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72

# ANALYSIS OF THE DETERMINANTS OF THE HUMAN DEVELOPMENT INDEX (HDI) OF SUNGAI PENUH CITY AS SEEN IN THE FRONT OF ECONOMIC GROWTH, PUBLIC SECTOR EXPENDITURE, AND UNEMPLOYMENT RATE

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***Abstract***

*This study aims to analyze the factors that influence the Human Development Index (HDI) in Sungai Penuh City during the period 2013–2024. The independent variables studied include Economic Growth, Public Sector Expenditure (Capital), and the Open Unemployment Rate (TPT). The method used is a quantitative approach with a multiple linear regression model using secondary data sourced from the publication of the Central Statistics Agency (BPS). The results show that Economic Growth has a positive and significant effect on the HDI, while Public Sector Expenditure (Capital) has a negative but significant effect on the HDI. Meanwhile, the Open Unemployment Rate does not have a significant effect on the HDI. Simultaneously, the three independent variables have a significant effect on the HDI with a coefficient of determination of 98.01%, indicating that the model is able to explain variations in the HDI very strongly. This finding emphasizes the importance of improving the quality of economic growth and the efficiency of capital expenditure allocation as well as strengthening the employment sector as an effort to increase the HDI in Sungai Penuh City.*

***Keywords**: Human Development Index (HDI), Economic Growth, Public Sector Spending (Capital), Open Unemployment Rate*

**Abstrak**

Penelitian ini bertujuan untuk menganalisis faktor-faktor yang memengaruhi Indeks Pembangunan Manusia (IPM) di Kota Sungai Penuh selama periode 2013–2024. Variabel independen yang dikaji meliputi Pertumbuhan Ekonomi, Belanja Sektor Publik (Modal), dan Tingkat Pengangguran Terbuka (TPT). Metode yang digunakan adalah pendekatan kuantitatif dengan model regresi linier berganda menggunakan data sekunder yang bersumber dari publikasi Badan Pusat Statistik (BPS). Hasil penelitian menunjukkan bahwa Pertumbuhan Ekonomi berpengaruh positif dan signifikan terhadap IPM, sedangkan Belanja Sektor Publik (Modal) berpengaruh negatif namun signifikan terhadap IPM. Sementara itu, Tingkat Pengangguran Terbuka tidak berpengaruh signifikan terhadap IPM. Secara simultan, ketiga variabel independen memberikan pengaruh signifikan terhadap IPM dengan nilai koefisien determinasi sebesar 98,01% yang menunjukkan bahwa model mampu menjelaskan variasi IPM secara sangat kuat. Temuan ini menegaskan pentingnya peningkatan kualitas pertumbuhan ekonomi dan efisiensi alokasi belanja modal serta penguatan sektor ketenagakerjaan sebagai upaya meningkatkan IPM di Kota Sungai Penuh.

**Kata kunci:** Indeks Pembangunan Manusia (IPM), Pertumbuhan Ekonomi, Belanja Sektor Publik (Modal),Tingkat Pengangguran Terbuka

## I. INTRODUCTION

Development is an effort to improve the quality of life of people in a region. In its implementation, development must be based on data analysis to plan and adopt targeted policies, and evaluation is necessary to determine the effectiveness of development in improving human quality of life (Lie Darwin, 2022). One aspect of development that influences human quality of life is economic development. Economic development is a causal process that increases per capita income in a region. With good economic development, people's purchasing power also increases, which in turn affects per capita income. However, in addition to economic development, several development areas in Indonesia still lack optimal and equitable development, so a benchmark is needed to measure more optimal development. This benchmark can be identified through the Human Development Index (HDI). One measure of development that can be measured is the Human Development Index (HDI). The HDI can be measured through three fundamental components: health status, education quality, and access to economic resources, which is characterized by equitable distribution of purchasing power (Damayanti & Mustakim, 2024). Indonesia is the most populous country in Southeast Asia and represents a significant capital for the nation's development. If not properly managed, a large population will create problems in the future. This is especially true for population management in the employment sector. The significant unemployment rate will create its own challenges in Indonesia. Many Indonesian workers still have elementary school and junior high school education, while those with secondary and tertiary education remain few. The workforce can be the spearhead by becoming job creators, so reducing unemployment cannot rely solely on job creation through private or foreign investment and the government. The problem of unemployment is complex to research and is an interesting issue because it can be linked to several economic indicators. Several economic indicators influence the Human Development Index (HDI), including Economic Growth (PE), Public Sector Spending (Capital), and the Open Unemployment Rate (TBT) (Ramadanisa & Triwahyuningtyas, 2022).

Economic growth indicates an increase in the production of goods and services within an economy, making it a crucial indicator in analyzing aggregate economic development. The higher the economic growth rate, the faster the regional output growth process, thus improving the prospects for regional development. Knowing the sources of economic growth

allows for determining priority sectors. A growing population has resulted in a larger workforce. This means a greater number of people seeking work or being unemployed. To achieve a balanced situation, all individuals must be accommodated in suitable jobs that align with their desires and skills. This, in turn, requires the economy to continually provide jobs for the new workforce. The demands of rapid economic growth in Sungai Penuh City generally require a professional workforce. This is necessary to increase business productivity and improve workers' standards of living, given the persistently high rate of open unemployment (Zasriati, 2024).

The capital expenditure ratio remains relatively stable, with districts and cities in Jambi Province experiencing year-on-year increases. The investment value of both PMDN and PMA in 2011 was IDR 19.2 trillion and increased to IDR 46.9 trillion in 2015. The investment realization value experienced a decline in 2013, which was only IDR 25.2 trillion, whereas in 2013 the value was IDR 27.4 trillion, a sharp increase from 2011. The average investment realization of regencies and cities in Jambi Province during the five years of observation was IDR 29.4 trillion. Sungai Penuh City was recorded as an area with an investment realization value below IDR 1 trillion. Sungai Penuh City was the area with the lowest investment realization, each amounting to only IDR 8 billion and IDR 64 billion, respectively (Wibisono et al., 2018).

The purpose of this study was to determine the effect of Economic Growth on Public Sector Spending, the Open Unemployment Rate on the Human Development Index in Sungai Penuh City.

## II. THEORETICAL STUDIES

### Human Development Index (HDI)

The Human Development Index (HDI) is a single composite indicator that, while not able to measure all dimensions of human development, does measure three basic dimensions of human development that are considered to reflect the population's basic capabilities. These three basic capabilities are a long and healthy life, knowledge and skills, and access to the resources needed to achieve a decent standard of living. The UNDP defines human development as a process of expanding people's choices in terms of income, health, education, the physical environment, and so on. The four main aspects that need to be considered in human development are productivity, equity, sustainability, and empowerment

(UNDP, 1995: 12). The focus of development has actually embraced this concept, namely the concept of holistic human development, which aims to improve the quality of life of the population, physically, mentally, and spiritually (Azfirmawarman et al., 2023).

**Economic Growth (PE)**

Economic growth is a country's long-term economic development, moving toward a better state over a specific period. It can also be associated with an increase in an economy's production capacity, manifested in an increase in national income. Economic growth is an indication of successful economic development. In macroeconomic analysis, a country's economic growth is measured by its real national income balance (Ernita et al., 2013).

Economic growth aims to achieve societal progress. To achieve this progress, employment opportunities are needed, which ultimately leads to an equitable distribution of income across the population. On the other hand, a gap between employment opportunities and the workforce will cause the number of job seekers to increase and become unbalanced, negatively impacting unemployment. Unemployment is a condition where someone is unemployed but is looking for work. One cause of unemployment is the lack of job opportunities, which is not balanced with the number of job seekers in a region, leading to an increase in unemployment (Palindangan & Bakar, 2021).

**Public Sector (Capital) Expenditures**

. From the theoretical and legal perspectives used in Indonesia, capital expenditures are public sector investments, in the form of the procurement of tangible fixed assets with a useful life of more than one year. This is emphasized in Government Regulation No. 58/2005, which defines capital expenditures as expenditures made for the purchase/procurement of fixed assets and other assets with a useful life of more than one year for use in government activities, such as land, equipment and machinery, buildings, networks, library books, and animals. Similarly, in Minister of Home Affairs Regulation 13/2006 concerning Guidelines for Regional Financial Management, capital expenditures are defined as expenditures made for the purchase/procurement or construction of tangible fixed assets with a useful life of more than one year for use in government activities, such as land, equipment and machinery, buildings, roads, irrigation and networks, and other fixed assets. Capital expenditures are believed to be a type of expenditure directly related to increasing community productivity, economic growth, and public welfare. Therefore, capital

expenditure analysis is often conducted to determine its effectiveness, such as its impact on the economy of a country or region, its impact on public education and health, and so on.

Furthermore, capital expenditures generally require significant costs and have long-term impacts. Therefore, their economy and efficiency must be ensured. This is done to ensure that expenditures are not wasted due to poor choices. In this regard, capital expenditure analysis is often conducted by assessing the feasibility of the capital expenditure. In this case, capital expenditure analysis often uses investment analysis or project feasibility. However, unlike profit-oriented private investment, government investment can be profit-oriented, but more often is non-profit oriented. Some examples of government capital expenditures include road construction, school construction, community health centers (Puskesmas), regional general hospitals, irrigation development, terminal construction, market construction, vehicle emission testing laboratories, water company (PDAM) construction, and so on (Ministry of Finance of the Republic of Indonesia, 2018).

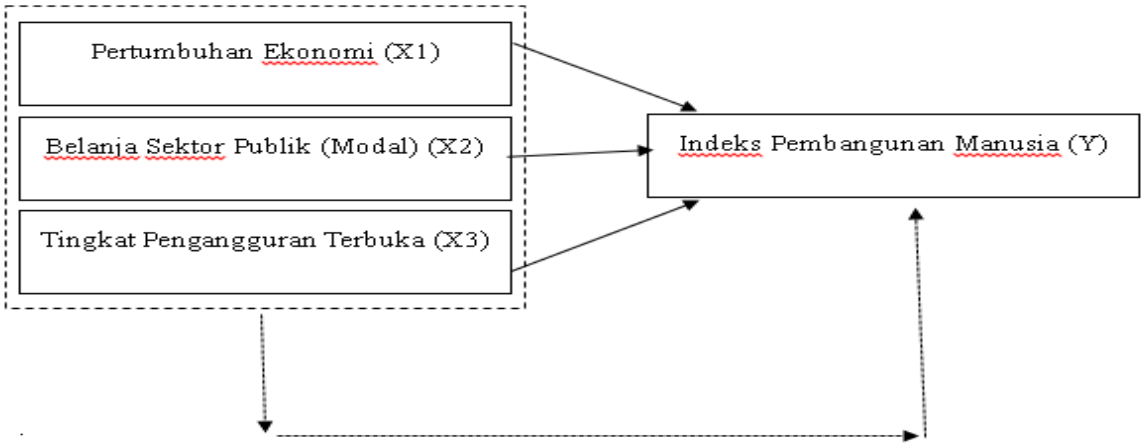
**Open Unemployment Rate (TPT)**

Unemployment refers to individuals classified as part of the workforce who are actively seeking employment at a specific wage level but are currently unable to find the desired job. Unemployment is defined as a situation where individuals are unemployed or actively seeking employment to meet their living expenses. The workforce consists of men and women aged 15-64 (Sumarsono, 2009). Open unemployment, on the other hand, refers to workers who are truly unemployed. This unemployment occurs due to the lack of employment or a reluctance to work despite being of productive working age. Unemployment arises from a lower increase in job openings than the increase in the workforce. Consequently, the economy is increasingly unemployed, resulting in a growing number of unemployed workers. This situation results in workers being unemployed partially and effectively, hence the term open unemployment. Open unemployment also arises from declining economic activity, technological advances that reduce labor demand, or a decline in industrial development. According to the Central Statistics Agency (BPS), the open unemployment rate is the percentage of the unemployed compared to the labor force. The calculation is as follows:

$$TPT = \frac{Number\ of\ unemployed\ people}{Number\ of\ workforce}\ x\ 100\%$$

A high Open Unemployment Rate (TPT) indicates that a significant portion of the workforce is under-absorbed in the job market. For example, a TPT of 6% indicates that out of 100 people aged 15 and over who are ready to produce goods and services (the labor force), only 6 are unemployed (Dea Erlangga, 2020).

**CONCEPTUAL FRAMEWORK**




## III. RESEARCH METHODS

(Sugiyono, 2020) This research method uses a quantitative approach and multiple linear regression analysis to examine the effect of economic growth, public sector spending (capital), and the open unemployment rate on the Human Development Index. The type of data used is secondary data in the form of published time series data from 2013 to 2024. The main data source comes from the Central Statistics Agency (BPS). The collected data includes the Human Development Index, economic growth, public sector spending (capital), and the open unemployment rate. Several macroeconomic indicators that have the potential to influence the Human Development Index (HDI) include economic growth, public sector spending (capital), and the open unemployment rate (TPT).

To analyze the relationship and influence between these variables on the Human Development Index, this study uses a quantitative approach with multiple linear regression analysis. The data used is secondary time series data for the period 2013–2024, sourced from the Central Statistics Agency (BPS) and regional development planning documents such as the Sungai Penuh City Medium-Term Development Plan (RPJMD). The variables analyzed include the Human Development Index (HDI) (Y), Economic Growth ($X_1$), Capital Expenditure ($X_2$), and Population Growth Index (TPT) ($X_3$).

To test the effect of these three independent variables on the dependent variable, a multiple linear regression analysis model was used with the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Description:

Y = Human Development Index (%)

$X_1$ = Economic Growth (PE)

$X_2$ = Public Sector Spending (Capital)

$X_3$ = Open Unemployment Rate (TPT)

$\beta_0$ = Constant

$\beta_1$, $\beta_2$, $\beta_3$ = Regression coefficients of each independent variable

$\varepsilon$ = Error term (confounding factor)

## IV. RESEARCH RESULTS

**Table 1. Multiple Linear Regression**

**Coefficients[a]**

| Model | Unstandardized Coefficients | | Standardized Coefficients | | | Correlations | | | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | T | Sig. | Zero-order | Partial | Part | Tolerance | VIF |
| 1 (Constant) | 4,730 | ,248 | | 19,044 | ,000 | | | | | |
| Pertumbuhan Ekonomi | ,121 | ,019 | ,791 | 6,271 | ,000 | ,978 | ,912 | ,310 | ,153 | 6,517 |
| Belanja Sektor Publik (Modal) | -,030 | ,011 | -,222 | -2,859 | ,021 | -,759 | -,711 | -,141 | ,404 | 2,477 |
| Tingkat Pengangguran Terbuka | -,003 | ,005 | -,050 | -,499 | ,631 | -,755 | -,174 | -,025 | ,248 | 4,037 |

a. Dependent Variable: IPM

In this multiple linear regression analysis, the dependent variable is (HDI) and the independent variables are Economic Growth, Public Sector Spending (Capital), and (TBT). Multiple linear regression is a regression model that involves more than one independent variable to measure its influence on the dependent variable.[1] Based on the given regression coefficients, the multiple linear regression equation can be written as:

HDI = 4.730 + 0.121 – 0.030 – 0.003.

Here, the constant (intercept) is 4.730; this means that if all independent variables are zero, the predicted HDI is 4.730. The interpretation of each regression coefficient is as follows:

a. The constant of 4.730 indicates that if the variables economic growth, public sector spending, and unemployment rate are held constant or zero, the Human Development Index (HDI) will be 4.730.
b. The economic growth coefficient (0.121) means that every one-unit increase in economic growth will increase the HDI by 0.121, assuming other variables remain constant.
c. The public sector spending coefficient (-0.030) indicates that every one-unit increase in public sector spending actually decreases the HDI by 0.030, assuming other variables remain constant.
d. The unemployment rate coefficient (-0.003) means that every one-unit increase in the unemployment rate will decrease the HDI by 0.003, assuming other variables remain constant.

**F-statistic Test**

**Table 2. F-statistic Test Results**

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | ,007 | 3 | ,002 | 133,730 | ,000[b] |
| | Residual | ,000 | 8 | ,000 | | |
| | Total | ,007 | 11 | | | |

a. Dependent Variable: IPM
b. Predictors: (Constant), Tingkat Pengangguran Terbuka, Belanja Sektor Publik (Modal), Pertumbuhan Ekonomi

Coefficient of Determination

1. KD = R2 x 100%

= 0.9902 x 100%

= 98.01%

Table 2 shows that the F-test aims to test the significance of the overall regression model (whether the independent variables together have a significant effect on the dependent variable). The null hypothesis ($H_0$) of the F-test is that all regression coefficients ($\beta_1=\beta_2=\beta_3=0$) have no effect, and the alternative hypothesis ($H_1$) is that at least one $\beta\neq0$. Based on the output, the calculated F-value is 133.370 with a significance value (Sig.) of 0.000. Because the Sig. value of 0.000 is less than $\alpha = 0.05$, $H_0$ is rejected. In other words, at the 95% confidence level, this regression model is simultaneously significant; the independent variables together have a significant effect on the Human Development Index.

The coefficient of determination ($R^2$) measures the proportion of variance in the dependent variable that can be explained by the independent variables simultaneously.[6] In this model, $R^2 = 0.980$, meaning that 98% of the variation in the HDI is explained by variations in Economic Growth, Public Sector Expenditure, and TBT together. The remainder (100% – 98% = 2%) is explained by other factors outside the model. As illustrated by interpretations in other studies, an $R^2$ of, for example, 0.847 means that the independent variables explain 84.7% of the variation in the dependent variable; analogously, $R^2 = 0.980$ means that 98% of the variation in the HDI can be attributed to the factors in the model. In general, the smaller the $R^2$ value, the weaker the ability of the independent variables to explain the variability in the dependent variable. In this case, the $R^2$ value of 0.980 is very strong, indicating that the combined influence of the variables PE, Capital Expenditure, and TBT on the HDI accounts for almost all of the total variance, so the model is fully adequate in explaining the Human Development Index. Coefficient of Determination (R2)

**Table 3. Results of the Coefficient of Determination (R2)**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | ,990[a] | ,980 | ,973 | ,00424 |

1. Coefficient of Determination of X1 on Y

KD = β x Zero Order x 100%

= 0.791 x 0.978 x 100%

= 77.36%

2. Coefficient of Determination of X2 on Y

KD = β x Zero Order x 100%

= -0.222 x -0.759 x 100%

= 16.85%

3. Coefficient of Determination of X3 on Y

KD = β x Zero Order x 100%

= -0.050 x -0.755 x 100%

= 3.8%

Partially, the Effect of Economic Growth Coefficient B = 0.121 indicates that a 1-unit increase in PE will increase the HDI by 0.121 units. The effect is positive. The t-value is

6.271 and Sig. = 0.000 indicates that Log_X1 has a significant effect on HDI. Standardized Beta = 0.791 indicates that Log_X1 is the largest contributor. Zero-order = 0.978 indicates a very strong simple correlation. Partial = 0.912 indicates that the correlation remains strong after other variables are controlled. Partial KD = 77.36%. Furthermore, Public Sector (Capital) Expenditure Coefficient B = -0.030 indicates that Capital Expenditure has a negative impact on HDI. The t value = -2.859 and Sig. = 0.021 indicate that Capital Expenditure is significant even though the effect is negative. Standardized Beta = -0.222 indicates that the effect is weaker than Economic Growth. Zero-order = -0.759 indicates a strong negative correlation. Partial = -0.711 indicates that the correlation is still strong after being controlled. Partial KD = 16.85%. And finally, the Open Unemployment Rate Coefficient B = -0.003 indicates a very small negative effect. The t value = -0.499 and Sig. = 0.631 indicates that the TPT is not significant. Standardized Beta = -0.050 indicates a very small effect. Zero-order = -0.755 but is lost in the regression due to possible multicollinearity. Partial = -0.174 indicates a weak partial correlation. Partial KD = 3.8%. So it can be concluded that the variable with the strongest and most significant influence is Economic Growth, Public Sector Spending (Capital) is also significant but with a smaller influence, the Open Unemployment Rate has no significant effect and its contribution is small.

## V. CONCLUSION

1. Based on the results of multiple linear regression analysis, the HDI equation is obtained = $4.730 + 0.121X_1 – 0.030X_2 – 0.003X_3$ which describes the relationship between the independent variables and the HDI. The constant value of 4.730 indicates that the HDI will be at that number if Economic Growth, Capital Expenditure, and the Open Unemployment Rate are zero. The Economic Growth coefficient of 0.121 indicates that an increase in Economic Growth by one unit will increase the HDI. Meanwhile, the Capital Expenditure coefficient of –0.030 and the Open Unemployment Rate of –0.003 indicate an opposite relationship, where a decrease in each of these variables will encourage an increase in the HDI. The $R^2$ coefficient of determination of 0.980, or 98.01%, indicates that the regression model has very strong explanatory power, where almost all of the variation in the HDI can be explained by the variables Economic Growth, Capital Expenditure, and the Open Unemployment Rate, while the remaining 2% is influenced by other factors outside the research model.

2. Based on partial testing, Economic Growth is the most dominant variable influencing the HDI, with a coefficient value of B = 0.121, calculated t = 6.271, Sig. = 0.000, and a determination contribution of 77.36%, indicating a positive and significant influence on the HDI. Furthermore, Public Sector Expenditure (Capital Expenditure) has a coefficient of B = –0.030, calculated t = –2.859, Sig. = 0.021, and a determination contribution of 16.85%, indicating that this variable has a significant influence on the HDI, but with a negative influence. Therefore, increasing capital expenditure does not directly increase the HDI. The Open Unemployment Rate has a coefficient B = –0.003, a calculated t value = –0.499, Sig. = 0.631, and a determination contribution of 3.8%, so it can be concluded that this variable does not have a significant effect on the HDI and its contribution is relatively very small.

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