THE IMPACT OF ECONOMIC STRUCTURE CHANGE ON THE LOCAL OWN SOURCE REVENUE AND THE REGIONAL INCOME IMPROVEMENT

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ABSTRACT*: In Indonesia, regional autonomy is regarded as a reform of regional income improvement. Unfortunately, the role of local government for the income improvement remains less dominant compared to that of central government. The share of the local own source revenue to the whole local allocated budget is still inadequate. This is due to the fact that the sources of the local own source revenue are not yet optimally explored and managed, especially one of the potential tax and retribution. Explanatory research method is applied in this study to elaborate the relationship among variables and to test the hypotheses. The research findings show that the regional income improvement relies on local own source revenue of present and previous years. The increase of local own source revenue is much determined by the contribution of economic structure change and tax revenues.*

Keywords: economic structure change; local own source revenue; regional Income

1. INTRODUCTION

Development of economic and financial resources is a very important factor in the era of regional autonomy in Indonesia [1]. Economic improvement and regional finance have become a priority since then. One of the steps taken by the central government is to give local government more authority to manage the sources of the local own source revenue (LOSR) in the form of tax and non-tax revenues. Osborne and Gaebler [2] stated that in regional autonomy, the government is required to be more creative and innovative.

Economic structure change is an interrelated series of change process. The factors determining the economic structure change are: 1) overall labor productivity per sector; 2) modernization in the process of increasing the added-value of raw materials, semi-finished goods and finished goods; 3) creativity and technology application equipped with the ability to expand the market of products/services produced; 4) government policies encouraging the growth and development of the seed sector and commodities; 5) availability of infrastructure to ensure the distribution of goods and services and to support the production process; 6) public enthusiasm to conduct entrepreneurship and continuous investments; 7) presence of new growth area in a region; and 8) opening of regional and foreign trade through export and import [3].

In this study, the research problems are summarized as follows:

a. Low contribution of economic sectors to Local Own-Source Revenue (LOSR).
b. Low contribution of Local Own-Source Revenue (LOSR) from Motor Vehicle Tax (MVT), Motor Vehicle Ownership Handover Tax (MVOHT), Motor Vehicle Fuel Tax (MVFT) and Surface Water Tax (SWT).
c. High dependence of local government on financial assistance from central government.
d. Inability of local government to optimize tax revenue and retribution.
e. Low compliance rate of tax payers.

This research focuses on the economic structure change and Local Own-Source Revenue (LOSR). The nine economic sectors to be investigated in this study are based on the sector of industry. LOSR is local financial revenue excavated from local sources. Act No. 33 of Year 2004 [4] on Regional Government mentions that the sources of local revenue come from LOSR, fiscal balance transfers, and loan from central government. Among the three revenue sources, LOSR is the main revenue to finance the operation and development of Lampung Province. The other revenues coming from local taxes in the Province are: Motor Vehicle Tax (MVT), Motor Vehicle Ownership Handover (MVOH), Motor Vehicle Fuel Tax (MVFT) and Surface Water Tax (SWT).

2. LITERATURE STUDY

Chang [5] states that economic development is a multi-dimensional process that includes changes in the economic structure, attitudes, institutions, increase in economic growth, reduction of inequity in distribution, and poverty eradication. Lewis [6, 18] also identifies economic growth as a result of a transition from agriculture to industry that can be achieved through the establishment of agriculture surplus and strengthening of exchange.

Theory of Economic Growth

According to Jhingan [7], economic growth is a long-term increase in a country's ability to provide more types of economic goods to its population. This ability grows in accordance with the advancement of technology and institutional and ideological required adjustments.

Theory of Economic Structure Change

Lewis [8] in his theory of Dual Economy indicates that a change of traditional economic behavior to the modern economic behavior is based on differences in production methods. Dual Economy Model is used to analyze the development process through interaction between the traditional sector (agriculture) and the modern sector (industry) in which each sector has its own behavior. Basically, the behavior of the modern sector is based on neoclassical economics and that of the traditional sector is based on classical economics [9]. In neoclassical economics, industrial sector wage rate is limited by the function of Marginal Productivity of Labor (MPL). Whereas in classical economics, agricultural sector wage rate is expressed as the level of livelihood. The interaction of the two sectors is based on labor surplus generated from agricultural sector.

Chenery and Syrquin [10] describe the Model of Structural Change and Economic Growth as the change in the economic structure (share from production sectors) and function of per-capita income in the demand-side perspective. Chenery

and Syrquin [10] research results indicate that the contribution or share of agricultural sector tends to decline in line with the increase of per-capita income, while the share of the industrial and service sectors are likely to increase. The rate of increase in share of service sector in line with the increase in per-capita income is higher than that of the industrial sector.The Provincial Regulation No. 2 of 2011 [11] on Regional Retribution states that retribution is one of the local revenue sources and has become an important source of funding for the region to support the government operation, while the economic sectors that directly and indirectly contribute to the provincial revenue are the nine economic sectors discussed in this study.

Theory of Regional Financial Management

Mitton [12] states that regional finance is the entire financial order, the institution, and local budgetary policy covering the revenue and expenditure, while Paramasivan and Subramanian [13] states that empowerment of local governments in the perspective of the desired changes in the financial management and budget areas are:

a. Regional financial management should be focused on the public interest (public oriented);
b. Clarity of the mission of local financial management and local budget in particular;
c. Decentralization of financial management and clarity of roles of parties involved in the management of the budget, such as the Parliament, the governor, the secretary of the local government and other regional units;
d. Legal and administrative framework of finance, investment and regional financial management based on the rules of market mechanism, value for money, transparency and accountability;
e. Clarity of the financial regulation for the Parliament, governor and regional civil servants in terms of the ratio and considerations;
f. The provision on the shape and structure of the budget, the budget performance and multi-year budget;
g. The principles of more professional procurement and asset management;
h. Local government accounting principles, financial report, the role of the Parliament, the role of public accountants in controlling, giving opinion and rating the performance of the budget and transparency of budgetary information to the public;
i. Aspects of coaching and supervision include the limitation in coaching, the role of associations, and the role of community members for professional development of local government officials. The development of regional financial information system is intended to provide accurate budget information and the development of the local government commitment to the dissemination of information.

The idea in this study departs from the neoclassical theory approach, in particular from the theory of Structural Change of Chenery and Syrquin [10]. This approach focuses on the mechanism that allows an area which is still dominated by traditional or agricultural sector like Lampung Province to transform its economic structure to a more modern economy. Chenery and Syrquin [10] define that the transition from a traditional economy to a developed economy is a set of changes in economic structures that is necessary to maintain the sustainability of increased revenue and social welfare.

Chenery and Syrquin [10] describe the change in the economic structure (share of production sector) as a function of per-capita income in the perspective of demand side. Based on the Model of Structural Change and Economic Growth of Chenery and Syrquin [10], this study focuses on the relationship between economic structure change and LOSR in the perspective of the supply side, where LOSR is described as a function of changes in the economic structure. Continuity of the increase of the revenue and social welfare is maintained if the occurring economic structure change can lead to greater per-capita income (supply side). The higher the contribution of economic sectors as a measure of changes in the economic structure, the higher the local own-source revenue (LOSR) is obtained. In the principle of decentralization as mandated by Law No. 33 of 2004[4], it is expected that the increase in LOSR may also be accompanied by the increase of local financial improvement.

Hypothesis

a. Changes in the economic structure simultaneously affect Local Own-Source Revenue (LOSR). Each economic sector partially has positive effect towards Local Own-Source Revenue (LOSR).
b. Local government has the ability to generate revenue from each and all economic sectors. Local Own-Source Revenue (LOSR) positively affects the increase of the regional finance.

3. RESEARCH METHOD AND DATA ANALYSIS

In this study, the multiple linear regression model is used to elaborate the relationship among variables of economic structure [14,15,16]. The relationship among the variables simultaneously affects economic structure change and partially LOSR, and the effect of Local Own-Source Revenue (LOSR) to the increase of regional finance. The explanatory study is used to measure the efficiency of the management of the economic potential of the region in the formation of revenue (as elasticity of LOSR) and the ability of local governments to generate LOSR (as adjustment coefficient of LOSR) both from each and all economic sectors.

Data Analysis

Based on the independent and dependent variables, the research model is described as follows:

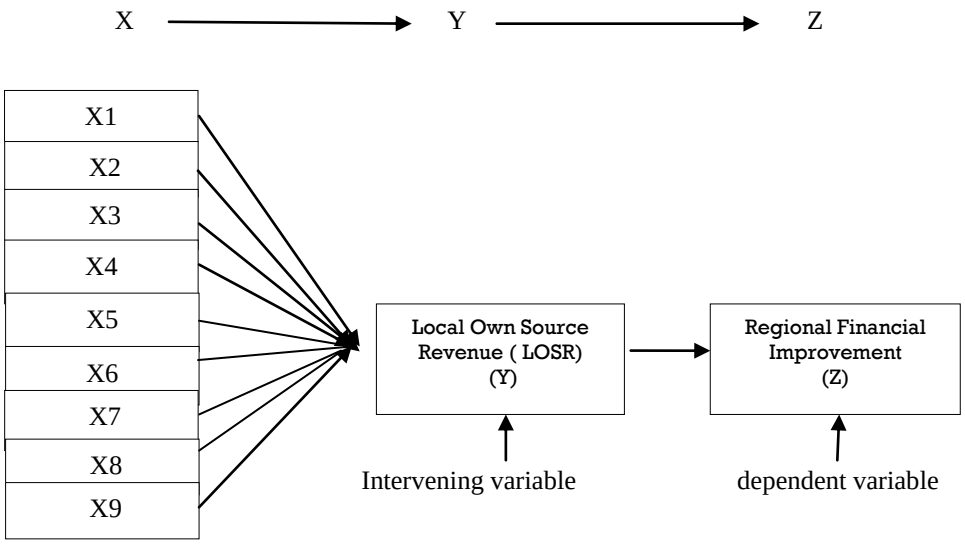

Figure 2: Research model

Where X_1 = agricultural sector, X_2 = mining and quarrying sector, X_3 = manufacturing sector, X_4 = building sector, X_5 = electric, gas and water supply sector, X_6 = trade, hotel and restaurant sector, X_7 = transport and communication sector, X_8 = finance, leasing and service company sector, and X_9 = service sector.

Effect of Economic Structure Change on Local Own-Source Revenue (LOSR)

$$\ln Y_t = \alpha_1 + \beta_{11}\ln X_{1t} + \beta_{12}\ln X_{2t} + \beta_{13}\ln X_{3t} + \beta_{14}\ln X_{4t} + \beta_{15}\ln X_{5t} + \beta_{16}\ln X_{6t} + \beta_{17}\ln X_{7t} + \beta_{18}\ln X_{8t} + \beta_{19}\ln X_{9t} + e_1 \quad (1)$$

Where:

Y_t = LOSR, X_{it} = Contribution of the i-th sector, i=1,2,3,...,9 (9 economic sectors), e_1 = error

α_1 = intercept; β_{1i} = regression coefficient or elasticity of LOSR on each sector i=1,2,3,...,9.

Simultaneous statistical hypothesis:

Ho: $\beta_{11} = \beta_{12} = \beta_{13} = \beta_{14} = \beta_{15} = \beta_{16} = \beta_{17} = \beta_{18} = \beta_{19} = 0$; simultaneously economic structure changes do not affect LOSR.

H1: at least one $\beta_{1i} \neq 0$; simultaneously economic structure changes affect LOSR.

F test is used to test the hypotheses. H_0 is rejected if F count > F table (at significance level of 0.05 with degree of freedom k and n-k-1 (n = sample size; k = number of variables) or if p-value < 0.05.

Partial statistical hypothesis:

H_0: $\beta_{1i} \leq 0$; partially changes in the economic structure of the i-th do not positively affect LOSR.

H1: $\beta_{1i} > 0$; partially changes in the economic structure of the i-th positively affect LOSR. T-test is used to test the hypotheses,. H_0 is rejected if t count > t table (at significance level of 0.05 with degree of freedom k and n-k-1 (n = sample size; k = number of variables) or if p-value <0.05.

Measurements of the Ability to Generate LOSR from All Economic Sectors and Each Economic Sector

The second hypothesis test on the ability to generate LOSR from all economic sectors is based on the measurement results of adjustment coefficient of regression coefficients of LOSR of previous years.

The model is as follows:

(i) Simultaneous : $Y_t = f(X, Y_{t-1}) + e_2$

Where Y_t = LOSR, X = economic sectors, t = a given year, t-1 = previous year, e_2 = error.

(ii) Partial

The second hypothesis test on the ability to generate LOSR from each economic sector is based on the measurement results of the adjustment coefficient of the regression coefficients of LOSR of previous years. The model is as follows:

$$\ln Y_t = \alpha_i + \beta_{2i}\ln X_{it} + (1-\delta)\ln Y_{t-1} + e_{it} \quad (2)$$

where Y_t = LOSR, X_{1t} - X_{9t} (contribution of the nine economic sectors), t = a given year

Y_{t-1} = the previous year

e_{it} = error i = 1,2,3,...,9.

α_i = intercept i = 1,2,3,...,9.

β_{2i} = regression coefficient of LOSR for the contribution of each economic sector , (i= 1, 2, 3....,9)

δ = adjustment coefficient

The hypothesis is accepted if the ability to generate revenue from each economic sector is high, i.e. $\delta > 0.5$.

Effect of LOSR on Regional Financial Improvement

The third hypothesis test on the positive effect of LOSR on increased regional finance is given by the following model:

$$\ln Z_t = \alpha_3 + \beta_3.\ln Y_t + e_{3t} \quad (3)$$

where

Z_t = increased regional finance, Y_t = LOSR, e_{3t} = error, α_3 = intercept, β_3 = regression coefficient or elasticity of the regional finance improvement on regional income.

4. RESULT AND DISSCUSSION

Model 1 :

$\ln Y_t = 8.8859 + 0.8549 \ln X_{1t} + 0.7519 \ln X_{2t} + 0.7328 \ln X_{3t} + 0.7017 \ln X_{4t} + 0.6788 \ln X_{5t} + 0.8206 \ln X_{6t} + 0.1237 \ln X_{7t} + 0.1335 \ln X_{8t} + 0.3167 \ln X_{9t}$

From the test of the model we have F-value = 23.254 (p-value < 0,01), therefore, the model is significant. $R^2 = 0.9140$ means that 91.40% of LOSR variation can be explained by the nine economic sectors.

To test the hypothesis of partial economic sectors:

Table 1. Effect of Each Economic Sector on LOSR (Model 1)

	β_{1i}	t-test	p-value
Agricultural sector (X_1)	0.8549	2.642	0.0285
Mining and quarrying sector (X_2)	0.7519	2.055	0.0242
Manufacturing sector (X_3)	0.7328	2.933	0.0421
Building sector (X_4)	0.7017	2.959	0.0490
Electricity, gas and water supply sector (X_5)	0.6788	2.391	0.0495
Trading, hotel and restaurant sector(X_6)	0.8206	2.787	0.0391
Transport and communication sector (X_7)	0.1237	2.064	0.0466
Financial , leasing and service company sector(X_8)	0.1335	2.373	0.0125
Service sector (X_9)	0.3167	2.927	0.0345

Based on Table 1, the value of the regression coefficient of the nine economic sectors (X_1-X_9) is positive. The t-value of agricultural sector (X_1) is 2.642 with a significance level (p-value < 0.05). The t-value of mining and quarrying sector (X_2) is 2.055 with a significance level (p-value < 0.05). The t-value of manufacturing sector (X_3) is 2.933 with a significance level (p-value < 0.05). The t-value of building sector (X_4) is 2.959 with a significance level (p-value < .05). The t-value of electricity, gas and water supply sector (X_5) is 2.391 with a significance level (p-value < 0.05). The t-value of trading, hotel and restaurant sector (X_6) is 2.787 with a significance level (p-value < 0.05). The t-value of transport and communication sector (X_7) is 2.064 with a significance level (p-value < 0.05). The t-value of financial, leasing and service company sector (X_8) is 2.373 with a significance level (p-value<0.05). The t-value of service sector (X_9) is 2.927 with a significance level (p-value < 0.05).

Based on the result, all variables positively contributed to the increase of LOSR (Table 2). The contribution of LOSR to the regional budget may affect the local government finance and regional development.

Based on the results of the partial data processing of the nine economic sectors, LOSR to LOSR of the previous year is explained through a regression model in the following section.

The value of regression coefficient of agricultural sector (β_{21}) equals 0.8549. It means that if the agricultural sector ($\ln X_1$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.8549 billion. In other words, the change in the economic structure will affect LOSR [17]. If mining and quarrying sector share ($\ln X_2$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.7519 billion. If manufacturing sector share ($\ln X_3$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.7328 billion. If building sector share ($\ln X_4$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.7017 billion. If electricity, gas and water supply sector share ($\ln X_5$) increases by 1% and other variables are constant in the model, then the revenue ($\ln Y_t$) increases by IDR 0.6788 billion. If trading, hotel and restaurant sector share ($\ln X_6$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.8206 billion. If transport and communication sector share ($\ln X_7$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.1237 billion. If financial, leasing and service company sector share ($\ln X_8$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.1335 billion. If service sector share ($\ln X_9$) increases by 1% and other variables are constant in the model, the revenue ($\ln Y_t$) increases by IDR 0.3167 billion.

Model 2 :

This model is related to the ability to generate LOSR from all economic sectors. The simultaneous test results show that the effect of the economic sector and LOSR of previous years on LOSR is indicated by the simultaneous correlation coefficient R = 0.9356. The coefficient of determination $R^2 = 0.8754$ or 87.54% shows that the simultaneous effect is very strong [14,15, 16]. It means that the simultaneous effect of the economic sectors and LOSR of previous year is by 87.54%.

The result of analysis for model 2 is presented below**:**

Table 2. Effect of Each Economic Sector on LOSR (Model (2))

Sector Share	Const.	β_{2i}	δ/ adjust.	LOSR t-1	$F_{stat.}$	p-value
Agricultural sector share	-0.262	0.380	0.046	0.954	939.00	< 0.05
Mining & quarrying share	0.780	0.066	0.078	0.922	1146.7	< 0.05
Manufacturing sector share	-0.248	0.028	0.107	0.893	902.01	< 0.05
Building sector share	0.405	0.100	0.076	0.924	1003.2	< 0.05
Electricity, gas, water sector share	-0.004	0.082	0.051	0.949	1017.1	< 0.05
Trade, hotel, restaurant share	-0.060	0.045	0.023	0.977	906.39	< 0.05
Transport & communications sector share	0.025	0.065	0.044	0.956	955.35	< 0.05
Financial, rents, service company sector share	-0.132	0.545	0.025	0.975	921.76	< 0.05
Service sector share	0.292	0.463	0.042	0.958	967.03	< 0.05

From the analysis above, all δ values are less than 0.5, and it means that partially the effect of each economic sector to LOSR is low. However, if all the economic sectors are combined into model (2), the following formula is applied:

$$\ln Y_t = 1.16636 + 0.2210 \ln X + 0{,}3342 \ln Y_{t-1}$$

Nerlove adjustment coefficient is (1-δ) = 0.3342, so δ = 1-0.3342 = 0.67 or 67%, and it means that the local government ability to generate LOSR is quite high because δ > 0.5.

Model 3

In this model, the effect of LOSR to increase regional finance is based on Cobb Douglas production function [3]. It means that the statistical hypothesis indicates positive effect of LOSR on the increase of regional finance with the following model:

$$\ln Z = -4.481 + 0.3762 \ln Y$$

Based on the model, the relationship between Z and Y is described as follows:

$$Z = e^{-4.481} Y^{0.3762}$$

This relationship shows that if LOSR (Y) increases, the regional finance (Z) increases.

The analysis result of the three models shows that they have met the goodness of fit of an econometric model [3, 14, 15]. The ability of the model to explain the economic phenomena is demonstrated by the high coefficient of determination (R^2 > 50%) [14]. Thus, the research model has high ability to explain the economic phenomena being investigated. The model has a high level of predictive ability for the behavior of the dependent variable as indicated by the high coefficient of determination (R^2) of model 1 and model 2 which are 91.40 and 87.54% respectively.

5. CONCLUSION

There is a simultaneous significant effect of the nine economic sectors on LOSR. It means that the effect or contribution of economic sectors to LOSR is quite high. Motor Vehicle Ownership Handover Tax (WVOHT) provides the largest share to LOSR and is followed by Motor Vehicle Tax (MVT).

The ability of the local government to generate LOSR from all economic sectors simultaneously is quite high. It is measured by the adjustment coefficient (Nerlove's adjustment coefficient = δ) in which the yearly expected LOSR increase is in accordance with the existing economic potential with k value equals 0.67 or 67%. The ability of local government to generate LOSR is quite high based on the result of the calculation where δ > 0.5. Partially, all the nine economic sectors affect LOSR so that LOSR is able to improve regional finance.

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