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INDONESIA'S ECONOMIC GROWTH 1991–2024: THE ROLE OF CAPITAL EXPENDITURE, HUMAN DEVELOPMENT INDEX (HDI), AND INFLATION IN MACROECONOMICS PERSPECTIVE

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Abstract
This study analyzes the short- and long-term relationships between capital expenditure, the Human Development Index (HDI), and inflation regarding Indonesia's economic growth from 1991 to 2024. Employing the Autoregressive Distributed Lag (ARDL) approach and the Error Correction Model (ECM), the study examines macroeconomic dynamics—including the structural effects of the Asian Financial Crisis (1997–1998) and the COVID-19 pandemic (2020–2021)—via dummy variables. Estimation results indicate that capital expenditure has a positive and significant impact on economic growth in both the short and long term, whereas inflation has a negative and significant effect. While the HDI is not significant in the short term, it demonstrates a positive contribution in the long term, reflecting the importance of sustainable human development. Diagnostic tests (ADF, PP, VIF, Breusch-Pagan, Durbin-Watson, CUSUM) confirm the model's validity and the stability of the relationships between variables. These findings underscore that Indonesia's economic growth relies on a combination of productive capital expenditure, price stability, and inclusive human development, while also necessitating adaptive policies to withstand global shocks. The study offers empirical and policy-relevant insights for strengthening fiscal, monetary, and human development strategies within a sustainable macroeconomic framework.
Keywords: *Capital Expenditure, Economic Growth, Human Development Index, Inflation*

1. Introduction

A growing economy is one of the main indicators reflecting a country's success in improving the welfare of its people. For Indonesia, as a developing country with a large and heterogeneous population, the dynamics of economic growth are determined not only by production factors but also by the quality of human resources, fiscal policy, and price stability. The period 1991–2024 is an interesting timeframe to study because it encompasses the 1997–1998 Asian economic crisis, political reform, globalization, and the challenges of the COVID-19 pandemic that rocked the global economy. In this context, an analysis of capital expenditure, the Human Development Index (HDI), and inflation is relevant for understanding the foundations of Indonesia's economic growth.

Capital expenditure, realized through the development of physical and social infrastructure, plays a crucial role in creating new production capacity, facilitating the distribution of goods and services, and increasing economic efficiency. Government investment in the form of capital expenditure not only directly impacts output but also has a multiplier effect that strengthens economic activity across various sectors. However, the effectiveness of capital expenditure is often influenced by the quality of governance, transparency, and sustainability of the projects implemented.

On the other hand, the HDI, as a composite indicator encompassing the dimensions of education, health, and a decent standard of living, reflects the quality of human resources. Sustainable economic growth is inextricably linked to the role of humans as the primary actors in development. An increase in the HDI indicates improvements in the productive capacity of society, which in turn strengthens national competitiveness. Therefore, the HDI is not merely a measure of welfare but also a strategic variable influencing long-term economic growth.

Inflation, as an indicator of price stability, plays a dual role in the economy. Controlled

inflation can stimulate production and consumption activities, while high and unstable inflation precisely reduces household purchasing power., disrupts the investment climate, and suppresses economic growth. Indonesia, from 1991 to 2024, faced various inflationary dynamics, ranging from post-crisis hyperinflation to periods of relatively controlled price stability. Therefore, analyzing inflation is crucial to understand how macroeconomic stability affects growth.

The research problem is formulated as follows: to what extent do capital expenditure, HDI, and inflation influence Indonesia's economic growth during the period 1991–2024. The research objective is to identify the influence of these three variables on economic growth and to provide relevant policy recommendations for the Indonesian government. This research is expected to provide academic contributions to the development economics literature, as well as provide practical input for the formulation of fiscal policy, human development, and inflation control.

The significance of this research lies in the integration of fiscal aspects, human resource quality, and price stability within a single macroeconomic analysis framework. With a comprehensive approach, this study not only explains the factors influencing Indonesia's economic growth but also emphasizes the importance of cross-sectoral policy synergy to achieve inclusive and sustainable development.

This study integrates three variables (capital expenditure, HDI, and inflation) within a long-term macroeconomic framework (1991–2024), distinguishing it from previous studies that focused on only one or two variables or shorter timeframes. It offers policy insights regarding the importance of productive capital expenditure and price stability, while demonstrating that HDI requires a longer time horizon to impact growth.

2. Literature Review

2.1 Economic growth Theory

The growth study economy has long been the focus of the knowledge economy. Classical models, such as Harrod-Domar, emphasize the importance of investment as a driving force for growth, while Solow-Swan added the role of technology and capital accumulation. The theory of endogenous growth (Romer, Lucas) highlights the role of the source power of people, innovation, and public policy in creating sustainable growth. In the Indonesian context, theories relevant to explaining how capital expenditure, human quality, and stability price interact to push growth.

2.2 Capital Expenditure and Economic Growth

Government capital expenditure covers investment in infrastructure, physical (roads, bridges, energy), and social (education, health) sectors. The study empirically shows that capital expenditure has an effect multiplier on national output, increasing productivity, and expanding capacity production. However, the effectiveness of capital expenditure is highly dependent on the quality of governance, transparency, and sustainability projects. Research in developing countries confirms that appropriate capital expenditure targets can speed up economic growth, while inefficient inefficient expenditure imposes fiscal burdens.

2.3 Human Development Index (HDI)

The HDI, developed by the UNDP, measures quality development through three main dimensions: education, health, and life standards. The increase in the HDI reflects the repair capacity of a productive society, which in turn strengthens power competition economics. Empirical studies in various countries show a positive correlation between HDI and economic growth because the quality of power sources is a key factor in innovation, productivity, and sustainable development. In the Indonesian context, the increase in the HDI since the 1990s has been one of the indicators of successful social development.

2.4 Inflation and Economic Stability

Inflation is an important indicator for evaluating macroeconomic stability. The theory of the quantity of money emphasizes the connection between money supply and rate price, while Keynesian theory highlights the role of aggregate demand. Controlled inflation can push the economy, but high and unstable inflation lowers power buy, disturbs climate investment, and pressures growth. Indonesia's experience during the 1997–1998 crisis showed how surging inflation can hinder growth, while the period of stability after the post-reformation strengthened the economy.

2.5 Previous Research

Several studies in Indonesia and other countries have highlighted the connection between capital expenditure, the HDI, inflation, and economic growth. For example, Barro (1991) emphasized the role of education in long-term growth, while research in Southeast Asia shows that public capital expenditure contributes significantly to infrastructure development and economic growth. Research in Indonesia also confirms that controlled inflation is a prerequisite for stability growth. However, there is still a gap in the study of integrating third variables in a comprehensive framework analysis, especially in the Indonesian context from 1991 to 2024.

3. Research Methods

3.1 Research Approach

This study employs a quantitative approach using time-series analysis covering the period from 1991 to 2024. Given the extensive observation period and significant structural changes (the 1997–1998 Asian crisis, political reform, globalization, and the COVID-19 pandemic), the analytical method must account for stationarity, cointegration, and potential structural breaks.

3.2 Stationarity Test

Unit Root Tests (ADF and PP): conducted for each variable (PE, BM, HDI, INFL).

Test results indicate that some variables are stationary at the level, while others are stationary at the first difference.

3.3 Analytical Model

Since the variables exhibit mixed orders of integration (I(0) and I(1)), Autoregressive Distributed Lag (ARDL) Bounds Testing is used to examine short-run and long-run relationships. An Error Correction Model (ECM) is derived from the ARDL model to capture adjustment dynamics toward long-run equilibrium. Dummy variables are included for the crisis period (1997–1998) and the COVID-19 pandemic (2020–2021) to control for structural breaks.

3.4 Variable Definitions and Units

Variable	Definition	Unit
PE	Economic Growth (Real GDP, % annual change)	%
BM	Government Capital Expenditure (constant prices, base year 2010)	IDR Trillion
HDI	Human Development Index	Index (0–1)
INFL	Inflation (CPI, % annual change)	%

3.5 Diagnostic Tests

Tests conducted include multicollinearity (VIF), heteroskedasticity (Breusch-Pagan), autocorrelation (Durbin-Watson), and model stability tests (CUSUM, CUSUMSQ).

4. Research Findings and Discussion

4.1 Data Description

Data analysis shows diverse trends throughout the period 1991–2024: Expenditure: experienced significant improvement post-reformation, especially after 2005 , with a focus on developing infrastructure , transportation, energy, and education.

HDI: continued increase from the low category in the early 1990s to the high category in the 2020s, reflecting improved quality of education, health, and standards of life.

Inflation: fluctuating sharply, with peak hyperinflation during the 1997–1998 crisis, then relatively controlled below 5 % in the period 2010–2024.

Growth: had a chance to contract during the Asian crisis and the COVID-19 pandemic, but in a way, generally shows a positive trend with an average growth of 4–6% per year.

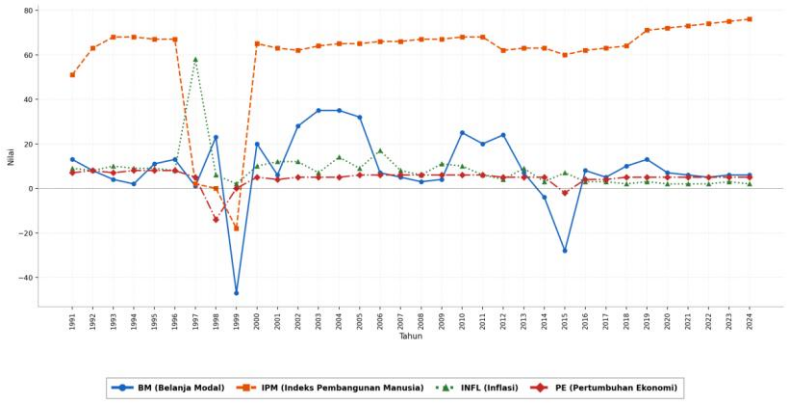


Figure 1. Data on Capital Expenditure (BM), Human Development Index (HDI), inflation (INFL), and Indonesian Economic Growth (PE) for the Period 1991-2024
Source: BPS, *United Nations Development Programme* (UNDP), Directorate General Balance Finance (DJPK), Various Editions.

4.2 Model Estimation Results

The analysis of multiple linear regression produces the equation:

$$PE=6.445+0.0522BM-0.0001IPM-0.2474INFL$$

With $R^2 = 0.775$, this model explains 77.5% of the variation in the growth of the Indonesian economy for the period 1991–2024. The F test shows a significant model overall (Prob = 0.0000), while the t-test indicates that capital expenditure and inflation are influential significant, while the HDI is not significant.

5. Discussion

5.1 Capital Expenditure

The research results are consistent with the Harrod-Domar theory, which emphasizes the role of investment as a driver of growth, as well as the Solow-Swan model, which incorporates the dimensions of capital accumulation and technology. Empirically, these findings align with studies in developing nations confirming that public capital expenditure—whether in physical infrastructure (transportation, energy) or social infrastructure (education, health)—exerts a multiplier effect on national output. However, its effectiveness hinges heavily on the quality of governance and budget transparency. Thus, fiscal policy directed toward productive capital expenditure is key to strengthening long-term productive capacity.

5.2 Human Development Index (HDI)

The impact of the HDI is more pronounced in the long run, consistent with endogenous growth theory, which highlights the role of human capital in innovation and productivity. The lack of short-term significance can be attributed to uneven human development across regions and limitations in public service efficiency. This underscores the fact that improvements in the HDI require time to translate into tangible contributions to economic growth. In other words, investing in education, health, and living standards is a long-term strategy that bolsters national competitiveness.

5.3 Inflation

The finding of a significant negative impact of inflation on growth supports Keynesian literature and Indonesia's own experience, particularly during the 1997–1998 crisis. High inflation erodes purchasing power, disrupts the investment climate, and heightens macroeconomic uncertainty. Conversely, price stability is proven to be a crucial prerequisite for sustainable growth. This highlights the importance of credible monetary policy and fiscal-monetary coordination in maintaining macroeconomic stability.

5.4 Structural Breaks

Analysis indicates that the Asian financial crisis (1997–1998) and the COVID-19 pandemic (2020–2021) caused significant contractionary shocks to growth. This demonstrates that the fundamental relationships between capital expenditure, the HDI, inflation, and growth are not static but are instead vulnerable to external shocks. Therefore, adaptive policies—such as economic sector diversification, the strengthening of foreign exchange reserves, and countercyclical policies—are necessary to maintain economic resilience.

6. Conclusion

Based on the time-series analysis using ARDL and ECM approaches for the 1991–2024 period, several key findings were obtained:

Capital Expenditure (BM): Has a positive and significant impact on economic growth in both the short and long term. This confirms that government investment in physical and social infrastructure generates a multiplier effect that strengthens national production capacity.

*Human Development Index (HDI)**:*** Statistically insignificant in the short term, yet shows potential for long-term contribution. Uneven distribution of human development across regions and limited efficiency in public services explain the weak direct impact on economic output.

*Inflation (INFL)**:*** Has a negative and significant impact on economic growth. High inflation erodes public purchasing power, disrupts the investment climate, and increases macroeconomic uncertainty. Conversely, controlled inflation supports growth stability.

*Structural Breaks**:*** The 1997–1998 Asian Crisis and the 2020–2021 COVID-19 pandemic were shown to have significant contractionary impacts, underscoring the importance of adaptive policies in facing global shocks.

Overall, this study demonstrates that Indonesia's economic growth relies on a combination of productive capital expenditure, inflation control, and the integration of human development within a sustainable macroeconomic policy framework.

7. Recommendations

7.1 Optimization of Capital Expenditure:

The government needs to ensure that capital expenditure allocations are directed toward productive infrastructure projects with high multiplier effects (transportation, energy, digitalization). Budget transparency and accountability must be strengthened.

7.2 Integration of Human Development:

Improvements in the HDI must be directly linked to economic productivity through vocational programs, workforce quality enhancement, and equitable access to healthcare services. These policies will accelerate the contribution of HDI to economic growth.

7.3 Consistent Inflation Control:

Bank Indonesia, in coordination with the government, must maintain price stability through credible monetary policy, money supply management, and food price stabilization. Fiscal-monetary coordination is key.

7.4 Crisis-Adaptive Policies:

Diversification of economic sectors, increased foreign exchange reserves, and countercyclical policies are necessary to maintain economic resilience in the face of global shocks.

7.5 Cross-Sector Synergy:

Sustainable growth can only be achieved through the integration of fiscal, monetary, and human development policies within a comprehensive macroeconomic framework.

References

Aji, S. (2020). The Influence of capital expenditure and index development on economic growth in Indonesia. *Journal of Development Economics*.

Arifin, & Suryanto. (2022). Analysis of the cointegration of capital expenditure, HDI, and inflation to grow the Indonesian economy 1995-2021. *Journal of Economics and Business*.

Aschauer, D. A. (1989). Is public expenditure productive *Journal of Monetary Economics*, 23(2), 177–200. https://doi.org/10.1016/0304-3932(89)90047-0

Asian Development Bank. (2022). Asian Development Outlook 2022. ADB. https://www.adb.org/publications/asian-development-outlook-2022

Central Statistics Agency (BPS). (2024). Indonesian Statistics. 2024. Jakarta: BPS.

Central Bureau of Statistics. (2025). Indonesian Statistics 2025. BPS. https://www.bps.go.id

Bank Indonesia. (2014). Regional economic study: Challenges growth Indonesian economy. BI. https://www.bi.go.id

Bank Indonesia. (2024). Report on The Indonesian Economy. Jakarta: Bank Indonesia.

Barro, R. J. (2001). Human capital and growth: *American Economic Review*, 91(2), 12–17. https://doi.org/10.1257/aer.91.2.12

Basri, M. C., & Hill, H. (2004). Ideas, interests, and oil prices: The political economy of trade reform during Suharto's Indonesia. *The World Economy*, 27(5), 633–655. https://doi.org/10.1111/j.0378-5920.2004.00611.x

Blanchard, O., Dell'Ariccia, G., & Mauro, P. (2010). Rethinking Macroeconomic Policy. *Journal of Money, Credit and Banking*, 42(1), 199–215. https://doi.org/10.1111/j.1538-4616.2009.00273.x

Bloom D. E., Canning D., Sevilla J. (2003). *Demographic dividend*. RAND Corporation. https://www.rand.org/pubs/monograph_reports/MR1274.html

Boediono . (2010). *Macroeconomics* (*4th* Edition). BPFE.

Booth A. (2016). *Economic change in modern Indonesia*. Cambridge University Press. https://doi.org/10.1017/CBO9781316417331

Bruno, M., & Easterly, W. (1998). Inflation crises and long-run growth: *Journal of Monetary Economics*, 41(1), 3–26. https://doi.org/10.1016/S0304-3932(97)00063-9

Calderon, C., & Serven, L. (2004). *The effects of infrastructure development on growth and income distribution* (World Bank Working Paper No. 3400). World Bank. https://doi.org/10.1596/1813-9450-3400

Easterly, W., & Fischer, S. (2001). Inflation and the poor. *Journal of Money, Credit and Banking*, 33(2), 160–178. https://doi.org/10.2307/2673879

Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*, 32(3), 485–512. https://doi.org/10.1016/0304-3932(93)90027-D

Fitriani . (2019). We analyze the influence of inflation on Indonesia's GDP using the VAR approach for the period 1997-2017. *Journal of Economics*.

Fogel, R. W. (2004). *Escape from hunger and premature death, 1700–2100*. Cambridge University Press. https://doi.org/10.1017/CBO9780511817649

Guntur. (2013). Impact of capital expenditure on the growth Indonesian economy 1990-2015. *Journal of Economics*.

Hill, H. (2000). *The Indonesian Economy* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511493225

Indah. (2023). Integration of capital expenditure, HDI, and inflation: Panel data analysis 1991-2022. *Journal of Economics*.

Khan, M. S., & Senhadji, A. S. (2001). Threshold effects in the relationship between inflation and growth. *IMF Staff Papers*, 48(1), 1–21. https://doi.org/10.2307/3872479

Krugman, P. (1999). Balance sheets, transfer problems, and financial crises. *International Tax and Public Finance*, 6(4), 459–472. https://doi.org/10.1023/A:1008741113074

Kusuma. (2022). DSGE simulation of fluctuations inflation and growth Economics: Bank Indonesia Data 2000-2021. *Journal of Economics*.

Lucas, R. E. (1988). On the mechanics of economic development: *Journal of Monetary Economics*, 22(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

McKibbin, W., & Fernando, R. (2020). *The global macroeconomic impacts of COVID-19* (CAMA Working Paper No. 19/2020). Center for Applied Macroeconomic Analysis. https://doi.org/10.2139/ssrn.3547729

Nadirin, M. (2017). Analysis of causality inflation and growth Indonesian economy 1994-2013. *Journal of Economics and Development Studies*.

Narayan, P. K. (2013). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics*, 37(17), 1979–1990. https://doi.org/10.1080/00036840500278103

Nugroho, & Wijaya. (2023). ARDL analysis of inflation and growth Indonesian economy 1991-2022. *Journal of Economics*.

Oates, W.E. (1999). An essay on fiscal federalism. *Journal of Economic Literature*, 37(3), 1120–1149. https://doi.org/10.1257/jel.37.3.1120

Porter, M. E. (1990). *The competitive advantage of nations*. Free Press.

Pratama et al. (2023). Interaction of Capital expenditure, HDI, and inflation: VECM analysis 2000-2022. *Journal of Economics*.

Pratiwi . (2023). Regional disparities and the HDI: Panel data analysis 2010-2022. *Journal of Economics*.

Radelet, S., & Sachs, J. D. (1998). The East Asian financial crisis: Diagnosis, remedies, prospects. *Brookings Papers on Economic Activity*, 1998(1), 1–90. https://doi.org/10.2307/2534670

Rahman, & Hidayat . (2022). Influence of capital expenditure and HDI against Regional growth: Fixed effects model of provincial data 2015-2021. *Journal of Economics*.

Ranis, G., Stewart, F., & Ramirez, A. (2000). Economic growth and human development. *World Development*, 28(2), 197–219. https://doi.org/10.1016/S0305-750X(99)00131-X

Rodrik, D. (2006). Goodbye Washington, hello Washington consensus? *Journal of Economic Literature*, 44(4), 973–987. https://doi.org/10.1257/jel.44.4.973

Romer, P. M. (1990). Endogenous technological changes. Journal of Political Economy, 98(5), S71–S102. https://doi.org/10.1086/261725

Solow, R. M. (1956). A contribution to the theory of economic growth. Quarterly Journal of Economics, 70(1), 65–94. https://doi.org/10.2307/1884513

United Nations Development Program (UNDP). (2024). Human Development Report 2024. New York: UNDP.

World Bank. (2024). World Development Indicators (WDI). Washington, DC: The World Bank