



Determinants of Human Development Index in East Java Province

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Permalink/DOI: <https://doi.org/10.15294/efficient.v5i1.50286>

Received: July 2021 ; Accepted: October 2021 ; Published: January 2022

Abstract

Development policies implemented in developing countries are identified with increasing economic growth, even though without realizing it, increasing economic growth alone is not sufficient and describes the goals of national development. As time goes by, there is a paradigm shift, namely economic development which is seen from improving the quality of human resources that occurs in an area. East Java Province is a province with the lowest HDI compared to other provinces on the island of Java, this ranking is seen based on the HDI achievements of East Java Province from 2015 to 2019. The purpose of this study is to identify and analyze the factors that influence the Human Development Index (HDI) in East Java Province. The analytical tool used is panel data regression which consists of cross data of 38 regencies/ cities in East Java Province in 2015-2019. The results show that the panel data regression estimation model is a Fixed Effect Model with an adjusted R² value of 0.989623. Variables that have a significant effect on HDI are dependency ratio (population dependency load) with a regression coefficient of -3.33988, open unemployment rate regression coefficient -0.117510, and regional expenditure regression coefficient of 4.570.

Keywords: HDI, Dependency Ratio, Unemployment Rate, Gini Ratio, Local Government Expenditure

Abstrak

Kebijakan pembangunan yang dijalankan di negara berkembang identik dengan peningkatan pertumbuhan ekonomi, padahal tanpa disadari peningkatan pertumbuhan ekonomi saja tidak cukup memadai dan menggambarkan tujuan pembangunan nasional. Seiring berjalannya waktu terjadi perubahan paradigma yaitu pembangunan ekonomi yang dilihat dari peningkatan kualitas sumber daya manusia yang terjadi disuatu daerah. Provinsi Jawa Timur merupakan Provinsi dengan besaran IPM terendah dibandingkan dengan Provinsi lain di Pulau Jawa, peringkat ini dilihat berdasarkan capaian IPM Provinsi Jawa Timur tahun 2015 hingga tahun 2019. Tujuan dari penelitian ini adalah untuk mengetahui dan menganalisis faktor yang mempengaruhi Indeks Pembangunan Manusia (IPM) di Provinsi Jawa Timur. Alat analisis yang digunakan adalah regresi data panel yang terdiri dari data silang sebanyak 38 Kabupaten/Kota di Provinsi Jawa Timur tahun 2015-2019. Hasil penelitian menunjukkan bahwa model estimasi regresi data panel adalah Fixed Effect Model dengan nilai adjusted R² sebesar 0.989623. Variabel yang berpengaruh signifikan terhadap IPM adalah dependency ratio (beban ketergantungan penduduk) dengan koefisien regresi -3.33988, tingkat pengangguran terbuka koefisien regresi -0.117510 dan belanja daerah koefisien regresi 4.570.

Kata Kunci: IPM, Dependency Ratio, Tingkat pengangguran, Gini Rasio, Belanja Daerah

How to Cite: Kusuma Sari, P. (2022). Determinants of Human Development Index in East Java Province. *Efficient: Indonesian Journal of Development Economics*, 5(1), 1494-1504. <https://doi.org/10.15294/efficient.v5i1.50286>

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INTRODUCTION

Development is a planned effort made to create change with the aim of improving and raising the standard of living, welfare, and quality of human life (Ali, 2009). Inclusive frameworks in human development cannot be ignored (Oladopo and Ab Rahman, 2018). The development process includes changes in all aspects of life to achieve the goals of a development process, namely equity and welfare for the entire community (Tikson, 2005). In measuring economic development is not sufficient to discuss only GDP per capita growth. On the other hand, it will also discuss social issues changes in structure, institutional systems, changes in people's attitudes and behavior (Arsiman, 2018).

Development policies implemented in several developing countries, including Indonesia, are identical with increasing economic growth, namely the process of developing activities in the economic aspect that causes an increase in the number of production of goods and services so that it has an impact on increasing people's welfare (Prameswara & Prasetyo, 2021). However, without realizing it, the increase in economic growth alone is not sufficient and describes the goals of national development (Sukirno, 2008).

The government as the executor of development certainly requires excellent Human Resources (HR) as capital to carry out the development process (Rosyadah, 2021). Over time there has been a change in the development paradigm, namely economic development as seen from human development, where this development emphasizes the fulfillment of material and non-material human needs.

The United Nations Development Program (UNDP) first introduced the Human

Development Index (HDI) in 1990. HDI is an important indicator to measure success in efforts to build the quality of human life in the long term which is based on the component of per capita expenditure to measure living standards, health indicators that are seen through life expectancy, education indicators through the adult population literacy rate and the average length of schooling (Statistics Agency, 2020).

A high human development index indicates the success of local governments in realizing an increase in the quality of human life. The higher the HDI, the productivity level of the population will also increase which then pushes the income level to be higher. While the low HDI indicates a low level of productivity so it affects the low income of the community (Endang & Hermawati, 2018). Based on data from the Central Statistics Agency, the HDI in East Java Province in the 2015-2019 period showed an increase and was classified into the upper-middle category.

This increase indicates that the people of East Java Province are starting to feel prosperous and experiencing an increase in the quality of life of the community caused by various government programs both in terms of health, education, and people's purchasing power. Although it always increases every year, East Java's HDI is still below the National HDI achievement of 71.92% and is below Java Island's HDI of 74.74%. In addition, East Java's HDI is the lowest compared to other provinces in Java.

Figure 1. shows the achievements of human development at the district, city, and provincial levels in East Java. The average HDI achievement for urban areas in 2019 reached 78.16%, while the HDI achievement for districts only reached 69.68%. The difference in HDI achievements is due to differences in the focus of development in each region, but the differences in HDI achievements that are too far

between districts, cities, and provinces indicate that there is an imbalance in human development that occurs in regencies/ cities and results in low HDI achievements in East Java Province.

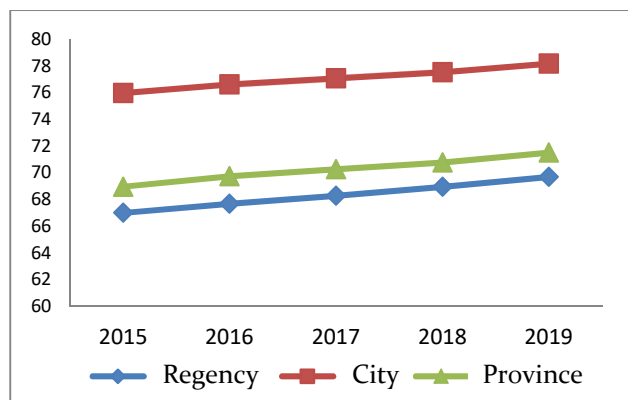


Figure 1. Average HDI of Regency, City and Province of East Java in 2015-2019

Source: (BPS), processed

Human development can be influenced by many factors, one of which is population. The large population is an advantage because the large population means that the available workforce in an area also increases so that it can be used as a subject of development. An increase in the productive population can be beneficial for development, especially in the economic sector.

But on the other hand, a large increase in population can be a burden for development if the number of non-productive people is higher than the productive population because there will be an increase in meeting needs along with the increase in population (Hafner & Mayer-Foulkes, 2013). Dependency Ratio is the ratio between the total population aged 15-64 years (productive age) compared to the population aged 0-14 plus the population aged over 65 years (non-productive). The dependency ratio shows

the burden on the productive population where the productive population must bear the unproductive or unproductive population.

The increasing burden of population dependence shows that the burden that must be borne by the productive population to finance the unproductive and unproductive population is also getting bigger. East Java Province is one of the provinces experiencing a fairly high population growth accompanied by a high number of migrant workers. East Java province has the second-highest population in Indonesia.

More than 38 million people in 2015 and in 2019 increased to more than 39 million people. In the Regency/City Dependency Ratio in East Java Province in 2015-2019, there was a decline in almost all regencies/ cities in East Java. The highest dependency ratio is in Bangkalan Regency, while the area with the lowest dependency ratio is Malang City.

The burden of population dependence is not only seen from the age structure (productive/non-productive) but also the population belonging to the labor force but not yet/not having a job (unemployment) is also a burden for other residents. Unemployment is a condition where someone who belongs to the labor force category, but does not have a job or is looking for work. Unemployment that occurs in an area shows the number of workers who are actively looking for work.

Unemployment occurs as a result of changes in the workforce which increases without being matched by an increase in the availability of jobs and the small percentage of labor absorption (Sukirno, 2008). The problem of unemployment that occurs results in a decrease in the level of income, causing a decrease in the level of welfare and quality of life of a person (Mankiw, 2010).

The unemployment rate can be seen from several indicators, one of which is the Open Unemployment Rate (TPT). TPT is the ratio between the number of job seekers and the number of labor force expressed in percent. The open unemployment rate indicates the size of the workforce that is included in the unemployment category, the higher the open unemployment rate means the more labor force that has not been absorbed in the labor market.

The East Java Province's Open Unemployment Rate continues to decline and is below the national average. The government's success in suppressing the unemployment rate in East Java Province is considered quite good considering the population is quite high, even being the second highest in Indonesia. Based on data from the Central Statistics Agency, the open unemployment rate in the Regency/ City of East Java Province for the 2015-2019 period tends to fluctuate but has a declining trend.

The open unemployment rate in the city is higher than the open unemployment rate in the district. The lowest open unemployment rate occurred in Pacitan Regency, which was 0.95%, while the highest TPT was Malang City at 6.04%. The high level of unemployment that occurs in an area causes more and more groups of workers who do not have jobs. This has an impact on the decrease in a person's income level. The high number of unemployed causes a decrease in wages for the community, causing an increase in inequality in the distribution of people's income (Sukirno, 2008).

Income distribution is the difference in the amount of income received by the community in an area. The distribution of income reflects the equitable or unequal distribution of the results of the development of an area among the population. The level of inequality can be seen through the Gini ratio which reflects the level of income inequality as a proxy for the income of

the population. The Gini Ratio has a value between 0 which means there is perfect equality to 1 which means there is perfect inequality (Todaro, 2006).

The more even distribution of income will lead to better health and education levels so as to improve the level of labor productivity. Meanwhile, income inequality that occurs in an area has an impact on the low purchasing power of the people so that economic development does not develop optimally and the low level of community welfare is low so that the results of development are only enjoyed by upper-middle social class groups (Todaro, 2006).

Based on data from the Central Statistics Agency, the Gini ratio of East Java Province shows a declining trend in the five years from 2015-2019 and is included in the category of low inequality. However, Nganjuk Regency and Surabaya City in 2019 experienced moderate or moderate inequality. While the inequality that occurs in most areas in the Regency/ City of East Java Province is in a low category, the lowest income inequality occurs in Mojokerto Regency.

Government spending is a government action in regulating the economy by determining the amount of government expenditure and revenue each year. The government has an important role in realizing economic development through fiscal policy, namely the instrument for allocating APBN/APBD funds used to finance the government's priority sectors in achieving development (Sukirno, 2000). Government budgets in various public sectors such as investments in the education and health sectors are expected to be able to improve the quality of human life so that it can have an impact on people's welfare.

Based on data on the realization of regional expenditures in East Java Province, it has

increased from 2015 to 2019. This indicates that the government has made efforts to improve the quality of human resources by increasing the realization of spending that increases every year. The largest regional expenditure realization was in Surabaya City at 7.8 trillion, while Pasuruan City at 800 billion became the city with the smallest regional expenditure realization in East Java.

Based on this description, it is necessary to conduct further research to find out how much influence the dependency ratio, open unemployment rate, Gini ratio, and regional expenditures have on the human development index. This study aims to determine and analyze Determinants of the Human Development Index by Regency/ City in East Java Province.

RESEARCH METHOD

This research was conducted based on a quantitative study, namely to reveal the influence between variables expressed in numbers and explain it by comparing it with existing theories and using data analysis techniques that are in accordance with the variables in the study.

The variables used in this study are the Human Development Index (HDI) as the dependent variable and the dependency ratio, the open unemployment rate, the Gini ratio and regional spending as independent variables. This study uses secondary data obtained through the Central Statistics Agency (BPS) and DJPK as well as other documents from several reliable sources that have been published.

The type of data used is Panel Data Regression, which is a combination of data from cross-section and time-series data. The number of observations in the study consisted of cross data from 38 regencies/ cities in East Java

Province and annual time series data from 2015-2019. The selection of 2015-2019 as the election year is to find out and analyze the Determinants of the Human Development Index according to the Regency/ City of East Java Province.

The formulation of the model used to determine and analyze the determinants of the Human Development Index (HDI) in 38 regencies/cities in East Java Province through the dependency ratio, open unemployment rate, Gini ratio and regional spending on HDI can be written as follows:

$$IPMit = \beta_0 + \beta_1 DRit + \beta_2 TPTit + \beta_3 GRit + \beta_4 BDit + \mu it \dots \dots \dots (1)$$

Information:

- IPMit : HDI percentage
- DRit : Dependency ratio percentage
- TPTit : TPT percentage
- GRit : Gini Ratio percentage
- BDit : Local Government Expenditure percentage
- μit : Component Error at Time t for Unit Cross Section
- i : Cross Section
- t : Time Series

This study uses panel data regression which is analyzed with three approaches, namely Common Effect, Fixed Effect, and Random Effect. Determination of the best approach model is carried out by selecting the estimation method using the Chow test, Hausman test, and the Lagrange Multiplier test. After the best model has been found, the next step is to perform statistical tests. Statistical tests were used to analyze the suitability of the regression model obtained.

The statistical test consists of the coefficient of determination or R-squared, f-test, and t-test. Next is the classical assumption test in order to produce an estimated parameter value that matches the actual value so that the parameter value has the characteristics of being unbiased, consistent, and also efficient or BLUE (best, linear, unbiased estimator). Classical assumption test consists of normality test, multicollinearity test, heteroscedasticity test.

RESULTS AND DISCUSSION

This study uses three-panel data estimation models in this study, namely the common effect model, the fixed-effect model, and the random effect model. The research that the author does is to analyze and determine the determinants of the human development index by regencies/cities in East Java Province through the variable dependency ratio, open unemployment rate, Gini ratio and regional spending on HDI. The following are the results of the three panel data estimation models that have been carried out:

Table 1. Panel Data Estimation Results

Variable	Model		
	Common	Fixed	Random
Konstanta	78.26701*** (0.0000)	216.9781*** (0.0000)	142.4371*** (0.0000)
Dependency Ratio	-0.621478*** (0.0000)	-3.333988*** (0.0000)	-1.633967*** (0.0000)
Unemployment Rate	0.958166*** (0.0000)	-0.117510** (0.0400)	-0.221109*** (0.0001)
Gini ratio	48.96183*** (0.0000)	0.821512 (0.6636)	-2.124972 (0.2488)
Local Expenditure	-3.49E-13 (0.1532)	4.57E-13*** (0.0017)	8.00E-13*** (0.0000)
R ²	0.473720	0.991874	0.515832
Adj R ²	0.462341	0.989623	0.505363
Std.Error	3.893819	0.540957	0.707384
F-Statistik	41.63095	440.6093	49.27462
Prob (F-Statistik)	0.000000	0.000000	0.000000
Durbin Watson-stat	0.274994	1.049698	0.614338

Source: Output E-Views 9.0, 2021

There are several ways in selecting the model, namely in the first stage, conducting the Chow Test, which is choosing the best model between the common effect model and the fixed effect model. The second stage is to do the Hausman test, which is to choose the best model

between the random fixed effect and the fixed effect model. If from the two tests the best model has not been obtained, it is mandatory to carry out the third stage, namely the LM test, which chooses the best model between the random effect model and the common effect

model. Likelihood Ratio Test–Chow's test was used to find a method between the common effect model (CEM) and fixed-effect model (FEM) approaches.

If there is a rejection of Ho, it can use statistical considerations of chi-square probability. Ho is rejected and Ha is accepted when prob < 0.05, which means that the model is feasible to use in the regression, namely the fixed effect model. The output results in the regression using the Likelihood Ratio are shown in table 2.

Table 2. Likelihood Ratio Estimation Results-Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section f	255.057564	(37,148)	0.0000
Cross-section Chi-square	792.443627	37	0.0000

Source: E-Views Output Results 9.0, 2021

The test shows that the cross-section F value is 255.057564 with a probability of 0.0000 and significant to = 5%. Ho is rejected and H_a is accepted because of the prob value. cross-section Fis 0.0000 < 0.05. Based on these results, it can be decided that the selected model is a fixed-effect model, so the Hausman Test must be carried out as the next step to determine the best model.

Correlated Random Effects–Hausman Test can be performed to compare the best model between the fixed effects model (FEM) and the random-effects model (REM). If there is a rejection of Ho, you can use chi-square probability statistical considerations. Ho is accepted and Ha is rejected if prob > 0.05, which means that the regression model in this study is feasible to use the random-effects model. Ho is

rejected and Ha is accepted if prob < 0.05 means that the regression model in this study is feasible to use the fixed effect model. The output results in the regression using Correlated Random Effects are shown in table 3.

Table 3. Correlated Random Effect-Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	35.342363	4	0.0000

Source: E-Views Output Results 9.0, 2021

The results of the Hausman test regression can be seen that the random cross-section value is 135.342363 with a probability of 0.0000 and is significant to = 5%. The hypothesis is that if the probability is smaller than (0.0000 < 0.05) then H_o is rejected and H_a is accepted, then the best decision-making model is the fixed effect model.

Based on the model selection test that has been carried out, for decision making the best model in estimating the effect of dependency ratio, open unemployment rate, Gini ratio and regional expenditure on HDI use a fixed-effect model with the following equation:

$$HDI_{it} = 216.9781 - 3.333988DR_{it} - 0.117510 TPT_{it} + 0.821512GR_{it} + 4.57E-13GE_{it} + \mu_{it}.....(2)$$

Based on the results of statistical tests carried out, the results of the data regression output in table 1. show the R2 value of 0.989623 where the dependent variable, namely HDI can be explained by independent variables, including dependency ratio, open unemployment rate, Gini ratio, and regional expenditure together. by 98%. While the remaining 2% is explained by

other variables outside the research variables. Meanwhile, based on the t-test, it is done by comparing the value of t-count with t-table.

The value is obtained from the value of t-table = ($\alpha = 0.05$; $df = 186$) = 1.65309. If the value

of t-count > t-table, H_0 is rejected and H_1 is accepted, meaning that the independent variable partially has a significant effect on the dependent variable and vice versa. The following is a table of statistical calculation results:

Table 4. Statistical Test Results

Variabel	t-stat	Prob	t tabel $\alpha=5\%$	Ket.
Dependency ratio	-14.87106	0.0000	1.653	Significant
Unemployment Rate	-2.072421	0.0400	1.653	Significant
Gini ratio	0.435803	0.6636	1.653	Not Significant
Local Expenditure	3.188374	0.0017	1.653	Not Significant

Source: Output E-Views 9.0, 2021

The population dependency ratio variable partially has a significant influence on the Human Development Index (HDI). Based on the test results show that the value of t-count > t-table ($14.87106 > 1.653132$), so it can be concluded that H_0 is rejected and H_1 is accepted. The results of the t-test state that the Dependency Ratio has a significant negative effect on HDI in 38 regencies/ cities of East Java Province so it is in accordance with the alternative hypothesis that has been written.

The variable of the Open Unemployment Rate partially has a significant influence on the Human Development Index (HDI). Based on the test results show that the value of t-count > t-table ($2.072421 > 1.653132$), so it can be concluded that H_0 is rejected and H_1 is accepted. The results of the t-test state that TPT has a significant negative effect on HDI in 38 regencies/ cities of East Java Province so it is in accordance with the alternative hypothesis that has been written.

The Gini Ratio variable partially does not have a significant effect on the Human Development Index (HDI). Based on the test results indicate that the value of t-count < t-

table ($0.435803 < 1.653132$), so it can be concluded that H_0 is accepted and H_1 is rejected. The results of the t-test state that the Gini Ratio has no effect on HDI in 38 regencies/ cities of East Java Province so that the results of the study are not in accordance with the alternative hypotheses that have been written.

Regional Expenditure Variable partially has a significant influence on the Human Development Index (HDI). Based on the test results show that the value of t-count > t-table ($3.188374 > 1.653132$), so it can be concluded that H_0 is accepted and H_1 is rejected. The results of the t-test state that Regional Expenditures have a significant positive effect on HDI in 38 regencies/ cities of East Java Province so that it is in accordance with the alternative hypothesis that has been written.

Meanwhile, the F-statistical test in this study was carried out by comparing the F-count value with the F-table. If F-count > F-table then H_0 is rejected, meaning that the independent variables jointly affect the dependent variable. Based on the output results in table 1. obtained F-count of 440.6093 using $\alpha = 5\%$. The F-count calculation is $dfn = 3$ which is obtained from $(k-1$

=4-1) and the degree of freedom for numerator (dfn) = 186 which is obtained from $(n-k = 190-4)$, then the F-count is 2.65.

This means that $F\text{-count} > F_{\text{table}}$ ($440.6093 > 2.65$) and the probability F statistic is 0.000 significant at $\alpha = 5\%$. This means that the dependency ratio, the open unemployment rate, the Gini ratio and regional expenditures have a joint effect on the HDI in regencies/ cities in East Java in 2015-2019. The results of the classical assumption test show that the pomfret model passes the test, where the correlation coefficient of each independent variable shows a number more than 0.8.

Prob value normality test. JB is calculated as $0.000 < 0.05$, so it can be concluded that the model is not normally distributed. Normality test aims to see whether the research is normally distributed. However, the normality test is not a requirement for BLUE (Best Linear Unbias Estimator) so it is not mandatory for the OLS approach (Gujarati, 2012). The results of the Breusch-Pagan-Godfrey test showed that the Chi-Square Probability value was $0.1291 > (0.05)$, so it was concluded that there was no heteroscedasticity.

Dependency Ratio has an influence on HDI in the Regency/City of East Java Province in 2015-2019. This is in line with research by Pramono et al (2016) and Pratowo (2009), namely, the dependency ratio has a significant negative effect on HDI. The higher proportion of the productive age population compared to the non-productive age population can have a positive impact on national development, especially the economic sector.

However, this development will only occur if the quality of human resources in terms of education, health services, and the provision of

employment opportunities is continuously improved to the maximum. This is because productive people have to bear the burden of more unproductive people. Such conditions and situations can certainly hinder the development of the quality of human life in an area.

The Open Unemployment Rate has an influence on the HDI in the Regency/ City of East Java Province in 2015-2019. The results of this study are in line with research by Baeti (2013) and Prisca (2019) which state that TPT has a significant negative effect on HDI. The increase in the unemployment rate can reduce the level of community prosperity which results in the inability of the community to meet their needs and improve their quality of life. The high level of unemployment will also be a burden, not only for the government but also for families and the environment.

According to Keynes's theory of unemployment, unemployment is the result of low demand for goods and services in an economy or what is commonly called aggregate demand. The low level of labor supply causes an increase in the unemployment rate. This has an impact on the decline in the level of wages so that people's income will decrease so that people are unable to meet the needs of life and cause a decrease in the quality of human development. The Gini Ratio has no effect on the HDI in the Regency/ City of East Java Province in 2015-2019.

The results of this study are not in line with research conducted by Agung Yudhi (2016) which explains that a smaller Gini ratio or close to zero will have an impact on the human development index because an even distribution of income will increase HDI. However, this is in line with

Kuznet's Inequality Theory and research conducted by Meydiasari (2017) and Emilda (2019) which states that the Gini ratio has no significant positive effect on HDI. Regional Expenditures have an influence on HDI in the Regency/ City of East Java Province in 2015-2019. This study is also in line with the research of Berek et al (2006) and Isa Pratowo (2009), which state that regional spending has a significant positive effect on HDI.

According to the theory of Fiscal Federalism by Musgrave (1959) which states that an increase in local government spending can increase all components of the HDI both in terms of education, health and income which will ultimately increase the HDI. In general, regional expenditures determine the success of a region's development. The increase in government spending encourages the improvement of the quality of public services as well as the improvement of public facilities which have an impact on the ease of access for the community so that there is an increase in HDI in the region.

CONCLUSION

Based on the results of the analysis that has been obtained in research on the Human Development Index (HDI) in the Regency/ City of East Java Province in the 2015-2019 period using panel data regression, it can be concluded that the Gini ratio has no significant effect on the Human Development Index (IPM), the variable dependency ratio and the open unemployment rate have a significant negative effect on the Human Development Index (HDI) while regional spending has a significant positive effect on the Development Index Human (HDI).

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