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Research Article

Fera Citra Mursalita[1], Zulfa Emalia[2]

Multidimensional Poverty Analysis on the Islands of Java–Bali 2014-2018

*Corresponding Author: **Fera Citra Mursalita**; University of Lampung, Indonesia; Feracitra1117@gmail.com
Zulfa Emalia; University of Lampung, Indonesia; Zulfaemalia@feb.unila.ac.id

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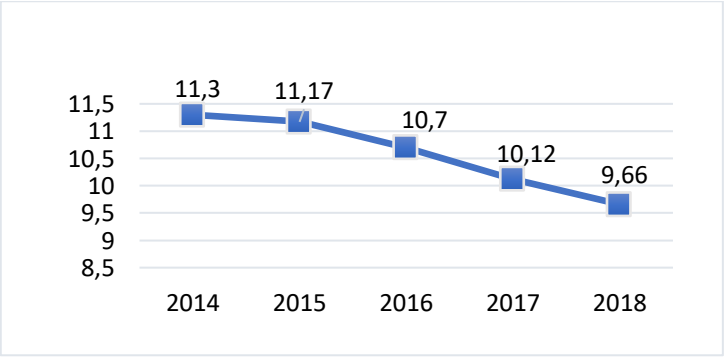
Abstract: *Poverty continues to be an issue faced by all nations, especially in developing countries. Poverty refers to a condition where an individual or a group of people lacks the ability to meet the minimum standard of living considered appropriate for a decent life. Measuring poverty solely through monetary dimensions is insufficient; hence, a multidimensional approach to measuring poverty is crucial. During the period from 2014 to 2018, the highest reduction in the Multidimensional Poverty Index occurred in 2014, with a percentage decrease of 18.4%. This study uses secondary data and panel data analysis on 7 provinces in Java and Bali from 2014 to 2018 to examine the impact of the Multidimensional Poverty Index in Java and Bali. The study shows that 1) Gross Regional Domestic Product has a significant negative effect on the Multidimensional Poverty Index in Java and Bali. 2) The prevalence of malnutrition in toddlers does not significantly affect the Multidimensional Poverty Index in Java and Bali. 3) The average length of schooling has a significant negative effect on the Multidimensional Poverty Index in Java and Bali. 4) The source of electricity has a significant positive effect on the Multidimensional Poverty Index in Java and Bali.*

Keywords: *multidimensional poverty, education, nutrients, electricity access.*

Introduction

Poverty is a fundamental challenge because it covers the basic needs of life, poverty refers to a condition where a person or group of people does not have the ability to meet the minimum standard of living that is considered appropriate to the level of living. (Todaro, 2006).

The problem of poverty is also still faced by Indonesia. The Central Statistics Agency measures poverty in a monetary approach with the Poverty Line. GK (Poverty Line) is a description of the minimum amount of money needed by a person to meet food needs which are equivalent to 2100 kilocalories per capita per day, as well as meeting other basic non-food needs. This measure is often referred to as a monetary measure in the context of poverty. The following picture shows the percentage of the monetary poor population in Indonesia:



Source: Central Bureau of Statistics

Figure 1. Percentage of the monetarily deprived citizens in Indonesia 2014 –2018

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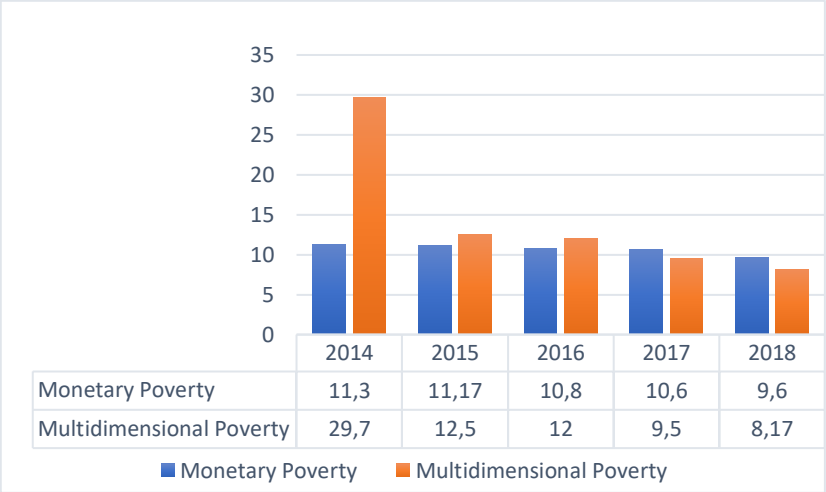
Indonesia in the 2014-2018 period had an average of 10.59% experiencing a significant decline every year, this shows the success of the policies implemented by the government in increasing economic growth and improving welfare. However, in reality, the reduction in poverty rates has not been in line with the improvement in people's quality of life based on various aspects, such as good health, quality education and a decent standard of living. Poverty can arise due to inequality in the quality of human resources. (Case Fair 2007). Human resources that are low in quality result in low productivity, which in turn results in minimal income, this will result in a cycle of poverty (Pritama, 2015).

Therefore, measuring poverty using a multidimensional approach is very necessary, because the issue of poverty is a complex problem involving various dimensions so that it is a top priority in development.(Ferezagia, 2018). Measuring poverty multidimensionally is expected to be able to measure poverty more broadly than just measuring it using a monetary approach. The following is a picture showing the percentage of monetary poverty and multidimensional poverty in Indonesia:



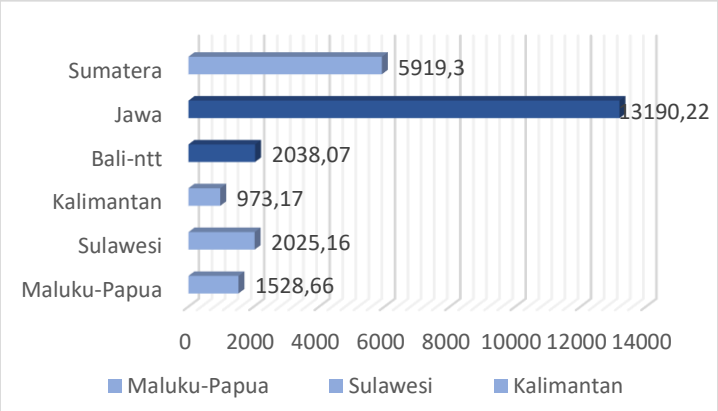
Source: Central Bureau of Statistics, Prakarsa Publication

Figure 2. Percentage of Monetary Poverty and Multidimensional in Indonesia 2014–2018

The picture above shows that every year the number of monetary poverty and multidimensional poverty in Indonesia experiences a downward trend. The difference in the percentage of monetary and multidimensional poverty in 2014 was quite high, namely 18.4%, followed by a decrease of 1.5% in 2015, 1.2% in 2016, 1.1% in 2017, and 1.43% and in in 2018,

Indonesia is the largest archipelagic country in the world, with varying levels of poverty on various islands. Geographical, social, economic and infrastructure factors play an important role in determining the level of poverty on each island(Kuncoro, 2011). Analysis of the amount of poverty per island is very important, to understand the distribution of poverty in Indonesia in more depth, and help in formulating more targeted policies to reduce poverty throughout the archipelago(Larasati Prayoga et al., 2021).

In this section, the latest data is presented regarding the amount of poverty on several main islands in Indonesia, including Sumatra, Java, Kalimantan, Sulawesi, Bali, Nusa Tenggara, Maluku and Papua.



Source: Central Bureau of Statistics

Figure 3. Population of the Poor People by Island in 2018

Figure 3 Showing the number of poor people on the main islands in Indonesia, Java Island has the highest number of poor people at 13,192 people accompanied by the population of Java Island which is also high, which is also high, the second position is Sumatra Island with 5,919,300, followed by Bali-Ntt Island with 2,038,000, then Sulawesi Island with 2,025,160, Maluku-Papua Island with 1,528,660 and finally Kalimantan Island with 973,170.

The island of Java is close to the island of Bali which is also interesting to research. The islands of Java and Bali have a significant spatial element in poverty analysis because these two islands have a high population concentration and a variety of economic and social characteristics. Java is the economic and administrative center of Indonesia, so the dynamics of poverty in this region greatly influence the national poverty rate.

These two islands are not only centers of economic growth, but also present complex multidimensional poverty challenges (Torrisi, 2009). Seeing the importance of an in-depth understanding of the factors that cause multidimensional poverty in this region, peThis research focuses attention on the conditions of multidimensional poverty that occur in the Java and Bali environment.

Method

Types of Research and Research Sources

This research is a descriptive analysis that uses a quantitative approach. The quantitative approach is an approach commonly used by researchers to analyze certain populations or samples. The descriptive approach is an approach that aims to analyze the status of a group, object, condition, or system of thought and even an event in the present (Nazir, 2009). The research carried out was intended to analyze the influence of GRDP, Percentage of Under-five Malnutrition, Average Years of Schooling, Electrical Light Sources on Multidimensional Poverty Rates.

Data analysis method

Secondary data is the main data used in this research, and this research also uses panel data analysis. In this research, the data used is quoted from the Central Statistics Agency (BPS) and The Prakasa Research Institute.

Table 1. Research Variables.

Variables	Symbols	Units	Data Source
Multidimensional Poverty Index.	AKM.	Percentage (%)	The Initiative.
Gross Regional Domestic Product Growth	GRDP.	Percentage (%)	Central Bureau of Statistics
Percentage of Malnutrition in Toddlers	PGGB.	Percentage (%)	Central Bureau of Statistics
Average Length of Schooling	RRLS.	Years	Central Bureau of Statistics
Source of Electric Lighting	SPL.	Percent(%)	Central Bureau of Statistics

General Model

$$KMLTD_{it} = \beta_0 + \beta_1 PDRB_{it} + \beta_2 PGGB_{it} + \beta_3 RRLS_{it} + \beta_4 SPL_{it} + \epsilon t$$

Where:

$KMLTD_{it}$ = Multidimensional Poverty Rate for Province i in Year t
$PDRB_{it}$ = Annual Gross Regional Domestic Product of Province i in Year t
$PGGB_{it}$ = Percentage of Malnourished Toddlers in Province i in Year t
$RRLS_{it}$ = Average Years of Schooling in Province i in Year t
SPL_{it} = Source of Electrical Lighting for Province i in Year t
α = Constant
β1, β2, β3, β4 = Coefficient
ϵt = Error Term

Panel Data Model Testing

Estimation using panel data generally involves using one of three available approaches, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM).

Best Model Selection Method

Selection of the best model uses the three available tests to obtain the best model:

1. Test Chow:

This research uses the Chow Test to test the existence of structural changes.

2. Hausman Test:

The Hausman test was used to choose between a fixed effects model and a random effects model.

3. Lagrange Multiplier Test:

The Lagrange Multiplier test was carried out to test the presence of random effects in the model

Classical Assumption Testing

1. Normality Test

This test aims to evaluate whether the error term follows a normal distribution or not, or in other words, to see whether the residual data is distributed normally.

2. Multicollinearity Test

The Multicollinearity Test is used to determine whether there is a linear relationship between the independent variables and whether there is a strong correlation between the independent variables (Gujarati, 2003).

3. Heteroscedasticity Test

Heteroscedasticity is a form of violation of the Classical Assumptions of Linear Regression Models which generally appears in cross-section data, resulting in biased and irrelevant error term estimates.

Hypothesis test

In carrying out hypothesis testing, there are three forms of testing that are commonly carried out, namely the individual parameter significance test (t test), the simultaneous significance test (F test), and calculating the coefficient of determination (R2).

1. Partial Test (t-test)

The test means how or how much the individual independent variable can influence the dependent variable(Ghozali & Ratmono, 2017).

2. F test

The F test is carried out to determine the level of significance of the influence of the independent variables together on the dependent variable(Ghozali & Ratmono, 2017).

3. Coefficient of determination (R2

The coefficient of determination (R2) is a value that can show how much the independent variable can explain the dependent variable.

Results and Discussion

Data Description

In analyzing multidimensional poverty problems, there are several analytical tools used to calculate the influence of independent variables on the dependent variable. The dependent variable used in this research is the Multidimensional Poverty Rate. Then, the independent variables used in this research include GRDP, Percentage of Malnutrition for Toddlers, Average Years of Schooling, and Model Electric Light Sources during the 2014-2018 period. Estimate calculations using E-VIEWS 10 software. Summary of descriptive statistics from research data:

Table 2. Descriptive Individual Statistics Research Variables

	AKM	GRDP	PGGB	RRLS	SPL
Mean	6.308857	5.613714	2.762286	8.415143	99.77657
Median	5.930000	5.510000	2.900000	8.260000	99.85000
Maximum	14.10000	6.730000	4.910000	11.05000	100,0000
Minimum	2.170000	4.950000	0.130000	6.930000	98.77000
Std. Dev.	2.903135	0.426167	1.006915	1.169244	0.242680
Skewness	0.734224	0.622068	-0.376132	0.869324	-2.387257
Kurtosis	3.137158	2.759997	3.618616	3.014568	9.672939
Jarque-Bera	3.172100	2.341322	1.383356	4.408699	98.18098

Probability	0.204733	0.310162	0.500735	0.110322	0.000000
Sum	220.8100	196.4800	96.68000	294.5300	3492.180
Sum Sq. Dev.	286.5586	6.175017	34.47182	46.48247	2.002389
Observations	35	35	35	35	35

Based on the table, it can be seen that the number of data observations used was 35 observations sourced from 7 provinces on the islands of Java and Bali in 2014-2018. The discussion of the descriptive results for each variable will be described in the form below:
The average value (mean) of AKM or Multidimensional Poverty Rate on the island of Java-Bali is equal to6.30Then assess*median*-the value is 5.93.FurthermoreThe maximum AKM value in descriptive statistics is 1.41and the minimum value is 2.17.

Panel Data Regression Results

Table 3. Lagrange Multiplier test results

Test	Cross section	Prob.
Test Chow	49.328952	0.0000
Hausman test	9.099364	0.0587

Based on the results of the Hausman test that has been carried out. The probability value obtained is 0.0587 or the value is more than 0.058. so that Ha is rejected and H0 is accepted, meaning that it can be concluded that the Random Effect Model is more appropriate than the Fixed Effect Model for analyzing AKM on the island of Java-Bali

Random Effect Model (REM) Equation

Table 4. Random Effect Model Test Results

Variables	Coefficient	Std. Error	t-Statistics	Prob.
GRDP	-1.307181	0.735781	-1.776590	0.0858
PGGB	0.080100	0.435513	0.183920	0.8553
RRLS	-1.811382	0.658068	-2.752575	0.0099
SPL	-4.044611	0.982789	-4.115442	0.0003
C	432.2262	96.53189	4.477548	0.0001
Effects Specification				
			elementary school	Rho
Random cross-section			2.224381	0.7929
Idiosyncratic random			1.136866	0.2071
Weighted Statistics				
R-squared	0.558456	Mean dependent var		1.405749
Adjusted R-squared	0.499583	SD dependent var		1.738330

SE of regression	1.229697	Sum squared resid	45.36467
F-statistic	9.485831	Durbin-Watson stat	1.062342
Prob(F-statistic)	0.000044		

Unweighted Statistics

R-squared	0.277673	Mean dependent var	6.308857
Sum squared resid	206.9891	Durbin-Watson stat	0.232828

Based on the table above, the regression equation is obtained, namely:

$KMLTD_{it}$ = 432.22- 1.30PDRBit+ 0.08PGGBit- 1.81RRLSit-4.04SPLit +ϵt

Table 5. Interpretation of the Random Effect Model Regression Equation

Coefficient	Information
β0	Mark432.22means that if all independent variables are considered constant or do not change, Multidimensional Poverty will increase by 432.22%
β1	The value - 1.30 can be interpreted as if Gross Regional Domestic Product increases by 1%, then Multidimensional Poverty will decrease by 1.30% assuming ceteris paribus.
β3	The value -1.81 can be interpreted as if the average length of schooling increases by 1 year, then multidimensional poverty will decrease by 4.04%, assuming ceteris paribus.
β4	The value -4.04 can be interpreted as if the source of electrical lighting increases by 1%, then multidimensional poverty will decrease by 4.04%, assuming ceteris paribus.

Classic assumption test

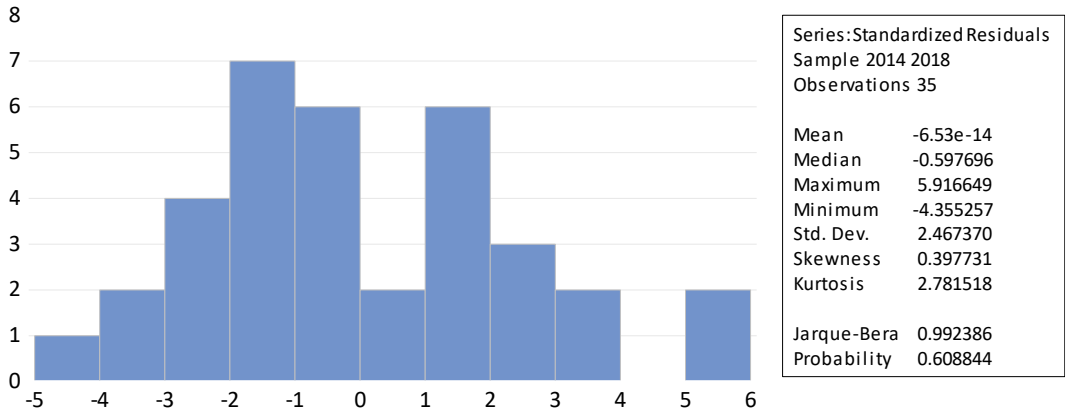


Figure 4. Normality Test Results

From the processed eviews data in Figure 4, a probability value of 0.608 was obtained in the REM model normality test for research where the JB probability value was greater than 0.05, so it can be concluded that the residuals are distributed normally.

Multicollinearity Test

Table 6. Multicollinearity Test Results

	GRDP	AGB	RRLS	SPL
GRDP	1,000000	0.389172	-0.304177	-0.109561
SKGB	0.389172	1,000000	-0.034148	0.338055
RRLS	-0.304177	-0.034148	1,000000	0.163859
SPL	-0.109561	0.338055	0.163859	1,000000

Based on the table above, it shows that in the REM model in the research there are no variables that have a value of more than 0.8, so it can be concluded that there is no multicollinearity in the regression model.

Heteroscedasticity Test

Table 7. Results

	Coefficient	Std. Error	t-Statistics	Prob.
GRDP	-0.186352	0.139235	-1.338397	0.1908
SKGB	-0.040092	0.051504	-0.778420	0.4424
RRLS	-0.061253	0.053104	-1.153439	0.2578
SPL	0.148162	0.231117	0.641071	0.5263
C	-12.87366	23.06354	-0.558182	0.5809

From the regression results in Table 18, it can be concluded that the REM model for research is free from heteroscadasticity because the probability value of each independent variable is greater than the α value (5%) or 0.05.

Hypothesis testing

Table 8. T-Statistics Test

Independent Variable	Dependent Variable (Y) = PTK (IB)				
	t-statistics	t-table	Probability	Information	Conclusion
GRDP	-1.776590	1,697	0.0858	Ha rejected	No effect
PGGB	0.183920	1,697	0.8553	Ha rejected	No effect
RRLS	-2.752575	1,697	0.0099	Ha accepted	Influential
SPL	-4.044611	1,697	0.0003	Ha accepted	Influential

Based on the table above, the results show that the GRDP and PGGB variables do not have a significant effect on AKM on Java-Bali Island in 2014-2018 because the p-value is greater than the significance level (0.05).

Table 9. Testing Together (F-statistical Test)

DF1	DF2	a	F-table	F-stat	Prob	Information
4	30	0.05	2.69	9.4858	0.000044	Ha accepted

Based on the table above, the results of the simultaneous significance test obtained an F-statistic of 9.4858 and an F-table of 2.69 with a probability value of 0.000<0.05. By looking at the test results in the t table, it can be concluded that all independent variables jointly and significantly influence AKM on the island of Java-Bali in 2014-2018

1. The Influence of Gross Regional Domestic Product on Multidimensional Poverty Rates

Based on the calculation results, it can be concluded that Gross Regional Domestic Product has a negative but not significant influence on the Multidimensional Poverty Rate on the Islands of Java - Bali in 2014-2018, with a regression coefficient of -1.307181, which can be interpreted as if Gross Regional Domestic Product has increased by 1% then The Multidimensional Poverty Rate will decrease by 1.30% assuming ceteris paribus.

2. The Influence of the Percentage of Underfive Malnutrition on Multidimensional Poverty Rates

Based on the calculation results, it can be concluded that the Percentage of Malnutrition for Toddlers has a positive but not significant influence on the Multidimensional Poverty Rate on the Island of Java - Bali in 2014-2018, with a regression coefficient of 0.0801, which means that if the Percentage of Malnutrition for Toddlers experiences an increase of 1% then the figure Multidimensional Poverty will increase by 0.0801% assuming ceteris paribus.

3. The Influence of Average Years of Schooling on Multidimensional Poverty Rates

Based on the calculation results, it can be concluded that the Average Years of Schooling has a negative and significant influence on the Multidimensional Poverty Rate on the Islands of Java - Bali in 2014-2018, with a regression coefficient of -1.8113, which can be interpreted as if the Average Years of Schooling has increased by 1 year, then the Multidimensional Poverty Figure will decrease by 1.811% assuming ceteris paribus.

4. The Influence of Electric Lighting Sources on Multidimensional Poverty Rates

Based on the calculation results, it can be concluded that Electrical Lighting Sources have a negative and significant influence on the Multidimensional Poverty Rate on the Islands of Java - Bali in 2014-2018, with a regression coefficient of -4.044611, which means that if Electrical Lighting Sources experience an increase of 1%, the Multidimensional Poverty Rate will experience a decrease of 4.044% assuming ceteris paribus.

Conclusion

Based on testing the hypotheses in this research. then it can be concluded that:

1. Gross Regional Domestic Product has a negative and insignificant effect on the Multidimensional Poverty Rate on Java-Bali Island in 2014-2018.
2. The percentage of malnutrition among children under five has a positive and insignificant effect on the multidimensional poverty rate on the island of Java-Bali in 2014-2018.
3. Average Years of Schooling has a significant negative effect on the Multidimensional Poverty Rate on Java-Bali Island in 2014-2018.
4. Electrical lighting sources have a significant negative effect on the multidimensional poverty rate on the island of Java-Bali in 2014-2018.
5. GRDP, Percentage of Under-five Malnutrition, Average Years of Schooling, Source of Electrical Lighting together influence the Multidimensional Poverty Rate, where the statistical F value is greater than the F table value, namely, 9.4858>2.69.

References

Case, K. E., & Fair, R. C. (2007). Prinsip-prinsip Ekonomi (8 ed.). Pearson Prentice Hall

Ferezagia, D. V. (2018). Jurnal Sosial Humaniora Terapan Analisis Tingkat Kemiskinan di Indonesia Jurnal Sosial Humaniora Terapan Analisis Tingkat Kemiskinan di Indonesia. 1(1)

Ghozali, I., & Ratmono, D. (2017). Analisis Multivariat dan Ekonometrika. In Universitas Diponegoro.

Gujarati, Damodar, 2003, Ekonometri Dasar. Terjemahan: Sumarno Zain, Jakarta: Erlangga.

Kuncoro, M. (2011). Metode Kuantitatif: Teori dan Aplikasi untuk Bisnis & Ekonomi. In UPP STIM YKPN. UPP STIM YKPN.

Larasati Prayoga, M., Muchtolifah, & Sishadiyanti. (2021). FAKTOR KEMISKINAN DI KABUPATEN SIDOARJO. 3(2), 135–143

Nazir, Moh. Ph. D. 2009. Metode Penelitian. Jakarta: Ghalia Indonesia

Pratama, Y. C. (2015). Analisis Faktor-Faktor Yang Mempengaruhi Kemiskinan di Indonesia. Esensi, 4(2), 45–53. https://doi.org/10.15408/ess.v4i2.1966

Syaidi, R. (2024). The Legal Issues in Implementing Constitutional Court Decision Number 49/PUU-IX/2011 (The Polemic of the Abolition of Law 7/2020 Article 59 Paragraph 2). International Journal of Islamic Education, Research and Multiculturalism (IJIERM), 6(1), 179-192.

Syaidi, R. (2024). Independence of the General Election Commission and Election Supervisory Board for Democratic Elections. Jurnal Akta, 11(2), 303-313. doi:http://dx.doi.org/10.30659/akta.v11i2.36375

Todaro, M. P. dan S. S. (2006). Pembangunan Ekonomi. Jilid I Edisi Kesembilan. Erlangga.

Torrisi, B. 2009, The influence of regional autonomist government on the teritory environmental and economics performances, Journal of Enviromental Economics Volume II.