

The Effects of Regional Financial Ratios on Human Development Index (An Empirical Study in All Districts / Cities in Central Java Province During 2012-2017)

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ABSTRACT

This research examined the effects of fiscal decentralization ratio, regional financial dependency ratio, regional financial independence ratio, and expenditure allocation harmony ratio on Human Development Index (HDI). This study used the data on regional financial ratios in Central Java Province from the years 2012 to 2017. The data used was obtained from the Central Statistics Agency. This research generated several results. First, the fiscal decentralization ratio had a positive and significant effect on HDI. Second, the regional financial dependency ratio had a negative and significant effect on HDI. Third, the regional financial independence ratio had a positive and significant effect on HDI. And fourth, the expenditure allocation harmony ratio had a positive and significant effect on HDI.

Keywords: *Regional Financial Ratios, Human Development Index (HDI)*

1. INTRODUCTION

Indonesia has a variety of ways in managing development strategies. Regional autonomy is one way that can be done. Regional autonomy is the delegation of authority to each region in regulating the affairs of their respective regions. Regional autonomy has the aim to improve the effectiveness and efficiency in carrying out regional government, especially in increasing regional development in form of services available to the public.

Public welfare has a relationship with public services provided by the government. Local governments have the responsibility of financing public expenditure on public services such as education, health, and other services[1]. In financing all of these things, the government is very dependent on regional revenues. Such revenues come from regional income, transfer funds, and other funds.

In addition to taking on the task of improving public welfare through public services, the regional government has authority in the management of regional finance. The ability of a region to manage its finance is measured by analyzing the regional financial ratios[2]. The ratios used to analyze the ability of a region in managing its finance include the ratio of fiscal decentralization, the ratio of regional financial dependency, and the ratio of regional financial independence[3]. With good financial management, local governments are expected to improve public services for public welfare. When the public welfare increases, the Human Development Index (HDI) will also increase.

The Ratio of Fiscal Decentralization and Regional Financial Independence significantly influence HDI [4]. Fiscal decentralization has a positive effect on people's welfare, because the increasing government revenue can maximize public services [5]. In other words, when the regional government has provided maximum public services to the community, the welfare of the community will increase.

To run the government to its full potential, the government relies heavily on its regional income. The more income that can be obtained by a region, the more able it will be to meet the needs of community [6]. An increase in original income, general allocation funds, and special allocation funds indicates an increase in community prosperity as measured by HDI.

The income earned by the regional government is basically aimed at the prosperity of the people. Public prosperity will occur, if the allocation of funds is right on target. Appropriate allocation is the funds spent only for the benefit of the community, so that the community welfare increases. When people's welfare increases, HDI will increase. The harmony in expenditure allocation increases HDI [7].

HDI can be increased through regional financial performance. In this study, the performance of regional finance included the ratio of fiscal decentralization, the ratio of regional financial dependency, the ratio of regional financial independence, and the ratio of expenditure allocation harmony. This study examined the effects of regional financial ratios on HDI in Central Java Province.

2. REGIONAL FINANCIAL RATIOS AND HUMAN DEVELOPMENT INDEX

2.1 Ratio of Decentralization and Human Development Index

The degree of decentralization is the ability of local governments to increase regional revenue which is used to finance the regional development [3]. The degree of decentralization can be calculated based on a comparison between the amount of locally generated revenue and the total regional revenue. Through the degree of decentralization, information can be obtained about how much the ability of local governments in carrying out the function of decentralization by increasing the locally generated revenue. The higher the locally generated revenue is, the higher the allocation of funds that can be used by the government to finance services for public. If the service for public gets better, it is expected to improve the welfare of the community. The other research found that the ratio of the degree of decentralization has a significant effect on HDI [4]. Based on an explanation of the theory and conclusions of the research that has been carried out, the authors formulate the hypothesis as follow:

H₁: The ratio of decentralization has a positive effect on Human Development Index (HDI)

2.2 Regional Financial Dependency Ratio and Human Development Index

In implementing regional autonomy, the regional government is expected to recognize the potential that exists in the region in order to increase local revenue. Thus, regional government does not depend only on central government grants. Regional financial dependency ratios can be calculated by comparing the amount of revenue received by a region with the total regional revenue. The higher the dependency ratio is, the higher the dependency level of a region will be in receiving allocations from the central government. Regions that have a low ratio of regional financial dependence on central government transfers has good financial conditions and is considered to be independent. Good financial conditions can improve the quality of public services, thereby increasing HDI. The ratio of regional financial dependency has a negative and significant relationship to HDI [4]. The lower the number of dependency ratios in a region, HDI in the region will increase. Based on an explanation of the theory and conclusions of previous research, the authors formulate the next hypothesis as follow:

H₂: Regional financial dependency ratio has a negative effect on Human Development Index (HDI)

2.3 Regional Financial Independence Ratio and Human Development Index

A sign indicating the success of a region in managing its regional finance is the level of financial independence of the region. If a region is self-sufficient in financial matters, then it will improve the development and services to the community without having to rely on capital transfers from the central government.

Regional financial independence partially has a positive effect on HDI [7]. It shows that the increase in regional financial independence will also be followed by an increase in HDI. Based on an explanation of the theory and conclusions of previous research, the authors formulated the next hypothesis as follow:

H₃: Regional financial independence ratio has a positive effect on Human Development Index (HDI)

2.4 Expenditure Allocation Harmony Ratio and Human Development Index

Regional expenditure is grouped into two forms, namely indirect expenditure and direct expenditure. Indirect expenditure is budgeted expenditure that is not directly related to the implementation of programs and activities, while direct expenditure is budgeted expenditure that is directly related to the implementation of programs and activities [10].

Direct spending has a big role in increasing the level of community welfare. The forms of local government activities and programs that can be felt directly by the community are funded by using direct shopping accounts. The regional government is expected to increase the allocation to the direct expenditure post, because it is directly related to the interests of community. The greater the allocation of funds in government programs and activities aimed at the community, the higher the community welfare will be.

If the welfare of the community increases, HDI will also increase. The ratio of expenditure allocation harmony has a positive effect on HDI [7]. Based on an explanation of the theory and conclusions of previous research, the authors formulated the last hypothesis as follow:

H₄: Expenditure allocation harmony ratio has a positive effect on Human Development Index (HDI)

3. RESEARCH METHOD

3.1 Data

The types of data used in this study are secondary data in form of panels (pooled-data) that combine the time-series data for

the 2012-2017 period and the cross-section data for all regencies / municipalities in Central Java.

3.2 Analysis Technique

Data analysis technique in this study is the analysis of multiple linear regression [11]. This analysis is usually used to test the effect of independent variables on the dependent variable. This study examined the influence of regional financial ratios on HDI in Central Java Province.

The regression equation used in this study is as follow:

$$Y = \beta_0 + \beta_1.X_1 + \beta_2.X_2 + \beta_3.X_3 + \beta_4.X_4 + e$$

Description:

- Y = Human Development Index (HDI)
- β_0 = Constant
- X₁ = Ratio of the degree of Fiscal Decentralization
- X₂ = Regional Financial Dependency Ratio
- X₃ = Regional Financial Independence Ratio
- X₄ = Ratio of expenditure allocation harmony
- e = Error-term

In analyzing panel data, we used the Common-Effect Model (CEM), Fixed-Effect Model (FEM), and the Random-Effect Model (REM).

1. Common-Effect Model (CEM)

This model is the most simple data analysis method, because it only combines the time-series and cross-section data, and then is analyzed using the Ordinal Least Square method or the least-square method. The modern model does not pay attention to the individual dimensions and time availability, so all data is considered the same.

2. Fixed-Effect Model (FEM)

This model is a model that is used in overcoming the weaknesses that exist in CEM. In CEM, the variables that are not included in the model equation, allow MMN to occur that is not constant intercepts. That is, intercepts may change for each individual and time. This model analyzes panel data by adding dummy variables.

2. Random-Effect Model (REM)

If in FEM models the differences between individuals and time are shown by intercept, then in REM models, these differences are shown by errors. In this method, there is an advantage, which is eliminating the problem of heteroscedasticity. The analytical method used in this model no longer uses the least-square method, but uses the Generalized Least Square (GLS), assuming that the error is not heteroscedastic.

Before conducting the F-Test in regression analysis, the step that must be taken is determining the best estimation model from the existing models. The model will be tested by using the Chow-Test and the Hausman-Test.

Hypotheses testing

Partial Test (t-Test)

This test aims to analyze the effect and significance of each dependent variable (X) on the dependent variable (Y). In testing the hypothesis in this study, we used a significance level of 0.05 ($\alpha = 5\%$) or a confidence level of 95%. Decisions will be made on the basis as follows:

1. If Sig. < 0.05, then: Hypothesis is accepted
2. If Sig. > 0.05, then: Hypothesis is rejected

F-Test (Simultaneous Test)

In order to find out how much the independent variables (X₁, X₂, X₃, and X₄) can simultaneously influence the dependent variable (Y), the F-Test is performed. If the F-statistics probability value is less than 0.05 or 5%, then the independent variables can provide significant influences simultaneously on the dependent variable of HDI.

4. RESULTS

4.1 Model Testing

The Chow-Test aims to determine whether the fixed-effect or the common-effect model is more appropriate to be used in the regression analysis. The decision is based on the following criteria:

- a) If the probability value $F > 0.05$, the model is more appropriate to use CEM.
- b) If the probability value $F < 0.05$, the model is more appropriate to use FEM.

The test results can be seen in Table 1 as follow:

Table 1 Chow-Test
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	309.206513	(34.171)	0.0000

Based on the results in Table 1, the probability value obtained is 0.000, which is less than 0.05. The conclusion that can be drawn is that the Fixed-Effect Model is more appropriate to be used in this regression analysis. After the Chow-Test has been performed, the next step is to test the model by using the Hausman-Test.

The Hausman-Test aims to find out whether the fixed-effect or the random-effect model is more appropriate to be used in this the regression analysis. The decision is based on the following criteria:

- a) If the probability value $F > 0.05$, the model is more appropriate to use REM.
- b) If the probability value $F < 0.05$, the model is more appropriate to use FEM.

The test results can be seen in Table 2 as follow:

Table 2 Hausman Test

Correlated Random Effects – Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	16.838435	4	0.0021

Based on the results in Table 2, the probability value shows a number of 0.0021 (less than 0.05). So, it can be concluded that the right model to be used in this study is the Fixed-Effect Model (FEM).

4.2 Descriptive Statistics

Table 3 shows the means, medians, and standard deviations among the studied variables.

Table 3
Descriptive Statistics

	Y	X ₁	X ₂	X ₃	X ₄
Mean	0.696511	0.150322	0.633411	0.150857	0.342284
Median	0.68765	0.140019	0.641251	0.12748	0.336415
Maximum	0.8201	0.451974	0.823211	0.907174	0.613478
Minimum	0.6078	0.047449	0.400275	0.042968	0.187733
Std. Deviation	0.046591	0.060937	0.06445	0.085169	0.07406
Skewness	0.713929	1.613026	-0.972211	4.022339	0.820037
Kurtosis	3.098098	6.779487	5.200354	32.10557	4.73371
Jarque-Bera	17.9235	216.0544	75.44547	7978.698	49.83644
Probability	0.000128	0	0	0	0
Sum	146.2673	31.56755	133.0162	31.68007	71.87964
Sum Sq. Deviation	0.453689	0.776094	0.868139	1.516032	1.146354
Observations	210	210	210	210	210

4.3 Hypotheses Testing

The Coefficient of Determination (R^2) shows how much the ability of the model in explaining the variation of the dependent variable. The Coefficient of Determination is among the first one. If the value of R^2 is near zero, this means that the ability of independent variables in explaining the dependent variable is very limited.

Conversely, if the value of R^2 approaches the value of one, it shows that the independent variables can well explain the variation of the dependent variable. The result of the Coefficient of Determination in this study is as follow:

Table 4 Coefficient of Determination

Weighted Statistics			
R-squared	0.992828	Mean dependent var	-0.471201
Adjusted R-squared	0.991235	S.D. dependent var	0.174154
S.E. of regression	0.009205	Sum squared resid	0.014489
F-statistic	622.9601	Durbin-Watson stat	2.032008
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.983577	Mean dependent var	-0.363842
Sum squared resid	0.014790	Durbin-Watson stat	1.740046

Based on the result in Table 4, the value of R^2 shows a figure of 0.991235 or 99.1235%, which means that 99.1235% of variation in the dependent variable (HDI) can be explained by the variation in independent variables, which are the ratio of the degree of fiscal decentralization, the ratio of regional financial dependency, the ratio of regional financial independence, and the ratio of expenditure allocation harmony, while the remaining 0.8765% is explained by other variables not included in this study.

4.3.1. Partial Test

The partial test basically shows how significant the influence of each of the independent variables individually on the dependent variable. The test results can be seen in Table 5 as follows:

Table 5 Regression

Dependent Variable: LOG(Y)
 Method: Panel EGLS (Cross Section weights)
 Date: 08/12/19 Time: 19:14
 Sample 2012 2017
 Periods included: 6
 Cross-sections included: 35

Total panel (balanced) observations: 210

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-0.269641	0.007702	-35.00970	0.0000
LOG(X1)	0.025897	0.004491	5.766763	0.0000
LOG(X2)	-0.031385	0.008017	-3.914913	0.0001
LOG(X3)	0.020620	0.002500	8.247676	0.0000
LOG(X4)	0.015208	0.003815	3.985925	0.0001

The results in Table 5 show that the degree of fiscal decentralization (X_1) has a significant effect on HDI, the regional financial dependency ratio (X_2) has a significant effect on HDI, the regional financial independence ratio (X_3)

has a significant effect on HDI, and the ratio of expenditure allocation harmony (X_4) has a significant effect on HDI.

4.3.2 F-Test (Simultaneous Test)

In order to find out how significant the independent variables (X_1 , X_2 , X_3 , and X_4) can simultaneously influence the dependent variable (Y), then the F-Test is performed. If the F-statistics probability value is less than 0.05 or 5%, then the independent variables are simultaneously able to significantly influence the dependent variable, namely HDI. The result of F-Test can be seen in Table 6 as follow:

Table 6 F-Test

Weighted Statistics			
R-squared	0.992828	Mean dependent var	-0.471201
Adjusted R-squared	0.991235	S.D. dependent var	0.174154
S.E. of regression	0.009205	Sum squared resid	0.014489
F-statistic	622.9601	Durbin-Watson stat	2.032008
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.983577	Mean dependent var	-0.363842
Sum squared resid	0.014790	Durbin-Watson stat	1.740046

The result of data analysis shows that the obtained F-statistics probability value was 0.0000. This value is less than the value of Alpha ($\alpha = 5\%$), which has been determined previously. The conclusion is that the ratio of the degree of fiscal decentralization (X_1), the ratio of regional financial dependency (X_2), the ratio of regional financial independence (X_3), and the ratio of expenditure allocation harmony (X_4) were simultaneously able to provide a significant influence on HDI (Y).

5. DISCUSSION

There is a significant effect of the ratio of the degree of fiscal decentralization on the index of human development with a probability value of 0.0000 and the regression coefficient of 0.026. This result is consistent with the hypothesis that has been stated, which means that if the ratio of the degree of fiscal decentralization increases, HDI will also increase. The ratio of the degree of fiscal decentralization illustrates how much of the original income the region can generate by the regional government to the total revenue received. The greater the degree of fiscal decentralization, the greater the locally generated income will be. As the locally generated income increases, the local government funding sources will also

increase, making it possible to improve better public services. This result is in line with another research which stated that the ratio of fiscal decentralization has a positive effect on HDI [7]. The better the public services provided by the local government for the community are, the better the people welfare will be, so that HDI will also increase. Locally generated income significantly influences HDI [8].

There is a significant effect of the regional financial dependence ratio on the index of human development with a probability value of 0.0001 and the regression coefficient of -0.031. This result is in accordance with the hypothesis that has been put forward, namely the regional financial dependence ratio has a negative and significant effect on HDI, which means that if the regional financial dependency ratio is lower, HDI will increase. That is because local governments can optimize the locally generated income in financing development activities and do not depend on transfer funds from the central government. The result of this study is in line with the research concluding that the regional financial dependence ratio has a negative and significant effect on HDI [9].

There is a significant effect of the regional financial independence ratio on HDI with a probability value of 0.0000 and the regression coefficient of 0.021. This result indicates that if the regional financial independence ratio increases, HDI will also increase. The regional financial independence ratio is related to locally generated income by the government in a region. With high locally generated income, the government is considered able to maximize the potential that exists in the region and can meet their needs independently without having to rely on the central government's transfer funds. This result is also in line with another study concluding that the regional financial independence ratio has a positive effect on HDI [7].

There is a significant effect of expenditure allocation harmony ratio on HDI with a probability value of 0,0001 and the regression coefficient of 0.015. This result is consistent with the hypothesis that has been stated, namely the expenditure allocation harmony ratio has a positive and significant effect on HDI. This result is in line with the research concluding that the expenditure allocation harmony ratio has a positive effect on HDI [7]. This result indicates that the higher the ratio of expenditure allocation harmony is, the higher the HDI will be. This shows that government activities and programs funded by direct shopping accounts can improve community welfare. In fact, there are still many regions that finance their expenditures from indirect shopping accounts, for example in Central Java Province. In all cities / regencies in Central Java Province, the indirect expenditure allocation is still dominant compared to the direct expenditure allocation. It is expected that the Provincial Government of Central Java can increase the allocation of direct expenditures, because it can increase the HDI.

6. CONCLUSIONS

In this study, the panel data analysis that had been done, had proven that the degree of fiscal decentralization, the regional financial dependency ratio, the regional financial independence ratio, and the ratio of expenditure allocation harmony simultaneously could provide significant effects on HDI among all cities / regencies in Central Java Province. This research found several results. First, the ratio of the degree of fiscal decentralization had a positive and significant effect on HDI. Second, the ratio of regional financial dependence had a negative and significant effect on HDI. Third, the regional financial independence ratio had a positive and significant effect on HDI. And fourth, the ratio of expenditure allocation harmony had a positive and significant effect on HDI.

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