of education, health or income for citizens in general. Urbanization positively contributes to human development, as urban areas benefit from easier access to health and education infrastructure, as well as economic opportunities related to jobs. Quality of life, cultural services and sustainable urban development contribute significantly to human development.

5. Conclusions

The study explores the relationship between economic and human development with governance as mediator, using a worldwide panel data with 129 countries, between 2008 and 2022. The results were obtained in STATA through the following basic regression techniques and panel static models in STATA: Pooled OLS, Robust regression, Fixed and random effects, Panel-corrected standard errors regression and Prais-Winsten regression.

We consider the Human Development Index as a reference index of human development, that captures indicators on a long and healthy life, education and income of individuals. To discover the governance of nation states, the Fragile State Index developed by the Fund for Peace is used, which is a composite index based on a mix of social, economic and political variables. Economic development is explored using GDP per capita, which proves the economic performance of states and reflects their prosperity. Government expenditure is employed to display national efforts to achieve the economic and social objectives of the countries being studied. Two control variables are engaged to emphasize demographic aspects regarding age dependency ratio and urbanization.

We find that governance, quantified by the decrease in the fragility of countries contributes to the improving in human development, in line with the previous literature which emphasized the importance of governance in human development. Also, increasing GDP per capita and government expenditure has a positive and significant impact on human development in the sample countries. An enhance in the percentage of dependent population (under the age of 15 or over 64 years of age) worsens the general degree of human development, by depriving public resources to support these groups of dependent persons. Also, we prove that urbanization positively contributes to human development.

This study has theoretical and practical implications. Each government is responsible for ensuring good governance and premises for human and economic development. This study's results are helpful for policymakers to understand the relationship between governance, human and economic development. Other general categories directly involved in the studied issues are citizens, whose concerns are related to the trinomen - governance, human and economic development - essential for a high quality of life.

The limits of the study refer to the number of countries analyzed, period and indicators studied. Future research directions plan to expand the study to another states, obtain data as close as possible to the recent period and add new variables that could be appropriate in the analysis.

Appendix 1. List of studied countries: Afghanistan, Albania, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Cambodia, Cameroon, Canada, Chad, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czechia, Denmark, Dominican Republic, Ecuador, El Salvador, Estonia, Ethiopia, Finland, France, Gabon, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea Rep., Kuwait, Kyrgyz Republic, Lao PDR, Latvia, Lebanon, Lesotho, Liberia, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, North Macedonia, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russian Federation, Rwanda, Saudi Arabia, Senegal, Serbia, Sierra Leone, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Tajikistan, Tanzania, Thailand, Togo, Tunisia, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Venezuela RB, Viet Nam, Yemen Rep., Zambia, Zimbabwe.

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