



Regular article

The Influence of Government Expenditure and Economic Growth on the Human Development Index in Timor-Leste (2008–2022)

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ABSTRACT

This study investigates the influence of Government Expenditure and Economic Growth on the Human Development Index (HDI) in Timor-Leste over the period 2008–2022. The analysis employs annual time-series data and utilizes a semi-log multiple linear regression model to accommodate differences in measurement scales among variables. Descriptive results reveal substantial fluctuations in Government Expenditure and Economic Growth driven by fiscal pressures, political instability, and external shocks such as the COVID-19 pandemic. In contrast, HDI demonstrates a gradual upward trend, reflecting the long-term nature of human development indicators. Empirical findings show that Government Expenditure and Economic Growth jointly exert a significant influence on HDI. However, partially, Government Expenditure displays a significant negative effect, suggesting inefficiencies in budget allocation or delayed policy impacts on social outcomes. Meanwhile, Economic Growth exhibits a negative but statistically insignificant effect, indicating that economic expansion, largely driven by the oil and gas sector, has not translated into meaningful improvements in human development. The model's coefficient of determination ($R^2 = 0.5545$) indicates that 55.45% of the variation in HDI is explained by the included variables, while the remaining 44.55% is influenced by structural factors such as institutional capacity, public service quality, income distribution, and access to education and health services. Overall, the study underscores the importance of enhancing public expenditure effectiveness and promoting inclusive economic growth to strengthen human development outcomes in Timor-Leste.

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Introduction

Timor-Leste is the youngest developing country in Southeast Asia and continues to face multidimensional development challenges. Despite having abundant petroleum resources, the country's economic structure remains narrow and highly dependent on revenues from the oil and gas sector. This extreme dependence makes the national economy vulnerable to fluctuations in global commodity prices, which directly influence government revenues, fiscal capacity, and the ability

of the state to finance long-term development strategies. Moreover, institutional limitations, including weaknesses in public financial management, low administrative efficiency, and recurrent political instability, further constrain the government's ability to deliver essential public services and improve population welfare.

The Human Development Index (HDI) serves as a comprehensive indicator for evaluating a nation's progress in health, education, and living standards. Although Timor-Leste has recorded improvements in HDI since its independence, the country remains within the medium

human development category and continues to lag behind regional peers. Challenges persist in ensuring equitable access to quality education, reducing high maternal and child mortality rates, and improving living conditions across rural and remote regions. These disparities highlight the need for effective public policies and targeted investments in social sectors.

Public expenditure plays a critical role in enhancing human development. According to Musgrave's theory of public finance, government spending fulfills allocative, distributive, and stabilizing functions that directly impact welfare outcomes. However, in Timor-Leste, despite high levels of public spending relative to GDP, improvements in social indicators have not been proportionate. A large share of the budget is allocated to recurrent expenditure, while capital development spending often faces delays in execution. These inefficiencies reduce the potential impact of public expenditure on education, health, and infrastructure, three essential pillars of human development.

Similarly, economic growth is often expected to contribute positively to human development by increasing national income, expanding employment, and improving access to social services. However, the volatility of Timor-Leste's economic growth, marked by contractions in 2017–2018 due to political uncertainties and a severe decline during the COVID-19 pandemic, illustrates the limited resilience of the nation's economy. Moreover, growth driven primarily by the extractive sector tends to be enclave in nature, offering few employment opportunities and limited spillover effects to the broader population. As a result, economic growth does not necessarily translate into better human development outcomes.

Empirical studies show mixed findings regarding the relationship between government expenditure, economic growth, and human development. In some cases, increased social spending has improved HDI, while in others, poor institutional quality has hindered such effects. Similarly, economic growth may fail to enhance human development when it is not inclusive or when resource revenues do not translate into improved public services. Therefore, examining the nexus among these variables is particularly important for Timor-Leste, given its unique fiscal structure, economic vulnerabilities, and ongoing efforts to improve human development.

The objective of this study is to analyze the influence of Government Expenditure and Economic Growth on the Human Development Index in Timor-Leste during the 2008–2022 period. The findings are expected to contribute theoretically to the literature on fiscal policy and human development, and practically to the formulation of more effective development policies in Timor-Leste. The following presents data on the variables in Table 1/

Table 1. Data on Government Expenditure, Economic Growth,

and HDI in Timor-Leste

Tahun	Belanja Pemerintah (Miliar USD)	Pertumbuhan Ekonomi (%)	IPM (HDI)
2016	1.629	3	6,26
2017	1.185	-2,8	6,45
2018	1.158	-0,5	6,50
2019	1.233	2,7	6,56
2020	1.135	-8,5	6,40
2021	1.441	2,9	6,50
2022	1.741	4	6,62

Source: INETL; Budget Transparency Portal Timor-Leste (2024); International Monetary Fund (IMF); UNDP

Literature Review

Human development is a multidimensional concept aimed at improving the quality of life by expanding people's opportunities and capabilities. According to UNDP (1990; 2023), development should not be measured solely by economic growth but by long-term advances in health, education, and standard of living. Anand and Sen (1994) emphasize that human development focuses on broadening individuals' capabilities and freedoms, making the Human Development Index (HDI) a crucial indicator for evaluating development performance. HDI captures the essence of human well-being, integrating core dimensions that reflect sustainable and inclusive progress (UNDP, 2023).

Government expenditure plays a critical role in enhancing human development. Musgrave and Musgrave (1989) highlight the allocative, distributive, and stabilizing functions of public finance, all of which contribute directly to societal welfare. Public spending, especially in social sectors such as education and healthcare, has been found to significantly improve human capital and living standards (Widodo et al., 2019). Similarly, Candra Sari et al. (2022) note that effective budget allocation can strengthen public service delivery and elevate HDI outcomes. Nevertheless, the impact of government expenditure is heavily influenced by governance quality, transparency, and institutional capacity. Zakia Putri (2023) stresses that the credibility of the budget and the efficiency of expenditure execution determine whether spending translates into tangible human development results.

Economic growth is also strongly related to human development. The Solow-Swan model, as discussed in Mankiw (2018), argues that long-term growth depends on technology, capital accumulation, and labor productivity. Todaro and Smith (2020) further emphasize that growth becomes meaningful only when it is inclusive—creating employment, improving access to public services, and reducing poverty. Empirical studies show that economic expansion has the potential to improve human development outcomes (Pitaloka, 2021; Wulandari & Rachmawati, 2021). However, the magnitude of this impact varies across countries depending on economic structure, diversification, and the distributional effects of growth.

The relationship among government expenditure, economic growth,

and HDI is dynamic and interconnected. Barro (1990) contends that productive public spending enhances human capital accumulation, which in turn stimulates economic growth. Conversely, economic expansion increases government revenue, enabling greater investment in social development. Empirical findings on this nexus remain mixed. Some studies note positive relationships between government expenditure and HDI (Fonseca et al., 2022; Sitohang et al., 2024), while others report insignificant or even negative effects due to inefficient budgeting practices (Omodero et al., 2019). These inconsistencies suggest that the effectiveness of fiscal policy depends on the composition, timing, and governance of public spending.

In the context of Timor-Leste, a resource-dependent nation with emerging institutions and fluctuating economic performance, the study of these relationships is crucial. The country's reliance on oil revenues, limited diversification, and structural challenges underscore the importance of examining how fiscal and economic variables influence long-term human development.

Method

This study adopts a quantitative research design using multiple linear regression to examine the influence of Government Expenditure and Economic Growth on the Human Development Index (HDI) in Timor-Leste. The analysis uses annual time-series data covering the period 2008–2022, obtained from official national and international statistical sources. All data were subjected to verification procedures to ensure consistency in units, definitions, and time coverage before analysis.

The dataset consists of three main variables: HDI as the dependent variable, and Government Expenditure and Economic Growth as the independent variables. Government Expenditure is transformed into its natural logarithm to adjust differences in measurement units and to better capture proportional changes across time. Economic Growth is measured as the annual percentage change in real GDP.

Data analysis was conducted using E-Views software. The regression model applied in this study follows the form:

$$HDI = \beta_0 + \beta_1 \ln(GE) + \beta_2 EG + e$$

This model is used to estimate both the individual effects of each explanatory variable on HDI and their joint contribution to the variation in HDI. Hypothesis testing includes the use of the F-test to assess the simultaneous impact of the independent variables on HDI, while the t-test evaluates whether each variable exerts a significant partial effect. The coefficient of determination, R², is used to measure how much of the variation in HDI can be explained by the model.

The analytical procedure aims to capture the structural relationship between fiscal dynamics, economic conditions, and human development

performance in Timor-Leste. This approach allows a comprehensive understanding of how government interventions and macroeconomic conditions interact to influence long-term development outcomes.

Results and Discussion

The descriptive analysis reveals that Government Expenditure in Timor-Leste exhibits noticeable fluctuations during the study period, reflecting shifts in fiscal policy, changes in budget priorities, and variations in petroleum revenue dependence. Economic Growth also demonstrates substantial volatility, particularly during periods of political tension and the COVID-19 pandemic. In contrast, HDI shows a gradual upward movement, consistent with its characteristic as a long-term development indicator that responds slowly to short-term economic and fiscal fluctuations.

The regression estimation provides further insights into the dynamics between the variables. The coefficient of the natural logarithm of Government Expenditure is negative and statistically significant at the 5 percent level. This outcome indicates that increases in Government Expenditure correspond to a decline in HDI, suggesting that the existing pattern of public spending may not effectively contribute to improvements in human development. Potential explanations for this result include inefficiencies in expenditure allocation, the dominance of recurrent spending, delays in capital project execution, and insufficient targeting of social sectors.

Table 2. Regression Analyses Output Time Series Data

Sample: 2008 2022
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.188590	0.004866	860.7014	0.0000
LOG(BP)	-0.004868	0.002162	-2.252081	0.0438
PE	-0.000770	0.001090	-0.706007	0.4937
R-squared	0.554494	Mean dependent var	4.178285	
Adjusted R-squared	0.480243	S.D. dependent var	0.020518	
S.E. of regression	0.014792	Akaike info criterion	-5.412556	
Sum squared resid	0.002626	Schwarz criterion	-5.270946	
Log likelihood	43.59417	Hannan-Quinn criter.	-5.414065	
F-statistic	7.467832	Durbin-Watson stat	1.713934	
Prob(F-statistic)	0.007818			

Source: Data processed by the author (2025)

Economic Growth shows a negative coefficient with a very small magnitude, and more importantly, is statistically insignificant. This finding implies that variations in annual economic performance do not have a direct measurable impact on HDI during the observed period. Given Timor-Leste’s economic structure—highly concentrated in the oil and gas sector, economic expansions often fail to translate into broad-based welfare improvements. Growth that is not inclusive tends to generate limited employment opportunities and minimal spillover

effects, which helps explain its insignificant relationship with HDI.

The F-test confirms that Government Expenditure and Economic Growth jointly influence HDI, reflected by a probability value below the 5 percent significance threshold. This suggests that although Economic Growth does not affect HDI individually, its interaction with fiscal activity contributes to broader development dynamics. The model as a whole is therefore statistically acceptable for explaining variations in human development over time.

The coefficient of determination ($R^2 = 0.554494$) indicates that 55.45 percent of the variation in HDI can be explained by Government Expenditure and Economic Growth. The remaining 44.55 percent is influenced by other structural and institutional factors that are not captured in the regression model. These may include the quality of public services, distribution of income, poverty reduction efforts, infrastructure development, governance effectiveness, and political stability. Given that HDI reflects multidimensional progress, it is reasonable that a significant share of its variation is driven by long-term social and institutional factors rather than short-term macroeconomic fluctuations.

The findings of this study highlight four major implications. First, Government Expenditure significantly influences HDI, yet the negative sign signals inefficiencies within the expenditure structure. Second, Economic Growth fails to affect HDI, indicating that the petroleum-driven economy does not generate broad societal benefits. Third, the model's overall significance suggests that fiscal and economic conditions jointly shape development outcomes. Fourth, the moderate level of explanatory power reinforces that human development is shaped by a wide array of structural determinants that extend beyond the scope of the model.

Conclusion

The results of this study demonstrate that Government Expenditure and Economic Growth jointly influence the Human Development Index in Timor-Leste during the 2008–2022 period. However, the partial analysis reveals that only Government Expenditure exerts a significant effect, and its negative coefficient indicates that increases in spending have not translated into improvements in human development. This reflects inefficiencies in expenditure allocation, limited targeting of social sectors, or delays in the implementation of public programs. Economic Growth, on the other hand, does not significantly affect HDI due to its volatility and its dependence on the petroleum sector, which offers a limited contribution to social welfare. Overall, the findings underscore that improvements in HDI require more than increased fiscal

spending or higher growth—they necessitate structural reforms, improved governance, and targeted investments in key social sectors.

Recommendations

Improving human development outcomes in Timor-Leste requires strengthening the effectiveness of public expenditure, particularly by prioritizing programs that directly enhance education, healthcare, and basic infrastructure. Increasing the share of productive investment relative to recurrent expenditure is essential for ensuring that fiscal expansion translates into long-term development gains. Enhancing transparency, accountability, and efficiency in the budget execution process will also improve the developmental impact of public spending. In addition, efforts to diversify the economy beyond the oil and gas sector are crucial for promoting inclusive growth that generates employment opportunities and broad-based welfare improvements. Future studies are encouraged to incorporate additional variables such as poverty levels, income inequality, governance indicators, and regional disparities to provide a more comprehensive understanding of the determinants of human development.

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