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THE EFFECT OF UNEMPLOYMENT, PER CAPITA INCOME, LIFE EXPECTANCY, AND EDUCATION LEVEL ON THE HUMAN DEVELOPMENT INDEX IN PANGKEP REGENCY.

PENGARUH PENGANGGURAN, PENDAPATAN PER KAPITA, HARAPAN HIDUP, DAN TINGKAT PENDIDIKAN TERHADAP INDEKS PEMBANGUNAN MANUSIA DI KABUPATEN PANGKEP.

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Abstract

This study aims to examine the effect of unemployment, per capita income, life expectancy, and education level on the Human Development Index (HDI) in Pangkep Regency. This research employed a quantitative method with an associative approach. The data used in this study were secondary data in the form of time-series data from 2015 to 2024, collected through documentation. The data were analyzed using multiple linear regression analysis with the assistance of SPSS version 25. The results indicate that unemployment has a negative but not significant effect on the Human Development Index, with a t-value of -1.166 and a significance value of 0.271, which is greater than 0.05. Per capita income has a positive and significant effect on the Human Development Index, with a t-value of 4.055 and a significance value of 0.002, which is less than 0.05. Life expectancy has a significant effect on the Human Development Index, with a t-value of -5.699 and a significance value of < 0.001, which is less than 0.05. Meanwhile, the level of education has a positive and significant effect on the Human Development Index, with a t-value of 4.395 and a significance value of 0.001, which is less than 0.05. These findings indicate that per capita income and education level play an important role in improving the Human Development Index in Pangkep Regency, while unemployment does not have a significant effect on HDI.

Keywords : Human Development Index, Unemployment, Per Capita Income, Life Expectancy, Education Level.

Abstrak

Penelitian ini bertujuan untuk menguji pengaruh pengangguran, pendapatan per kapita, harapan hidup, dan tingkat pendidikan terhadap Indeks Pembangunan Manusia (PJK) di Kabupaten Pangkep. Penelitian ini menggunakan metode kuantitatif dengan pendekatan asosiatif. Data yang digunakan dalam penelitian ini adalah data sekunder berupa data deret waktu dari tahun 2015 hingga 2024, yang dikumpulkan melalui dokumentasi. Data dianalisis menggunakan analisis regresi linier berganda dengan bantuan SPSS versi 25. Hasil penelitian menunjukkan bahwa pengangguran memiliki pengaruh negatif tetapi tidak signifikan terhadap PJK, dengan nilai t sebesar -1,166 dan nilai signifikansi 0,271, yang lebih besar dari 0,05. Pendapatan per kapita memiliki pengaruh positif dan signifikan terhadap PJK, dengan nilai t sebesar 4,055 dan nilai signifikansi 0,002, yang kurang dari 0,05. Harapan hidup

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memiliki pengaruh signifikan terhadap Indeks Pembangunan Manusia (IPM), dengan nilai t sebesar -5,699 dan nilai signifikansi < 0,001, yang kurang dari 0,05. Sementara itu, tingkat pendidikan memiliki pengaruh positif dan signifikan terhadap IPM, dengan nilai t sebesar 4,395 dan nilai signifikansi 0,001, yang kurang dari 0,05. Temuan ini menunjukkan bahwa pendapatan per kapita dan tingkat pendidikan memainkan peran penting dalam meningkatkan IPM di Kabupaten Pangkep, sedangkan pengangguran tidak memiliki pengaruh signifikan terhadap IPM.

Kata Kunci : Indeks Pembangunan Manusia, Pengangguran, Pendapatan Per Kapita, Harapan Hidup, Tingkat Pendidikan.

1. INTRODUCTION

Human resource development serves as a crucial indicator in evaluating the success of regional development. Such development does not merely emphasize economic growth, but also aims to improve the quality of life of the population through better health, education, and adequate living standards. According to Khairunnisa et al. (2023), human development reflects the effectiveness of government policies and the socio-economic conditions of a region, which are assessed through the Human Development Index (HDI). The HDI measures quality of life based on three main dimensions, namely long and healthy life, knowledge, and a decent standard of living.

Meanwhile, Caniago and Wibowo (2024) reveal that disparities in HDI achievement across regions in Indonesia are influenced by various socio-economic variables, including unemployment rates, poverty levels, and income distribution inequality. These findings indicate that human resource development is closely linked to efforts to expand employment opportunities, alleviate poverty, and manage demographic dynamics.

At the national level, Indonesia's HDI achievement is influenced by several factors, including employment conditions, per capita income, life expectancy, and educational attainment. Todaro and Smith (2015) argue that high unemployment rates and low per capita income can potentially reduce public welfare, as these factors limit access to education and health services. Furthermore, the United Nations Development Programme (UNDP) emphasizes that life expectancy is an indicator of the success of a country's health care system, while the level of education reflects the quality of human resources that determines long-term welfare. The interaction of these factors is reflected in the dynamics of national HDI achievement over time.

Based on data from Statistics Indonesia (BPS), Indonesia's HDI in 2024 reached 75.02, an increase of 0.63 points or 0.85 percent compared to 74.39 in 2023 (BPS, 2024). This improvement indicates that human development in Indonesia continues to progress and remains in the high category. The rise in the national HDI was driven by increases in life expectancy to 74.15 years, expected years of schooling to 13.21 years, and mean years of schooling to 8.85 years. However, regional disparities persist, with the highest HDI recorded in DKI Jakarta (84.15) and the lowest in Papua Pegunungan (54.43) (BPS, 2024).

From a regional perspective, South Sulawesi Province has shown an improving trend in HDI in recent years. According to publications by the South Sulawesi Provincial Statistics Office (HDI, 2024), progress in the province's HDI has been accompanied by analyses of disparities among regencies/cities and issues related to purchasing power and the constituent dimensions of HDI. Provincial-level information is essential as a context for comparing HDI achievements at the regency level.

At the regency level, official data from the Pangkep Regency Statistics Office indicate that the HDI of Pangkep Regency in 2024 reached 73.87, an increase of 3.28 points (4.65%) compared to 70.59 in 2023. The HDI trend from 2020 to 2024 in Pangkep Regency shows a positive average annual growth. This information underscores the need for an in-depth analysis of the determinants of human development in the region.

The Human Development Index (HDI) is influenced by several factors, including unemployment, per capita income, life expectancy, and education level. Unemployment is one of the potential factors

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that can hinder HDI improvement in Pangkep Regency. Based on BPS data in 2024, the open unemployment rate in the region reached 3.99 percent, although it declined from 5.05 percent in the previous year. High unemployment can reduce purchasing power, limit access to education and health services, and lower overall quality of life. In addition, per capita income is a crucial determinant of HDI, as higher income enhances individuals' ability to meet basic needs, improve educational quality, and obtain adequate health services. In Pangkep Regency, the relatively slow growth in real per capita expenditure compared to urban areas such as Makassar indicates a significant economic disparity.

Besides unemployment and per capita income, other factors affecting HDI include life expectancy and education level. Life expectancy in Pangkep Regency, which reached 73.11 years, reflects progress in the health sector; however, limitations in facilities and medical personnel remain, particularly in the island regions. Meanwhile, the mean years of schooling, which has only reached 8.47 years, indicates that a considerable proportion of the population has not completed upper secondary education. This condition directly affects people's ability to secure better employment and income. Therefore, improving educational quality is a key strategy in accelerating HDI improvement in the region.

These phenomena indicate a gap between the ideal condition (*das sollen*) and the actual situation (*das sein*). Ideally, improvements in HDI should occur in parallel with reductions in unemployment, increases in per capita income, longer life expectancy, and higher average years of schooling. In reality, however, these four factors have not developed harmoniously in Pangkep Regency. This suggests the existence of structural problems in efforts to enhance the quality of human development, which require more in-depth investigation.

Several previous studies have examined the relationship between socio-economic variables and HDI, but most have focused on national or provincial levels. For example, Fatmawati (2020) analyzed the effects of poverty and unemployment on HDI in South Sulawesi, while Rahmawati (2021) examined the influence of education and income on HDI in Indonesia. However, studies that specifically analyze the effects of unemployment, per capita income, life expectancy, and education level on HDI in Pangkep Regency remain limited. Therefore, this research is important to fill this gap and provide empirical evidence regarding the determinants of human development in this area.

Through this study, it is expected to gain a deeper understanding of how unemployment, per capita income, life expectancy, and education level influence the Human Development Index in Pangkep Regency. The findings are expected to serve as a reference for local governments in formulating more effective policies to improve the quality of human resources and accelerate equitable development across all regions, both mainland and island areas.

As an initial overview of the socio-economic conditions in Pangkep Regency, data on the development of unemployment rates, life expectancy, per capita income, and education levels during the period 2010–2024 are presented. This data aims to illustrate regional development dynamics related to improvements in public welfare and to provide a basis for understanding the factors influencing the Human Development Index (HDI).

It can be observed that the unemployment rate in Pangkep Regency during 2010–2024 exhibited a fluctuating pattern, but indicated a downward trend toward the end of the observation period. The highest rate was recorded in 2014 at 9.87 percent, followed by a significant decline to 3.99 percent in 2024. Per capita income in Pangkep Regency shows a relatively stable annual growth trend, increasing from IDR 28.21 million in 2010 to IDR 96.36 million in 2024. Life expectancy also demonstrates an upward trend, rising from 65.20 years in 2010 to 73.11 years in 2024. In addition, the education level, measured by mean years of schooling, shows continuous improvement, increasing from 6.70 years in 2010 to 8.47 years in 2024.

2. RESEARCH METHOD

In this study, the researcher applies a quantitative research method with an associative approach. The selection of a quantitative method is based on the nature of the data, which are numerical and

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analyzed statistically to test hypotheses and determine the effect of independent variables on the dependent variable. As stated by Sugiyono (2017), quantitative research is a study in which the data are in numerical form and are processed using statistical methods, thereby producing objective and measurable conclusions. Meanwhile, Nazir (2017) explains that quantitative research aims to test hypotheses through systematic measurement of observable phenomena.

The associative approach is chosen because this study seeks to identify the relationships or effects between the independent variables—namely the unemployment rate, per capita income, life expectancy, and education level—and the dependent variable, namely the Human Development Index (HDI). According to Sugiyono (2017), associative research is intended to determine the relationship or influence among variables. Therefore, this study is categorized as explanatory associative quantitative research, as it not only describes phenomena but also explains the causal relationships among variables through statistical analysis.

3. RESULT AND DISCCUSSION

1. Multiple Linear Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	103.330	12.527		8.248	<.001		
	Pengangguran	-.083	.071	-.041	-1.166	.271	.700	1.429
	Pendapatan Per Kapita	.074	.018	.561	4.055	.002	.046	21.831
	Angka Harapan Hidup	-.952	.167	-.246	-5.699	<.001	.472	2.118
	Tingkat Pendidikan	3.030	.689	.570	4.395	.001	.052	19.146

a. Dependent Variable: IPM

Based on the table above, the results of the multiple linear regression analysis show that the constant value (a) is 103.330, the beta coefficient of Unemployment (b_1) is −0.083, the beta coefficient of Per Capita Income (b_2) is 0.074, the beta coefficient of Life Expectancy (b_3) is −0.952, and the beta coefficient of Education Level (b_4) is 3.030.

2. Uji Hipotesis

a. Uji Koefisien Determinasi (R^2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	103.330	12.527		8.248	<.001
	Pengangguran	-.083	.071	-.041	-1.166	.271
	Pendapatan Per Kapita	.074	.018	.561	4.055	.002
	Angka Harapan Hidup	-.952	.167	-.246	-5.699	<.001
	Tingkat Pendidikan	3.030	.689	.570	4.395	.001

a. Dependent Variable: IPM

Based on Table the results of data processing using SPSS show a correlation coefficient (R) of 0.996, which means there is a very strong relationship between the independent variables (Unemployment, Per Capita Income, Life Expectancy, and Education Level) with the dependent variable (Human Development Index). The R^2 value of 0.991 indicates that 99.1% of the variation in the HDI can be explained by the four independent variables, while 0.9% is explained by other factors. The Adjusted R^2 of 0.988 confirms that the model's ability remains high after being adjusted for the number of variables and samples. The Std. Error of the Estimate of 0.31906 indicates a small prediction error, while the Durbin-Watson value of 1.749 is close to 2, indicating no autocorrelation. Thus, this multiple linear regression model is very good and suitable for use in analyzing the influence of the four independent variables on the HDI.

b. Partial Test (t-Test)

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ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	115.020	4	28.755	282.468	.000[b]
	Residual	1.018	10	.102		
	Total	116.038	14			

c. Simultaneous Test (F Test)

Model Summary[b]					
Model	*R*	*R Square*	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	*.996[a]*	*.991*	.988	.31906	1.749

Based on Table the results of the simultaneous test (F test) shown in the ANOVA table, the significance value (Sig.) is 0.000 < 0.05 with a calculated F value of 282.468. From these results it can be concluded that the independent variables consisting of Unemployment (X1), Per Capita Income (X2), Life Expectancy (X3), and Education Level (X4) together (simultaneously) have a significant effect on the dependent variable, namely the Human Development Index (Y).

Discussion

1. The Effect of Unemployment Rate on the Human Development Index (HDI)

Based on the results of the multiple linear regression analysis in this study, the unemployment variable has a negative coefficient on the Human Development Index (HDI), with a regression coefficient of −0.083. This indicates that each one-unit increase in the unemployment rate tends to reduce the HDI by 0.083 points, assuming other variables remain constant. However, the partial test results show that this effect is not statistically significant. Therefore, empirically, the unemployment rate cannot yet be considered a primary determinant of HDI variation within the context and period of this study. In other words, although theoretically an increase in unemployment is expected to reduce HDI, in the analyzed data, the relationship is not statistically strong enough to be considered influential. This finding opens an important academic discussion, particularly in bridging the gap between human development theory and empirical realities. It suggests that the impact of unemployment on HDI is indirect and likely mediated by other factors, such as education and income.

Theoretically, unemployment is one of the factors that can affect the main dimensions of HDI, namely health, education, and income. A high unemployment rate usually reflects suboptimal utilization of human resources and can generate a domino effect on the quality of life. In the education dimension, individuals from households with unemployed members tend to face financial constraints in financing formal education and skills training, thereby lowering educational indicators within HDI (Todaro & Smith, 2020). In the health dimension, unemployment reduces access to healthcare services, increases the risk of chronic diseases, and lowers life expectancy (UNDP, 2023). In the income dimension, unemployment leads to a decline in household income, exacerbates poverty, and hampers the fulfillment of basic needs (BPS, 2024).

Nevertheless, the findings of this study indicate that the effect of unemployment on HDI is not significant. This result does not fully align with the Labor Market Theory by George J. Borjas (2013), which suggests that labor market imbalances lead to decreased productivity and human development. Although theoretically unemployment is expected to have a significant negative impact, empirical data show an insignificant effect, possibly due to contextual factors such as informal employment and social policies that mediate this relationship (Borjas, 2013; UNDP, 2023). This finding is consistent with several previous studies, such as Kasnelly & Wardiah (2021), which found that unemployment has a significant negative effect on HDI in Indonesia, but in regions with high informality, the effect may become insignificant.

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One explanation for this insignificant result is the variation in regional contexts, including local economic structures and the availability of informal employment, which make unemployment status not fully reflect economic unproductivity (UNDP, 2023). Another aspect is the quality of unemployment data, which often does not include underemployment or informal sector workers, thus underestimating its true impact (BPS, 2024). In addition, policy interventions such as education subsidies and social security programs may mitigate the negative effects of unemployment on human development (Todaro & Smith, 2020).

Therefore, the findings reflect the multidimensional dynamics of human development, emphasizing the importance of considering structural factors, policy interventions, and local characteristics in interpreting the relationship between unemployment and HDI. These results also highlight that socio-economic indicators are interconnected and influenced by broader social systems and macro policies. Future research may explore mediating variables such as social protection or regional inequality to strengthen the understanding of this relationship.

2. The Effect of Per Capita Income on the Human Development Index (HDI)

The results of the multiple linear regression analysis indicate that the per capita income variable has a positive and significant effect on HDI. The regression coefficient of 0.074, significant at the 95 percent confidence level, suggests that each one-unit increase in per capita income is followed by an increase in HDI. This finding confirms that economic conditions play a crucial role in determining the level of human development in a region.

Substantively, rising per capita income reflects increased purchasing power. With higher income, individuals and households have greater opportunities to meet basic needs and enhance their quality of life, particularly in education and health. In the context of human development, income is not merely the final objective but a primary instrument that enables access to public services and broader economic opportunities. This aligns with human development theory, which views income as a supporting factor for achieving multidimensional well-being.

Per capita income represents the average economic capacity of individuals within a region. Sukirno (2019) explains that income serves as an economic foundation enabling the fulfillment of two main HDI dimensions: education and health. Higher income allows communities to invest in improving human resource quality through education and better healthcare.

In education, higher per capita income strongly correlates with increased school participation and better educational quality. Households with adequate income can finance school fees, learning materials, and supporting facilities, reducing dropout risks. Regions with higher income levels also tend to have greater fiscal capacity, allowing governments to allocate education budgets more effectively. This supports infrastructure development, teacher quality improvement, and equitable access to education, including in remote areas. Todaro & Smith (2020) emphasize that educational investment tends to be more sustainable in regions with higher per capita income. This is supported by the World Bank (2022), which finds that regions with higher income levels tend to have better education indices, thereby enhancing HDI.

Similarly, per capita income significantly influences health outcomes. Higher-income populations have better access to healthcare services, insurance, preventive care, and quality medical treatment. Regions with greater fiscal capacity can invest more in healthcare facilities, service coverage, and medical personnel. BPS (2024) notes that higher per capita income correlates positively with improved health indicators such as life expectancy, reduced infant mortality, and better maternal and child health. UNDP (2023) also emphasizes that stronger fiscal capacity allows for inclusive and sustainable health investments.

Beyond direct effects on education and health, per capita income also helps reduce social and economic inequality. Mankiw (2021) finds that per capita income is the most consistent and robust predictor of HDI variation across countries. Putra & Mulyadi (2021) similarly show that even when controlling for social variables, income remains the strongest predictor of educational and health access.

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Todaro & Smith (2020) argue that higher income enables long-term investment decisions, particularly in education and health, generating multiplier effects on future welfare.

These findings carry important policy implications: HDI improvement strategies cannot be separated from efforts to increase per capita income. Economic development that promotes job creation, productivity growth, and equitable income distribution is essential to ensure that income gains are broadly shared. Without addressing income aspects, human development efforts risk stagnation despite social sector investments.

Overall, the positive and significant relationship between per capita income and HDI is strongly supported by theory and empirical evidence. Income not only reflects economic progress but also serves as the foundation for improving education, health, and overall welfare. This aligns with Human Capital Theory (Becker, 1975/1993), which emphasizes that investment in education and skills, largely influenced by income, enhances productivity and long-term welfare.

3. The Effect of Life Expectancy on the Human Development Index (HDI)

The regression results show that life expectancy (LE) has a statistically significant but negative effect on HDI, with a coefficient of −0.952. This implies that each one-year increase in life expectancy is associated with a 0.952-point decrease in HDI, holding other variables constant. This finding contradicts theoretical expectations and the initial hypothesis.

Conceptually, life expectancy represents the health dimension of HDI. Higher life expectancy reflects better population health and effective public health systems. According to human development theory and Amartya Sen's Welfare Economics and Capability Approach (1999), health is a fundamental capability that should positively contribute to HDI.

The negative coefficient may be explained by several factors. First, there is conceptual and statistical overlap, as life expectancy is already a direct component of HDI. Including it again as an independent variable may create multicollinearity, resulting in distorted coefficients. Second, when education and income are controlled, the remaining variation in life expectancy may capture structural challenges such as aging populations, increasing dependency ratios, and rising healthcare costs, which may reduce its net contribution to HDI. Third, diminishing returns in health investments imply that after a certain threshold, additional gains in life expectancy yield smaller welfare improvements (WHO, 2022; Todaro & Smith, 2020).

In regions with already high life expectancy, additional increases may not significantly enhance productivity, education, or income. Instead, they may increase public expenditure burdens, particularly for elderly care. Several empirical studies (Putra & Mulyadi, 2021; UNDP, 2023; BPS, 2024) show that in such contexts, education and income become more dominant drivers of HDI.

Thus, the negative coefficient does not negate human development theory but reflects the complex interactions among HDI components, diminishing health returns, and contextual development dynamics.

4. The Effect of Education Level on the Human Development Index (HDI)

The regression results indicate that education level has a positive and significant effect on HDI, with a coefficient of 3.030. This suggests that each one-unit increase in education increases HDI by 3.030 points, holding other variables constant. This large coefficient indicates that education is the most dominant factor influencing HDI.

This finding aligns with human development theory, which positions education as the foundation of improved quality of life. Education enhances individual capacity, productivity, adaptability, and social participation. According to Human Capital Theory (Schultz, 1971; Becker, 1993), education is a long-term investment that increases productivity, income, and well-being. Todaro & Smith (2020) argue that better education leads to improved employment opportunities, higher income, and better access to healthcare, reinforcing all HDI dimensions.

Education also strengthens economic productivity and social resilience. The World Bank (2022) emphasizes that education enhances adaptability to technological change and labor market demands.

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Empirical evidence (Zuhriadi et al., 2024; UNDP, 2023) confirms the strong positive relationship between average years of schooling and HDI.

Furthermore, education generates broad social externalities, improving governance, social cohesion, and democratic participation (Sen, 1999). Therefore, education must be prioritized in development policy, focusing not only on access but also on quality, infrastructure, teacher competence, and alignment with labor market needs.

Overall, the findings confirm that education is a strategic and dominant driver of HDI. Sustainable human development, as emphasized by UNDP (2023) and Todaro & Smith (2020), requires a strong commitment to inclusive, equitable, and high-quality education policies.

4. CONCLUSION

Based on the results of the analysis and discussion on the effects of unemployment, per capita income, life expectancy, and education level on the Human Development Index (HDI) in Pangkep Regency, the following conclusions can be drawn:

1. The unemployment variable shows a negative regression coefficient of −0.083, indicating that every 1% increase in the unemployment rate tends to reduce the HDI by 0.083 points. However, the partial test (t-test) results indicate that this effect is not statistically significant (p-value = 0.271 > 0.05). This finding suggests that unemployment is not a dominant factor directly influencing variations in HDI in Pangkep Regency, although theoretically it is expected to have a negative impact.
2. Per capita income has a positive regression coefficient of 0.074, meaning that every increase of IDR 1 million in per capita income tends to raise the HDI by 0.074 points. The partial test (t-test) results show that this effect is positive and statistically significant (p-value = 0.002 < 0.05). This finding confirms that per capita income is a crucial factor directly driving improvements in HDI through enhanced access to education, healthcare, and living standards in Pangkep Regency.
3. Life expectancy shows a negative regression coefficient of −0.952, indicating that every one-year increase in life expectancy tends to reduce the HDI by 0.952 points. The partial test (t-test) results show that this effect is statistically significant (p-value < 0.001), despite its direction contradicting general theory. This suggests that, in a multivariate context (after controlling for education and income), increases in life expectancy do not always contribute positively to overall HDI, possibly due to diminishing returns or interactions with other dimensions of human development in Pangkep Regency.
4. Education level (mean years of schooling) has a positive regression coefficient of 3.030, indicating that every one-year increase in average years of schooling tends to increase the HDI by 3.030 points. The partial test (t-test) results confirm that this effect is positive and statistically significant (p-value = 0.001 < 0.05). This finding demonstrates that education is the most dominant factor in explaining HDI variation, contributing substantially through improvements in productivity, health, and income in Pangkep Regency.

Simultaneously, the four independent variables collectively have a significant effect on HDI (F-test: p-value = 0.000 < 0.05), with a coefficient of determination (R^2) of 0.991. This indicates that 99.1% of the variation in HDI can be explained by the research model. Overall, these findings emphasize that improvements in HDI in Pangkep Regency are primarily driven by education and income, while unemployment plays a less significant role and life expectancy reflects complex interactions among development dimensions.

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