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Impact of Coal Sales on Revenue Sharing Fund and Environment in The South Sumatra Province

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Abstract

Coal prices between 2006-2015 trend was fluctuate but tend to decrease every year and affect regional income, especially South Sumatra Province. Coal prices fluctuation are influenced by several factors, the decline of world oil prices, coal production surplus, and China imports restriction. Coal mining industry also give a direct impact to the environment especially effect to work environment for the company workers and the people environment around mining. The coal mining company absorbs local labor so as to increase local revenues from individual income taxes. This research use quantitative approach using Ordinary Least Square (OLS) analytical method with E-views 7 software. Multiple linier regression technique also applied. The Secondary data is time series of 2006 - 2015. The results presented in form of tables, images and narration. From this research can be drawn conclusion that price fluctuations have no effect on regional income, but production sold has an effect on regional income.

Keywords: Sale, price, royalty, Personal Income Tax Article 21, and Personal Income Tax Article 25/29

Abstrak (Indonesian)

Harga batubara kurun 2006-2015 mengalami fluktuasi sehingga berpengaruh terhadap pendapatan Provinsi Sumatera Selatan. Fluktuasi harga batubara dipengaruhi oleh beberapa hal yaitu menurunnya harga minyak dunia, adanya kelebihan produksi batubara, dan pembatasan impor batubara oleh Cina. Industri pertambangan batubara memberikan dampak terhadap lingkungan salah satunya tenaga kerja. Perusahaan pertambangan batubara menyerap tenaga kerja lokal sehingga meningkatkan pendapatan daerah dari pajak penghasilan perorangan. Penelitian ini merupakan penelitian kuantitatif dengan metode analisis yang digunakan Ordinary Least Square (OLS) dengan software E-views 7.0. Teknik analisa data secara regresi linier berganda. Data sekunder merupakan time series periode tahun 2006 – 2015. Data dan hasil penelitian disajikan dalam bentuk tabel dan gambar serta narasi untuk menginterpretasikan data tersebut. Dapat disimpulkan fluktuasi harga tidak berpengaruh terhadap pendapatan daerah, tapi produksi terjual berpengaruh terhadap pendapatan daerah.

Kata Kunci : Penjualan, harga, royalti, PPh pasal 21, dan PPh Pasal 25/29.

1. Introduction

South Sumatra as one of the largest coal producing provinces in Indonesia. The coal mining industry that benefits individuals and businesses affects the environment around where coal mines are located that is absorbing a lot of local labor.The price of Reference Coal in the period of 2011-2015 fluctuating annually affects Non-Tax Revenue (Natural Resources) such as regional revenue in 2013 amounted to 1.385 Trillion Rupiah and decreased the amount of regional revenue in 2014 amounted to 1.180 Trillion Rupiah. (South Sumatra provincial government, 2014).

Research by Agus Sulaksono (2015) states coal production has a positive effect on the welfare of Indonesian society and positively affect the Gross Regional Income of the mining sector in Indonesia.

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The regions should be able to identify the Revenue Sharing Fund component (Revenue Sharing Fund tax or Natural Resources of Revenue Sharing Fund) which contributes positively and still has the potential to be improved) (Wahyuni and Adi, 2009). Based on the new Income Tax Law (Law no.17 year 2000), starting from the 2001 fiscal year the region obtains a share of personal income tax, namely Income Tax Article 21, which is withholding, employment, service or activity by name of any kind received or obtained by a domestic personal tax payer and income tax article 25/29 namely the amount of tax installment in the current taxable year which must be paid by the taxpayer for each month is the amount of income tax payable according to the Annual Tax Return the income tax of the previous tax year shall be deducted by the withholding income tax as referred to in Article 21 and if the tax payable for a tax year is greater than the tax credit, the underpayment of the tax due shall be settled before the income tax return is filed.

The pur pose of this study is to analyze the fluctuation of coal prices affect the coal sales and analyze the fluctuation of coal sold production affect the regional income of South Sumatra Province.

2. Method

The research location is conducted in South Sumatera Province which is a coal producer especially in Mining and Energy Offices, Local Revenue Offices and Central Bureau of Statistics of South Sumatera Province. The research stages as follows;

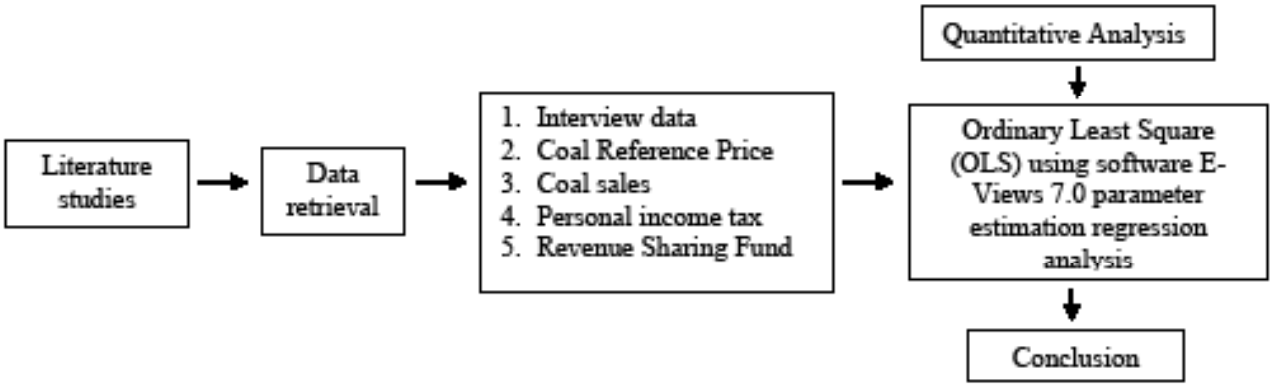

Figure 1. Flow Chart of Research

A. Research Variables

Personal income tax article 21 and 25/29 variables
Personal income tax article 21 and 25/29 is one of the financial sources of the Government of South Sumatera Province.
Royalty variable (Revenue Sharing Fund)
The revenue-sharing fund according to Wahyuni and Adi (2009) are funds sourced from State Budget, revenues allocated to the provincial government of south sumatera, based on percentage figures to fund regional needs in the context of decentralization implementation. Revenue Sharing Fund indicators are Revenue Sharing Fund tax and Revenue Sharing Fund non tax (natural resources).
Variable coal price
Price is the most important element in a business entity, with the price of the business entity will benefit. Where in determining the price, there are factors - factors that influence the pricing. Having considered these factors can then be established based on the pricing method (Sunyoto, 2015).
Variable coal sales
From process aspect, production is activity to increase value added (value added) raw material become intermediate goods and finished goods to be sold. And from the aspects of determinants of production which include natural production factors, human resources, capital and technology contribute to the production process (Rasul; Wijiharjono; Setyowati, 2013).

B. Quantitative Analysis

Quantitative analysis is a test of data analysis related to numbers, and statistical tests. The statistical test is adapted to a careful formulation or identification.

This quantitative analysis will be elaborated in the descriptive analysis of the data. Descriptive analysis is a form of analysis of research data to test generalization of research results based on one sample. This descriptive analysis is done by testing the descriptive hypothesis. The results of the analysis whether the research hypothesis can be generalized or not. If the hypothesis (Ha) is accepted then the results of the study can be generalized. This descriptive analysis uses one or more variables, but is independent. Thus, this analysis is not a comparison or a relationship.

This descriptive analysis is used to explain royalty variables, personal income tax article 21 and 25/29. This descriptive analysis can be tested by using descriptive statistics to give descriptive or descriptive data from the mean, maximum, minimum and standard deviation and can also be seen from the classification of each variable.

C. Model Parameter Estimation

In the estimate known term estimator or estimator or decision function. This decision function or estimator is used to obtain estimates for parameters. In this research use Ordinary Least Square (OLS) parameter estimation.

The principle of action is to minimize the number of squares of deviations or errors of observation values against the mean:

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$
$$\varepsilon_i = Y_i - (\beta_0 + \beta_1 X_i)$$
$$E(\varepsilon_i) = 0 \text{ linearity assumption}$$
$$E(y_i) = E(\beta_0 + \beta_1 X_i + \varepsilon_i) = \beta_0 + \beta_1 X_i$$
$$\text{Principle : minimum } \sum_{i=1}^{n} \varepsilon_i^2 = \text{minimum } \sum_{i=1}^{n} (y_i - E(y_i))^2$$

Has 5 assumptions that must be filled by the deviation or error:
Normality : $\varepsilon_i \sim N(0,\sigma^2)$
Error follows normal distribution with average = 0 and variance = $\sigma 2$
Linierity : E (εi) = 0.
Linearity shows an average equal to 0 or no correlation between independent variables with error.
Homoscedasticity: Var (εi) = $\sigma 2$
Homoscedasticity shows the variant of the error distribution is either constant or near constant.
Non-Multicollinearity
Multicollinearity shows a linear relationship between some or all of the independent variables that make up the regression model.
Non-autocorrelation: Cov (εi, εj) = 0, $i \neq j$
Non autocorrelation shows no relationship or correlation between error one with other error.

D. Regression Analysis

Linear regression according to Gujarati (2007) is as a study of dependence of one variable, that is variable dependent on one or more other variables or called as explanatory variables with aim to make estimation and or predict mean of population or mean value of variable depends in relation to the known values of the explanatory variable (Sarwono, 2016).

The classical assumption in the regression where the variables on the right in the equation (independent variable) should not be correlated with the disturbance term if this happens then the Ordinary Least Square method (OLS) used to estimate the unknown parameter, the regression coefficient will be biased and inconsistent.

1. Regression Model

This method is used to test the hypothesis is multiple linear regression. It is intended to test the price and production content of royalties, Income Tax article 21, Income Tax article 25/29.

The multiple linear regression model is:

$$Y = a + b1X1 + b2X2 + e \quad (1)$$

Information :
Y = Local revenue (royalty, Personal income tax article 21 and 25/29)
a = constants
b1b2 = regression coefficient
X1 = Price
X2 = Coal sales
e = other factors (intruder factor)
the multiple linear regression equation should be BLUE (Best Linier Unbias Estimator), meaning that decision making through "t test" and "F test" should not be biased.

2. Classic Assumption Test

Multiple linear regression testing can be done after testing the classical assumption to determine whether the data will be used free of classical assumptions or not.

2.1 Normality Test

This test is performed to see that a data is normally distributed or not. The residual normality test of the OLS method can be formally detected from the method developed by Jarque-Bera (J-B). Detection by looking at the Jarque-Bera test which is an asymptosis (large sample and based on residual OLS). The statistical test of J-B uses skewness and kurtosis calculations. With the formula as follows:
Where S = skewness coefficient and K = kurtosis coefficient. If the variables are distributed normally the coefficients S = 0 and K = 3. If the residual is normally distributed then the J-B statistic value will be equal to zero (Gujarati, 2007).
Hypothesis testing
H0: the data is not normal
Ha: normal data
Eviews 7.0 output is as follows (Sarwono, 2016)
i.) If JBtest probability is greater α 5% = normal distributed data (reject H0, accept Ha)
ii.) If the probability of JBtest is smaller α 5% = the data is not normally distributed (accept H0, reject Ha)

2.2 Multicollinearity Test

This test is needed to determine whether there are any independent variables that have similarities with other independent variables in a model (Nugroho 2005). In addition, the detection of multicollinierity also aims to avoid bias in the decision-making process regarding the effect on the partial test of each independent variable to the dependent variable. Detection of multicolonierity in a model can be known if the value of variance inflation factor (VIF) is not more than 10 and tolerance value is not less than 0.1, then the model can be said freed from multicollinierity whereas VIF = 1 / tolerance, if VIF = 10 then tolerance = 1/10 = 0.1.

2.3 Autocorrelation Test

The Probability F can also be called the Probability F value. The value of Probability F arithmetic is greater than alpha level 0.05 so that based on hypothesis test, H0 accepted which means no autocorrelation occurs, on the contrary, if the probability value of F arithmetic is less than 0.05 then it can be concluded there is autocorrelation.

2.4 Test Heteroscedasticity

The test aims to test whether in the regression model there is a variance inequality, from one observation's residual to another. If the variance of the residual one observation to another observation remains, then it is called Homoscedasticity and if different it is called heteroscedasticity. A good regression model is homoscedasticity or heteroscedasticity.

The basis of decision making with the Glesjer Test is to regress the absolute value of the residual to the independent variable with the regression equation $Ut = \alpha + \beta Xt + vt$ and if the probability level of significance is above the 5% confidence level ($\alpha = 0{,}05$), it can be concluded that the regression model does not contain any heteroscedasticity.

2.5 Statistical test F

The test is used to determine whether the independent variables together influence the dependent variable. This test can be seen if R squared <error rate (alpha 5%), then Ha rejected means there is no influence between local revenue variables on price and production sold. Conversely if R squared <error rate (alpha 5%), then Ha is accepted means there is influence between regional income variable on price and production sold.

2.6 Statistical t Test

Partial test is used to determine the influence of each independent variable to the dependent variable. This test can be seen if t arithmetic < t table, then Ha rejected means there is no influence between regional income variable on price and production sold. Conversely, if t arithmetic > t table, then Ha accepted means there is influence between regional income variable on price and production sold.

2.7 Coefficient Of Determination

The coefficient of determination (R^2) is used to determine the extent to which the contribution of independent variables to the dependent variable in the presence of multiple linear regression. If R^2 obtained

Table 1. Sales value (million tons), royalty, personal income tax article 21 (PPh 21), personal income tax article 25/29 [PPh 25/29 (rupi ah)], price (USD) and exchange rate (rupiah) for South Sumatera Province 2006 – 2015

Years	Sales	Royalty	PPh 21	PPh 25/29	Coal Reference Price	Exchange rate
2006	925	104.037.000.000	42.392.000.000	4.786.000.000	130	9300
2007	9.276.000	90.180.000.000	50.267.000.000	1.712.000.000	90	9300
2008	10.310.000	125.488.500.000	58.032.000.000	1.881.000.000	119,36	9100
2009	10.869.000	404.500.000.000	66.278.000.000	4.178.000.000	70,7	9400
2010	15.365.000	397.091.000.000	85.849.000.000	5.069.000.000	91,74	10000
2011	20.020.000	414.470.000.000	103.891.000.000	4.879.000.000	118,4	8700
2012	25.302.000	564.325.000.000	125.726.000.000	5.129.000.000	95,48	9000
2013	24.005.000	980.072.500.000	129.918.000.000	3.753.000.000	82,92	9600
2014	27.004.000	1.795.717.000.000	141.506.000.000	3.510.000.000	72,62	11600
2015	20.411.000	204.209.700.000	152.192.000.000	4.936.000.000	60,13	11900

close to 1 then it can be said the stronger the model explains the independent variable to the dependent variable.

3. Results and Discussions

Table below shown the result of data collection from Mining and Energy Offices, Local Revenue Offices and Central Bureau of Statistics of South Sumatera Province, Indonesian bank and Ministry of mining.
Data input in Eviews 7.0 and results as follows:

1. Tests for dependent variables: coal sales, independent variables: price and exchange rate.

a. Normality test

JB 1.085632 statistical value with probability > α = 5% that is 0.581109 results, the data is normally distributed.

b. Test Multicollinearity

The VIF value for the price and exchange rate variables equals 1.9. Both VIF values of the two variables do not exist > 10, the result does not occur Multicollinearity in the two independent variables.

c. Test autocorrelation

Probability Value F (2,5) or F arithmetic of 0.0870. Probability Value F arithmetic > alpha 0.05 (5%), based on the hypothesis test, H0 is accepted which means no autocorrelation occurs.

d. Test heteroscedasticity

Value Probability F arithmetic of 0.0931 > alpha 0.05 (5%), based on hypothesis test H0 accepted which means no heteroscedasticity occur.

e. F test and t test

The result of the F test is R squared: 0.1950> alpha 0,05 = the model is estimated feasible.Result of t test show free variable that is price with result t arithmetic = -0,474136 while t-table 1,41492. The value of t arithmetic <t table statistically the price variable has no effect on the production variable sold.

f. Coefficient of determination

The value of R squared is 0.1950, then 19.5 percent of the independent variables can explain the dependent variable, the remaining 80.5 percent is explained by the variable outside the model. Price variables do not have a significant influence on sales variables.

2. Tests for dependent variables: coal sales, independent variables: royalties, prices and exchange rates.

a. Normality test

JB statistical value of 0.841350 with probability 0.656603 > α = 5%, the result of data is normally distributed.

b. Test Multicollinearity

The VIF value for the royalty variable (1,2), the price (2.0) and the exchange rate (2,1) of the three variables no greater than 10, the result does not occur Multicollinearity in the three independent variables.

c. Test Autocorrelation

Probability Value F (2,5) or F arithmetic of 0.1536. Probability Value F arithmetic > alpha 0.05 (5%), based on the hypothesis test, H0 is accepted which means no autocorrelation occurs.

d. Test Heteroscedasticity

Value Probability F arithmetic of 0.6469 > alpha 0.05 (5%), based on hypothesis test H0 accepted which means no heteroscedasticity occur.

e. F test and t Test

The result of the F test is R squared: 0.7183> alpha 0.05 = the model is estimated to be feasible. Result of t test show independent vari-

able that is royalty with result t arithmetic = 3.341156 while t-table 1.94318. Result of t test, t arithmetic > t table which statistically royalty variable influence to sales variable. This can be because if high coal sales will add royalty income.

f. Coefficient of Determination

The value of R squared is 0.5804, then 58 percent of independent variables can explain the effect on the dependent variable, the remaining 42 percent is explained by the variable outside the model each year.

3. Tests for dependent variables: coal sales, independent variables: personal income tax article 21, price and exchange rate.

a. Normality test

JB statistical value 0.204108 with Probability of 0.902981 > α = 5%, the result of data is normally distributed.

b. Test Multicollinearity

The VIF value for the variable of personal income tax article 21 (1,7), the price (2,1) and the exchange rate (2,2) of the three variables are no larger than 10, the result is no Multicollinearity in the three independent variables.

c. Test Autocorrelation

Probability Value F (2.4) or F arithmetic of 0.1021. Probability Value F arithmetic > alpha 0.05 (5%), based on the hypothesis test, H0 is accepted which means no autocorrelation occurs.
d. Test heteroscedasticity
Probability value F arithmetic of 0.1099 > alpha 0.05 (5%), based on hypothesis test H0 accepted which means no heteroscedasticity occur.

e. F test and t Test

The result of the F test is R squared: 0.9558> alpha 0.05 = the model is estimated to be feasible. Result of t test show independent variable that is personal income tax article 21 with result t arithmetic = 10.13121 while t-table 1.94318, t arithmetic > t table which statist variable personal income tax article 21 influence to sales variable. personal income tax article 21 income will increase as coal sales increase.

f. Coefficient of determination

The value of R squared is 0.9191, then 91.9 percent of the independent variables can explain the effect on the dependent variable, the remaining 8.1 percent is explained by the variable outside the model. The graph from figure 3 shows the coal sales (PJL) in 2006 to 2015 affecting income of personal income tax article 21 (P21), where the curve of both increases in each year.
4. Tests for dependent variables: coal sales, independent variables: personal income tax article 25/29, price and exchange rate.

a. Normality test

The statistical value JB 1.067068 with Probability 0.586528 > α = 5%, the result of data is normally distributed.

b. Test Multicollinearity

The VIF value for the personal income tax article 25/29 (1.0) variable, the price (1.9) and the exchange rate (2.0) of the three variables are no larger than 10, the result is no Multicollinearity in the three independent variables.

c. Test Autocorrelation

Probability Value F (2.4) or F arithmetic of 0.4484. Probability Value F arithmetic > alpha 0.05 (5%), based on the hypothesis test, H0 is accepted which means no autocorrelation occurs.

d. Test Heteroscedasticity

Value Probability F arithmetic of 0.2770 > alpha 0.05 (5%), based on hypothesis test H0 accepted which means no heteroscedasticity occur.

e. F test and t Test

The result of the F test is R squared: 0.3355> alpha 0.05 = the model is estimated to be feasible. Result of t test show free variable that is personal income tax article 25/29 with result t arithmetic = 1.126391 while t-table 1.94318, t arithmetic <t table statistically variable personal income tax article 25/29 no effect to sales of coal.

f. Coefficient of Determination

The value of R squared is 0.3140, then 31 percent of independent variables can explain the effect on the dependent variable, the remaining 69 percent is explained by the variable outside the model. The graph from Figure 4 shows the coal sales coal (PJL) increased in 2006 to 2015 but did not affect personal income tax article 25/29 (P2529), where the curve experienced significant fluctuations.

Conclusion

Coal sales does not affect the fluctuation of coal price indicated from the result of t test where the value of t arithmetic <t table and R2 19.5%.

Sales of coal affects royalty income and personal income tax article 21. For royalty to give positive effect to Natural Resources Revenue Sharing Fund in South Sumatera, it is shown from result of t test, where t arithmetic > t table and R2 58%.

Personal income tax article 21 with t arithmetic > t table and R2 91,9%. This 91.9% figure shows the positive effect of personal income tax article 21 on Tax Revenue Sharing Fund due to the increasing number of workers from the coal mining industry in South Sumatra. But not with personal income tax article 25/29 where the value of t arithmetic <t table and R2 31%.

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