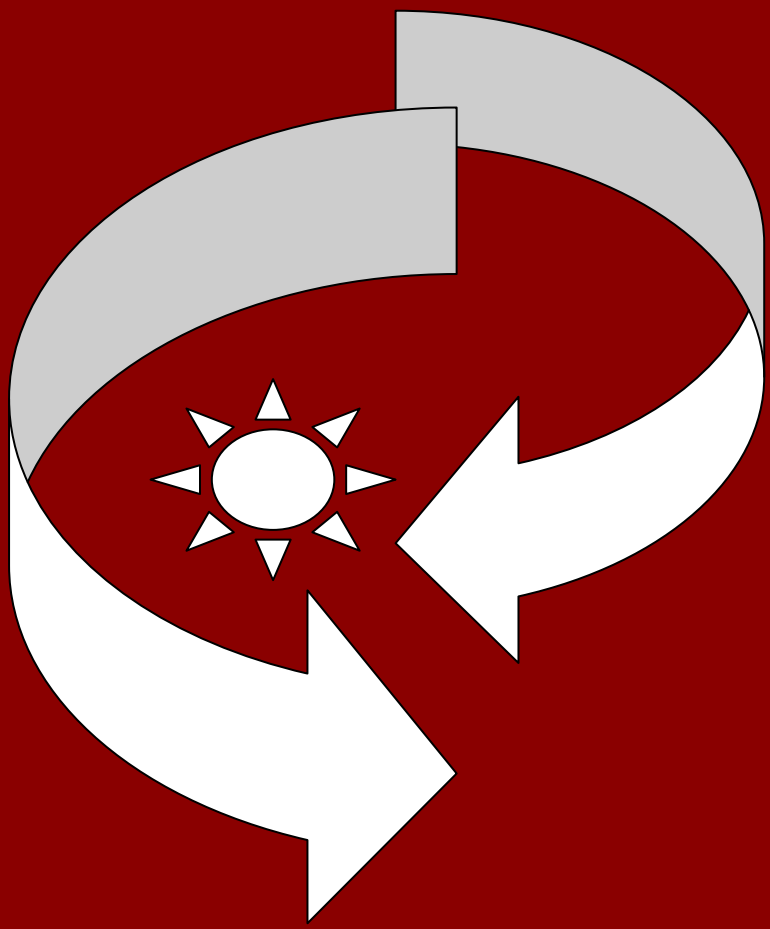
Vol. 9 No. 3 , July – August 2021
International peer-reviewed journal
ISSN: 2338-4603 (print)
2355-8520 (online)

Jurnal Perspektif Pembiayaan dan Pembangunan Daerah

(Journal of Perspectives on Financing and Regional Development)



Master Program in Economics
Universitas Jambi

Jurnal
Perspektif Pembiayaan dan Pembangunan Daerah
(Journal of Perspectives of Financing and Regional Development)

Table of Contents

Study of fiscal decentralization, macroeconomic stability and regional growth in Indonesia

Joko Tri Haryanto*; Rita Helbra Tenrini

Center for Climate Change Financing and Multilateral Policy, Fiscal Policy Agency, Ministry of Finance Republic of Indonesia

**To whom correspondence should be addressed. Email: Djohar78@gmail.com*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.12157	22.02.2021	28.08.2021	30.08.2021	31.08.2021

Abstract

Indonesia has been implementing fiscal decentralization since 2001. In theory, fiscal decentralization affected macroeconomic stability and economic growth—this study using data panels at the provincial level from 2010 to 2013. In the relationship between fiscal decentralization and macroeconomic stability with control variable income, significant variables are income to GRDP, GRDP per capita, and population. If control variable expenditure, significant variables are expenditure to GRDP, GRDP per capita, and population. In the model that analyzes fiscal decentralization and economic growth with control variable income, significant variables are income to GRDP, consumption to GRDP, and population. Meanwhile, if control variable expenditure, significant variables are expenditure to GRDP, consumption to GRDP, and population. By using sensitivity analysis, the population variable is a high priority. Therefore stakeholders should treat population variables carefully.

Keywords: *Economic growth, Fiscal decentralization, Macroeconomic stability*

JEL Classification: E62, H77, O47

INTRODUCTION

Officially, Indonesia has been implementing regional autonomy and fiscal decentralization policies since 2001. Following the implementation of those policies, there have been very significant and fundamental changes in the government administration mechanisms in Indonesia, particularly about the distribution of authorities and financial matters (Suprantiningrum 2015 and Haryanto & Astuti 2009).

The disharmonious relations among the central and regional governments are due to the incapability of the government officials in interpreting the substance of the previously applicable laws and regulations. It is leading to the escalated national disintegration in all aspects of government administration. This disharmonious problem particularly concerns the authorities, institutional, financial, human resources, and other aspects (Suryanto 2006). Crook & Sverrisson (2001) say that decentralization is regarding the distribution of power and resources at different levels and regional areas of a country and among the various interests in their relations to the elites in power. Whereas Manor (1997) argues that political decentralization is arranged as an instrument for enhancing democracy and opening up closed systems to provide a space

for movement for various groups of interest to organize, compete and open up themselves.

According to Arif (2002), the objective of regional autonomy and fiscal decentralization policies is to free the central government from non-productive expenditures to have the opportunity to learn, comprehend and respond to the global trends and benefit from them. Whereas at the same time, the government would be able to formulate strategic international macro policies. Meanwhile, Mardiasmo (2002) says that fiscal decentralization policy is an element of total reform by granting broad autonomy to regencies and cities. Fiscal decentralization is also expected to answer various problems arising in regions with poverty, unequal distribution of development, low quality of life, and human resources development.

A study by Woyanti (2013) concludes that the implementation of fiscal decentralization has significant positive effects in supporting economic growth in Central Java Province. Sasana's (2009) research also finds that fiscal decentralization positively and significantly promotes the economic growth of regencies and cities in Central Java Province and has reduced regional discrepancy and poverty rates. On the contrary, Yuana (2014) says that implementing fiscal decentralization in East Java Province will support its economic growth and reduce regional discrepancy if regional independence can be actualized. The positive effects of fiscal decentralization on regional economic growth and workforce absorption are also identified in the research results by Apriesa & Miyasto (2013) in Central Java Province and the research by Muryawan & Sukarsa (2014) in Bali Province.

Oates (1972) and Tiebout (1956) explained a definite relation between fiscal decentralization and economic growth in a broader spectrum. Nevertheless, there has not been any substantial empirical conclusion in the previous studies, so that there is still room for validation of the effects of fiscal decentralization (Rustan 2013). The results of a study by Usman et al. (2015) confirms that in the era of fiscal decentralization, regions have the potential for overcoming various economic problems due to the granting of broader authorities for planning, formulating, and implementing development policies and programs that can be adjusted to the local needs. However, everything depends on the regions concerned, which must be more responsive to the needs of their people. Without such responsiveness, the current policies will not differ from previous ones (Mc Cullock & Suharnoko 2003).

The definition of financial stability is divided by Anginer and Demirguc-Kunt (2014) into price stability and financial sector stability, including financial institutions and financial markets, which entirely support the operation of the financial system. Should one of the entire elements be disrupted, all other elements would be disrupted or not functioning optimally. Such financial stability is a crucial and vital matter because if a financial institution and financial market functioning as a mediator are in an uncertain condition, economic activities will surely be unable to develop (Nasution 2004).

Several countries have proved the importance of managing financial stability, particularly in the era of fiscal decentralization. According to Strauss et al. (2002), countries like India, China, Brazil, and Russia had previously experienced a complicated and prolonged financial stability problem due to mismanagement in the implementation of fiscal decentralization. Vazquez & MacNabb's (2006) study in Latin America proves that fiscal decentralization had created macroeconomic instability and disrupted economic growth in regions.

The analysis in this study is focused on the effects of fiscal decentralization on economic growth in provinces in Indonesia through the creation of financial stability in regions. As a scientific work, this study also includes several limitations of problems, among others: 1) it is focused only on provinces and does not cover analysis at

regency/city level; 2) the data used is only data series of 2011 up to 2013 due to limited amount of data obtained; 3) several indicators and variables are still using a proxy approach; 4) this study is based on a model that has been previously analyzed by other researchers (Haryanto & Astutie, 2009).

LITERATURE REVIEW

The concept of fiscal decentralization

This study is based on the main theory specified in Oates (1972). Oates explains that fiscal decentralization is a degree of independence in making decisions regarding the distribution of public services at various levels of government. Another work used as a reference is the theory of Bird and Vaillancourt, which classified fiscal decentralization based on its independence, namely deconcentration, delegation, and devolution.

The study by Tiebout (1956) also explains the definition of fiscal decentralization by stating that the main idea of fiscal decentralization is greatly affected by the thought of economic efficiency of regional governments in improving their services for their people as well as competition in the provision of public services among regional governments in order to adjust to the preferred needs of their people.

Meanwhile, according to Mardiasmo (2004) in Sasana (2015), the development of the implementation of regional autonomy, especially at the regency/city level, must be conducted by keeping in mind the implementation of the principles of democracy, public participation, and other aspects including the potentials and diversity of regions. In 2011, Adirinekso explained several forms of implementation of fiscal decentralization. There is fiscal decentralization with self-financing or cost recovery by using taxes. There is also fiscal decentralization with financing or production arrangements among users in providing the infrastructure through a contribution of workforce and money and the expansion of local revenues through taxes on ownership and sales and indirect charges. A model of fund transfer from the central government to regional governments is also recognized, accompanied by the delegation of authorities to regions for managing regional loans.

Fiscal decentralization and inflation

World Bank stated (in its report of 1997) that the implementation of fiscal decentralization may lead to increasing macroeconomic instability in regions (in context inflation). The causes of such instability include the absence of adequate institutional support for the implementation of the policy. Rakanita & Sasana (2012) reconfirmed that a political, economical approach used in the implementation of fiscal decentralization assumes that the habitual practices of public agents and political institutions often cause trade-offs in coordination among different levels of governmental systems in public authority as well as preference in regional responses.

On the contrary, at the domestic level, the results of a study by Aji (2009) conclude that an increasing level of fiscal decentralization will result in increasingly inflating impacts. This is proved by the increase in *aggregate demand* in East Java Province, which caused an increase in the prices of goods and weakened economic growth in regions. The Committee for Regional Autonomy Implementation Supervision (KPPOD) in 2004 also conducted research. It resulted in argumentation that the finance of regional government tends to be focused on the region's goals in the use of its resources. For example, to increase regional revenues (PAD), a region tends to intensify regional charges and taxes, which causes increasing economic instability in the region.

Research conducted by Feltenstein & Shigeru in 2005 concluded that the transfer of fiscal activities from the central government to the regional government in China would lead to increasing inflation in regions. It is possible to occur due to the transfer of a large amount of money from the central government to regions causing a large increase in the amount circulating in regions. The shift in the relation between the central government and regional governments in the era of fiscal decentralization also became the object of attention of Tanzi (1995), stating that such shift has resulted in non-cooperative relations. Also, Tanzi (1995) also said that policies on the budget deficit and loans had been deemed as the main causes of the increasing inflation in regions.

Fiscal decentralization and economic growth

Many empirical kinds of research have been conducted to prove the relationship between fiscal decentralization policy and economic growth in regions. Quoting research by Suprantiningrum (2015), several studies have been conducted, including Akai & Sakata (2002), proving that the implementation of fiscal decentralization policy supports high economic growth through the total expenditures allocated. The research was conducted by taking locus in 50 states. The existence of authority for independent expenditure has been the main factor behind the success of such relation.

Another research concluding positive support of fiscal decentralization for economic growth was conducted by Jin & Zou (2005) using the data panel method in 30 provinces in China. They explained that the implementation of fiscal decentralization had been proven to accelerate economic growth in provinces in China. A study taking place in the provinces in China was also conducted by Felstenstein & Iwata (2005), which was also positive. The difference was that study was conducted by using time series data from 1952 to 1996.

Despite the various studies by several researchers, negative conclusions have also been made by several other researchers. Quoting a study by Rustan (2015), research by Davoodi & Zou (1998) using data panel from 46 countries during a time frame of 1970-1989 concluded a negative correlation between the implementation of fiscal policy decentralization and economic growth, especially in developing countries. It was assumed to be caused by the fact that the constellation of the financial system in developing countries was not yet stable, so they were prone to crisis. Pose & Kroijer (2009) conclude that expenditures and transfers to regional governments negatively relate to economic growth in 16 Central and East European countries implementing fiscal decentralization practices.

METHODS

In general, this study is based on previous research in Haryanto & Astuti (2009). The approach applied in this study is using an econometric model of the quantitative method. Whereas the data used is mostly secondary data obtained from various official government agencies such as data of regional inflation obtained from the National Statistics Agency, data of regional finance obtained from the Ministry of Finance, and various data related to regional economic growth.

This study applied the data panel method with provinces as the locus of research and a timeframe from 2010 to 2013. Research variables used include fiscal decentralization, macroeconomic stability, and economic growth. The analysis is further developed into two models: 1) estimate the relationship between fiscal decentralization and macroeconomic stability and 2) the relationship between fiscal decentralization, macroeconomic stability, and economic growth.

Fiscal decentralization and macroeconomic stability

The specification of a model used in describing the relationship between fiscal decentralization and macroeconomic stability in regions is as follows:

$$P_{it} = \beta_1 D_{it} + \beta_2 M_{it} + \beta_3 y_{it} + \delta Z_{it} + u_{it} \quad \text{.......................} \quad (1)$$

Where P is changed in a consumer price index, D is the measurement of fiscal decentralization, M is the ratio of the amount of money circulating to GDP, y is GDP per capita, and Z is controlled variables such as the ratio of investment to GDP and population. Due to the lack of data on this research, we abolish the M as a variable.

Fiscal decentralization, macroeconomic stability, and economic growth

Whereas the specification of the model describing the relationship between fiscal decentralization, macroeconomic stability in regions against economic growth is as follows:

$$y_{it} = \beta_1 D_{it} + \beta_2 K_{it} + \beta_3 H_{it} + \beta_4 G_{it} + \beta_5 P_{it} \delta Z_{it} + u_{it} \quad \text{.......................} \quad (2)$$

Where K is private capital manifested by gross domestic private fixed investment, G is public capital manifested by gross domestic public investment, H is the variable of human capital represented by infant mortality.

RESULTS AND DISCUSSION

Fiscal decentralization model and macroeconomic stability

The impacts of fiscal decentralization on macroeconomic stability in regions may be analyzed by comparing the control variables of regional revenues and regional expenditures indicators. As presented in Table 1, several variables proved to be significantly affecting macroeconomic stability with regional revenues as the control variable are as follows:

a) The ratio of regional revenues to GRDP has a positive relation. Such phenomena can be explained by using regional independence analysis. It further confirms the justification of the necessity for the government to enhance the aspect of independence in each region by strengthening the sources of Local Own Resources (PAD) either from taxes or other sources.
b) GRDP per capita has been proved to be significant in a positive relation. It is also in line with the idea of regional independence aspect as mentioned in the previous variable.
c) The population has been proved to be significant in a positive relation to macroeconomic stability. Unlike the previous variables, finding a positive relationship between the size of the population and macroeconomic stability in the region is the most appealing finding for further study. Because, theoretically, the size of the population is dangerous to the macroeconomic stability of a region if the region concerned is unable to manage it properly. Researchers assume that the implementation of fiscal decentralization for more than ten years has placed regions in a condition where they are at the level of quality population management. The size of the population would be a driver for macroeconomic stability in regions.

Using analysis of the level of sensitivity, of all variables to be significant, the variable of the population has the highest level of sensitivity (1.4) followed by GRDP (0.2) and the ratio of regional revenues to GRDP (0.08). Based on this finding, the population variable must be given high priority by all regional governments to create macroeconomic stability in the region. Whereas the variable of GRDP should have moderate priority and the ratio of revenues to GRDP may have less priority.

Table 1. Model of fiscal decentralization and macroeconomic stability with the indicator of revenues

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8,116,364	1,357,634	-5,978,314	0.0000
LN_INCOME?	0.087701	0.021599	4,060,450	0.0001
LN_GRDP?	0.242628	0.028113	8,630,595	0.0000
LN_POPULATION?	1,446,584	0.172094	8,405,771	0.0000
LN_INVESTMENT?	-0.000759	0.002828	-0.268384	0.7890
LN_OPENESS?	-0.005288	0.003775	-1,400,796	0.1646
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.955458	Mean dependent var		4,894,807
Adjusted R-squared	0.937926	S.D. dependent var		0.071296
S.E. of regression	0.017763	Akaike info criterion		-4,987,126
Sum squared resid	0.029660	Schwarz criterion		-4,157,228
Log-likelihood	3,671,503	Hannan-Quinn criter.		-4,649,893
F-statistic	5,449,657	Durbin-Watson stat		1,557,340
Prob(F-statistic)	0.000000			
Fixed Effects (Cross)				
_NAD—C	-0.255474	_KALTENG—C		0.809792
_SUMUT—C	-1,699,673	_KALSEL—C		0.181188
_SUMBAR—C	-0.244715	_KALTIM—C		-0.128325
_RIAU—C	-0.735840	_SULUT—C		0.801825
_KEPRI—C	1,056,319	_GORONTALO—C		2,058,287
_JAMBI—C	0.361653	_SULTENG—C		0.641827
_SUMSEL—C	-0.926207	_SULSEL—C		-0.973465
_BABEL—C	1,707,028	_SULBAR—C		1,903,623
_BENGKULU—C	1,312,319	_SULTRA—C		0.903586
_LAMPUNG—C	-0.780358	_BALI—C		0.040998
_JAKARTA—C	-1,549,586	_NTB—C		0.033425
_JABAR—C	-3,429,281	_NTT—C		-0.010881
_BANTEN—C	-1,331,763	_MALUKU—C		1,545,153
_JATENG—C	-2,932,530	_MALUT—C		2,105,142
_DIY—C	0.277295	_PAPUA—C		0.317344
_JATIM—C	-3,214,102	_PABAR—C		2,189,076
_KALBAR—C	-0.033680			

Using fixed effect analysis in each region, regions with the lowest probability of regional macroeconomic stability turmoil include West Java (JABAR), East Java (JATIM), Central Java (JATENG), North Sumatra (SUMUT), and Jakarta (JAKARTA). In contrast, regions with the highest probability of fluctuating regional macroeconomic stability are West Papua (PABAR), Gorontalo (GORONTALO), North Maluku (MALUT), West Sulawesi (SULBAR), and Bangka Belitung (BABEL). Macroeconomic stability in regions reflected from the inflation rate has been greatly affected by the availability of complete facilities and infrastructure. Regions having good macroeconomic stability are mostly located in Java and Sumatra Islands which openness has been fully developed.

The next model is fiscal decentralization and regional macroeconomic stability by using control indicators of regional expenditures. It is presented comprehensively in Table 2. As presented in Table 2, the findings are not different from the results indicated in the model using the indicator of regional revenues. Further explanation of significant variables relation is as follows:

a) The ratio of regional expenditures to GRDP has a significant and positive relationship. If the basis of consideration in the analysis of revenues is independence, this model should use the spending approach. A region with increasing expenditures will have a positive contribution in driving economic

growth in the region. Enhancing economic growth in regions will trigger the growth of economic centers at all levels, and in the end, it will improve economic stability.

b) GRDP per capita has been proved to be significant in a positive relation. An increase in the GRDP per capita of a region would support people's spending power in the region. This conclusion is closely related to and supports the previous variable.

The population has been proved to be significant in a positive relation with macroeconomic stability. The increasing size of the population would become a market and at the same time become agents of economy driving economic activities in the region and support the creation of consistent macroeconomic stability.

Table 2. Model of fiscal decentralization and macroeconomic stability with the indicator of expenditures

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7,275,855	1,372,906	-5,299,602	0.0000
LN_EXPENDITURES?	0.090587	0.021340	4,244,940	0.0001
LN_GRDP?	0.256696	0.028508	9,004,343	0.0000
LN_POPULATION?	1,339,780	0.175095	7,651,740	0.0000
LN_INVESTMENT?	0.000336	0.002760	0.121600	0.9035
LN_OPENESS?	-0.005046	0.003754	-1,344,154	0.1821
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.956067	Mean dependent var		4,894,807
Adjusted R-squared	0.938775	S.D. dependent var		0.071296
S.E. of regression	0.017641	Akaike info criterion		-5,000,899
Sum squared resid	0.029254	Schwarz criterion		-4,171,001
Log-likelihood	3,680,593	Hannan-Quinn criter.		-4,663,666
F-statistic	5,528,757	Durbin-Watson stat		1,548,996
Prob(F-statistic)	0.000000			
Fixed Effects (Cross)				
_NAD—C	-0.244435	_KALTENG—C		0.744654
_SUMUT—C	-1,577,763	_KALSEL—C		0.172780
_SUMBAR—C	-0.225657	_KALTIM—C		-0.158963
_RIAU—C	-0.711872	_SULUT—C		0.740818
_KEPRI—C	0.952526	_GORONTALO--C		1,921,814
_JAMBI—C	0.334445	_SULTENG—C		0.595842
_SUMSEL—C	-0.862016	_SULSEL—C		-0.899118
_BABEL—C	1,575,075	_SULBAR—C		1,779,053
_BENGKULU—C	1,227,733	_SULTRA—C		0.845997
_LAMPUNG—C	-0.710059	_BALI—C		0.037699
_JAKARTA—C	-1,472,550	_NTB—C		0.050006
_JABAR—C	-3,174,563	_NTT—C		0.020594
_BANTEN—C	-1,223,182	_MALUKU—C		1,456,157
_JATENG—C	-2,705,228	_MALUT—C		1,970,066
_DIY—C	0.267922	_PAPUA—C		0.272570
_JATIM—C	-2,978,535	_PABAR—C		2,001,605
_KALBAR—C	-0.023415			

It is quite interesting to conduct further analysis of why the ratio of investment to GRDP and regional openness is insignificant for a region's macroeconomic stability. Theoretically, economic growth may be driven by consumption and investment. Similar to economic growth at the national level, which is still supported by consumption, economic growth that supports macroeconomic stability in regions is also still driven only by consumption apparently. In the future, this must become a shared concern for the government at the central and regional levels to create sustainable sources of economic growth.

Another interesting matter is the negative relation between the variable of openness and macroeconomic stability in regions either by using regional revenues or regional expenditures as the indicator. In contrast, increasing investments would certainly open up the market in a region. Therefore, it seems that the legislative, executive, and judicial bodies need to cooperate harmoniously to maintain such stability.

By using the analysis of sensitivity, the variable of the population has been proved to have the highest score (1.3) compared to the variable of GRDP per capita (0.2) and the variable of the ratio of expenditures to GRDP (0.09). The government should pay serious attention to the treatment of the population variable because it has been proved to be the most sensitive in affecting macroeconomic stability in both expenditures and revenues models.

Model of fiscal decentralization and regional economic growth

The relationship between fiscal decentralization and economic growth in regions can be analyzed with the following model presented in Table 3.

Table 3. Model of fiscal decentralization and economic growth with the indicator of revenues

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3,754,210	1,098,184	3,418,563	0.0009
LN_REVENUES?	-0.359909	0.177369	-2,029,154	0.0453
LN_POPULATION?	-0.166168	0.094720	-1,754,319	0.0827
LN_INVESTMENT?	-0.004732	0.044053	-0.107427	0.9147
LN_OPENESS?	-0.052542	0.039418	-1,332,945	0.1858
LN_CONSUMPTION?	0.361608	0.181555	1,991,723	0.0493
Effects Specification			S.D.	Rho
Cross-section random			0.299530	0.4964
Idiosyncratic random			0.301712	0.5036
Weighted Statistics				
R-squared	0.067997	Mean dependent var		0.889676
Adjusted R-squared	0.017890	S.D. dependent var		0.299373
S.E. of regression	0.296683	Sum squared resid		8,185,946
F-statistic	1,357,025	Durbin-Watson stat		1,401,923
Prob(F-statistic)	0.247721			
Unweighted Statistics				
R-squared	0.137973	Mean dependent var		1,769,707
Sum squared resid	1,551,979	Durbin-Watson stat		0.739447
Random Effects (Cross)				
_NAD—C	-0.285183	_KALTENG—C		0.154773
_SUMUT—C	0.126404	_KALSEL—C		0.091770
_SUMBAR—C	0.048997	_KALTIM—C		0.015269
_RIAU—C	-0.245224	_SULUT—C		0.038423
_KEPRI—C	0.090857	_GORONTALO—C		0.106886
_JAMBI—C	0.146890	_SULTENG—C		0.267926
_SUMSEL—C	0.121236	_SULSEL—C		0.255760
_BABEL—C	-0.158781	_SULBAR—C		0.162015
_BENGKULU—C	0.022094	_SULTRA—C		0.401424
_LAMPUNG—C	0.023240	_BALI—C		0.013355
_JAKARTA—C	-0.028164	_NTB—C		-0.957010
_JABAR—C	0.008109	_NTT—C		-0.161194
_BANTEN—C	0.015432	_MALUKU—C		-0.005791
_JATENG—C	0.038666	_MALUT—C		0.170017
_DIY—C	-0.222339	_PAPUA—C		-0.391911
_JATIM—C	0.214484	_PABAR—C		-0.053424
_KALBAR—C	-0.025009			

Based on the analysis in Table 3, several variables that proved to be significantly affecting economic growth in regions are as follows:

a) The revenues to GRDP ratio has a negative relation. This finding is certainly contradictory to the applicable theory, especially about creating independence aspects in regions. The initial hypothesis conveyed in response to this finding is the high level of the region's independence on financial support from the central government, resulting in negative relations.
b) The consumption to GRDP ratio has been proved to have a positive relation. In such a position, the mechanism of economic growth created is greatly affected only by consumption.
c) The population has a negative relation to economic growth in regions. This phenomenon is in line with the applicable theory that the low quality of population will certainly disrupt economic growth in regions.

The consumption becomes a *high priority* with a score of 0.36, followed by the revenues ratio (0.35) and the population variable (0.16). If the consumption variable indeed drives the construction of regional economic growth, such an explanation is suitable for the analysis. The regions with the highest level of growth include Southeast Sulawesi (SULTRA), Central Sulawesi (SULTENG), South Sulawesi (SULUT), East Java (JATIM), and West Sulawesi (SULBAR). In contrast, the regions with the lowest economic growth include the Special Region of Yogyakarta (DIY), the Special Region of Aceh (NAD), Riau (RIAU), Papua (PAPUA), and West Nusa Tenggara (NTB).

Variables that proved to be significant based on Table 4 are as follows:

a) The expenditures to GRDP ratio have a negative relation. The hypothesis conveyed as a response to this phenomenon is achieving a level of economic growth that has been saturated with consumption and is no longer creating any growth effect.
b) The consumption to GRDP ratio has been proved to be significant in a positive relation.

The population has significant in a negative relation to the economic growth of a region. This phenomenon aligns with the applicable theory that the low population quality will certainly disrupt economic growth in regions.

By using the analysis of sensitivity, the expenditures to GRDP ratio has the highest score (0.46), followed by the variable of consumption to GRDP ratio (0.44) and the size of population (0.20). Unlike the previous model, the control variable dominates fiscal decentralization and regional economic growth. Seen from the spread of impacts in each region, the construction of the list is similar to the model constructed with regional revenues as the control variable.

Table 4. Model of fiscal decentralization and regional economic growth with expenditures as an indicator

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4,253,384	1,077,674	3,946,819	0.0002
LN_EXPENDITURES?	-0.461823	0.174776	-2,642,366	0.0097
LN_POPULATION?	-0.205041	0.093758	-2,186,905	0.0313
LN_INVESTMENT?	-0.004031	0.043834	-0.091955	0.9269
LN_OPENESS?	-0.058356	0.039378	-1,481,942	0.1417
LN_CONSUMPTION?	0.442718	0.181748	2,435,888	0.0168
Effects Specification			**S.D.**	**Rho**
Cross-section random			0.300237	0.5023
Idiosyncratic random			0.298843	0.4977
Weighted Statistics				
R-squared	0.096617	Mean dependent var		0.881768
Adjusted R-squared	0.048048	S.D. dependent var		0.298431
S.E. of regression	0.291173	Sum squared resid		7,884,716
F-statistic	1,989,283	Durbin-Watson stat		1,400,894
Prob(F-statistic)	0.087401			
Unweighted Statistics				
R-squared	0.155598	Mean dependent var		1,769,707
Sum squared resid	1,520,248	Durbin-Watson stat		0.726569

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In the model of fiscal decentralization and the creation of macroeconomic stability in regions and revenues as the control variable, several variables have been proved to be significant, namely revenues to GRDP ratio, GRDP per capita, and population. Regional revenues to GRDP ratio has a positive relation, and it is also the case with the variables of GRDP per capita and population. Further analysis using the sensitivity level indicates that the population variable has the highest level of sensitivity, followed by GRDP and the variable of regional revenues to GRDP ratio. Macroeconomic stability in regions reflected by the inflation rate has been greatly affected by the completeness of facilities and infrastructure. Regions having good economic stability are mostly located in Java and Sumatra, the openness has been developed.

By using regional expenditures as the control variable, the investment to GRDP ratio and regional openness ratio does not significantly affect regions' macroeconomic stability. The regional expenditures to GRDP ratio have a positive relation, similar to the variable of GRDP per capita and population. By using the sensitivity analysis, the population variable has the highest score compared to the GRDP per capita and the expenditures to GRDP ratio. It seems that the government must pay serious attention to the treatment of the variable of the population because it has been the most sensitive in affecting macroeconomic stability both in the models of expenditures and revenues.

The next model is fiscal decentralization and economic growth by using regional revenues and regional expenditures as the control variables. By using regional revenues as the control variable, the variables proved to significantly affect economic growth in regions are the revenues to GRDP ratio, consumption to GRDP ratio, and population size. Regional revenues to GRDP ratio and population have a negative relation, while consumption to GRDP ratio has been proved to be significant in a positive relation.

The consumption variable is a high priority, followed by the revenues ratio and the population variable. If it is true that consumption drives the construction of regional economic growth, such an explanation is correct about the analysis. The list of regions with the highest rate of economic growth is Southeast Sulawesi, Central Sulawesi, South Sulawesi, East Java, and West Sulawesi. In contrast, the regions with the lowest economic growth rate are the Special Region of Yogyakarta, the Special Region of Aceh, Riau, Papua, and West Nusa Tenggara.

If the control variable is regional expenditures, the variables proved to be significant are expenditures to GRDP ratio and consumption to GRDP ratio. In contrast, the investment to GRDP ratio and openness ratio variable has not significantly affected economic growth. The expenditures to GRDP ratio have a negative relation, while the consumption to GRDP ratio has significant in a positive relation. Moreover, the population has a significant negative relation to regions' economic growth. Using sensitivity analysis, the variable of expenditures to GRDP ratio has the highest score, followed by the variable of consumption to GRDP ratio and the size of the population. Unlike the previous model, control variables seem very dominating in the fiscal decentralization and regional growth model. Based on the spread of effects in each region, the construction of the list is similar to that of the model constructed with regional revenues as the control variable.

Recommendations

Based on the research result, the population variable is very crucial. Therefore, all parties, especially regional governments and the central government, must consider

policies related to managing population affairs. It is necessary to devise policies that can improve population quality to positively impact the creation of macroeconomic stability in regions or drive and accelerate economic growth. The maintenance of facilities and infrastructure must also be taken into considerations. Macroeconomic stability reflected from inflation is proved to be very vulnerable to being affected by infrastructure conditions. Every year, the allocation of the significantly increasing expenditure for infrastructure in the State Budget must be jointly evaluated.

REFERENCES

Adirinekso, G.P. (2001). *Faktor-faktor yang mendorong pertumbuhan ekonomi daerah yang optimal dalam era desentralisasi di Indonesia*. Jakarta: FE-UI

Arif, B. & Muchlis, I. (2002). *Akuntasi Pemerintahan*. Jakarta: Salemba Empat Press;

Akai, N. & Masayo, S. (2002). Fiscal Decentralization Contributes to Economic Growth: Evidence From State Level Cross-Section Data for United States. *Journal of Urban Economics*. 52, 93–108

Aji, T. (2009). Dampak desentralisasi fiskal terhadap inflasi di Jawa Timur. *Journal of Economic Education*. 3(1), 169-176

Apriesa, L.F. & Miyasto. (2013). Pengaruh Desentralisasi Fiskal Terhadap Pertumbuhan Ekonomi Daerah dan Ketimpangan Pendapatan (Studi Kasus Kabupaten Kota Di Provinsi Jawa Tengah). *Diponegoro Journal of Economics*, 2(1), 98-109

Anginer, D. & Demirguc-Kunt, A. (2014). Has The Global Banking System Become More Fragile Over Time?. *Journal of Financial Stability*. 13(C), 202-213

Crook R. & Sverrisson A. (2001). *Decentralization and Poverty Alleviation in Developing Countries: A Comparative Analysis, or Is West Bengal Unique*? Brighton: Institute of Development Studies

Davoodi, H. & Zou, H.F. (1998). Fiscal Decentralization and Economic Growth: A Cross Country Study. *Journal of Urban Economics*, 43(2), 244-257

Feltenstein, A. & Shigeru, I. (2005). Decentralization and Macroeconomic Performance in China: Regional Authonomy Has It's Cost. *Journal of Development Economics*, 76(2), 481-501

Haryanto, J.T. & Ester, S.A. (2009). Desentralisasi Fiskal dan Penciptaan Stabilitas Keuangan Daerah. *Kajian Ekonomi dan Keuangan*, 13(1), 49-62

Jin, J. & Zou, H.F. (2005). Fiscal Decentralization, Revenue and Expenditure Assignment and Growth in China. *Journal of Asian Economics*, 16(6), 1047-1064

Manor, J. (1997). *The Political Economy of Decentralization*. Washington DC: The World Bank

McCullock, N. & Suharnoko. (2003). *Decentralization and Poverty in Indonesia*. Working Paper. Jakarta: World Bank Office

Muryawan, S.M. & Sukarsa, M. (2016). Pengaruh Desentralisasi Fiskal, Fiscal Stress, dan Kinerja Keuangan Daerah Terhadap Pertumbuhan Ekonomi di Kabupaten/Kota Provinsi Bali. *Journal of Economic Development*, 5(2), 229-252

Nasution, A. (2004). *Stabilitas Sistem Keuangan: Urgensi, Impllkasi Hukum, Dan Agenda Kedepan*. Paper of Seminar Pembangunan Hukum Nasional VIII,. 14-18 July 2004. Denpasar;

Oates,W. (1972). *Fiscal Federalism*. New York: Harcourt Brace Jovanovic;

Pose, A. & Kroijer, A. (2009). Fiscal Decentralization and Economic Growth in Central and Eastern Europe. *Journal of Growth and Change*, 40(3), 387–417

Rakanita, A.M. & Sasana, H. (2012). Kajian Desentralisasi Fiskal Terhadap Inflasi dan Pertumbuhan Ekonomi. *JEJAK*, 5(1), 60-72

Rustan. (2013). Desentralisasi Fiskal dan Pertumbuhan Ekonomi, serta Kaitannya Dengan Otonomi Daerah. *Jurnal Borneo Administrator*, 9(3), 284-304

Strauss, J., Beegle, K., Dwiyanto, A., Herawati, Y., Pattinasarany, D., Satriawan, E., Sikoki, B., Sukamdi, & Witoelar, F. (2002). *Indonesian Living Standards Three Years After The Crisis: Evidence From The Indonesian Family Life Survey*. Final Report. PEG-USAID and World Bank

Suryanto. (2006). *Implications of Policy Implementation Fiscal Decentralization and Regional Autonomy Against Central-Regional Financial Relations*. Jakarta: STIA-LAN

Sasana, H. (2009). Analisis Dampak Pertumbuhan Ekonomi, Kesenjangan Antar Daerah dan Tenaga Kerja Terserap Terhadap Kesejahteraan di Kabupaten/Kota Provinsi Jawa Tengah dalam Era Desentralisasi Fiskal. *Jurnal Bisnis dan Ekonomi*, 16(1), 50-69

Sasana, H. (2015). Dampak implementasi desentralisasi fiskal terhadap pertumbuhan ekonomi dan stabilitas harga di provinsi di Indonesia. *Media Ekonomi dan Manajemen*, 30(1), 1-14

Suprantiningrum, S. (2015). Analisis Kinerja Pengelolaan Keuangan Daerah dan Tingkat Kemandirian Daerah di Era Otonomi Daerah (Studi Kasus Kota Semarang Tahun 2009-2013). *Media Ekonomi dan Manajemen*, 30(1), 30-40

Tiebout, C.M. (1956). A Pure Theory of Local Expenditures. *The Journal of Political Economy*, 64(5), 416-424

Tanzi, V. (1995). *Fiscal Federalism and Decentralization: A Review of Some Efficiency and Macroeconomic Aspect*. Washington DC: World Bank Annual Conference

Usman, U., Sinaga, B.M. & Siregar, H. (2006). Analisis Determinan Kemiskinan Sebelum dan Sesudah Desentralisasi Fiskal. *SOCA: Jurnal Sosial Ekonomi Pertanian*, 6(3), 1-17

Vazquez, J.M. & M.McNabb, R. (2006). *Fiscal Decentralization, Macro stability and Growth*. Economics Department and International Studies Program. Andrew Young School of Policy Studies, Georgia State University

Woyanti, N. (2013). Pengaruh Pertumbuhan Ekonomi dan UMP Terhadap Kemiskinan di Jawa Tengah Pra dan Pasca Desentralisasi Fiskal. *Media Ekonomi dan Manajemen*, 28(2), 28-43

Yuana, A.P. (2014). Analisis Kinerja Keuangan Daerah Terhadap Pertumbuhan Ekonomi Dan Ketimpangan Regional Di Era Desentralisasi Fiskal (Studi Kabupaten/Kota Di Provinsi Jawa Timur Periode 2008-2012). *Jurnal Ilmiah Mahasiswa FEB Universitas Brawijaya*, 2(2)

Indonesia's capital city relocation: A perspective of regional planning

Farida Farida

Faculty of Economics and Business, University of Persada Indonesia YAI, Jakarta, Indonesia

Correspondence author email: faridawongjowo@gmail.com

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.12013	04.02.2021	30.08.2021	30.08.2021	31.08.2021

Abstract

The role of a capital city is essential for a nation. Indonesia's plan to relocate its capital from Jakarta to North Penajam Paser has been set in stone. The Indonesian government targets the relocation to be executed in 2024; therefore, the preparations and capital city development must start from 2020. This research aims to study capital relocation from the perspective of regional planning concerning institutional, spatial planning, the economy, social aspects, and the environment. The data source used in this research was the secondary data obtained from literature review and document analysis. The new capital must present a distinct identity, as it will determine the institutional that will lead to success. The main reasons for the capital relocation are growth and economic equality for the eastern part of Indonesia. It means that development will be encouraged to achieve these goals. On the other hand, overly rapid development in the new capital is also undesirable—a challenging paradox for the institutions involved that demands creativity and innovation for a successful capital relocation.

Keywords: *Environmental, Institutional, Regional planning, Spatial, The capital city*

JEL Classification: P25, Q01, R11

INTRODUCTION

The plan to relocate the capital city has been stated in the 2020-2024 National Medium-Term Development Plan (2020-2024 RPJM), which specifies that the development will be on the administrative regions of North Penajam Paser Regency and Kutai Kartanegara Regency, East Kalimantan. These two regencies have been chosen due to their proximity to Balikpapan and Samarinda's developed cities. Considering that the capital relocation is a certainty, studying the capital relocation from the perspective of regional planning is also urgent so that the new capital city does not incur new issues in the economy, institutional aspect, spatial planning, social aspect, and the environment. The plan to move the nation's capital to Borneo Island has been sparked since President Soekarno. As environmental sustainability issues become increasingly depressed, such as floods and the lowering of land levels in Jakarta (Lyons, 2019; Watts, 2019), the government feels that the relocation of the capital must be realized immediately. Of course, it is also supported by reasons for the sustainability of other fields such as socio-politics and economics (Ritter, 2019).

The center of government is targeted to be migrated from Jakarta to North Penajam Paser by 2024. If so, the new capital's preparations and development must start from 2020. The legal foundation must be set for the legitimacy of the capital relocation

process. The master plan, covering both urban design and building design, must be ready in 2020. Meanwhile, COVID-19 is significantly depleting the government's energy and resources; thus, the delay, cancelation, or continuance of the capital relocation depends on the end of the pandemic in Indonesia. In the perspective of regional planning, spatial planning must be composed in consideration of efficient, effective, and proportional spatial principles. It is equal to integrated and sustainable spatial planning. Spatial planning requires studies and information from the perspectives of various stakeholders since the capital relocation is a massive spatial expansion, not just moving the center of government from a city to a peripheral region. Integration in spatial planning covers numerous technical, economic, social, and environmental aspects. All stakeholders, the decision-makers, and the affected parties must be involved to have well-synergized coordination and cooperation. A nation's capital city is essential in forming its identity; it is not merely symbolic but also political, economic, and socio-cultural (Mayer et al., 2017).

Illman (2015) concluded that there are several reasons for relocating the capital, including 1) the purpose of national development, 2) to spread of regional development, 3) the issues of the capital city, 4) to reduce the threat of rebellion, 5) the decision of the leader. These reasons are the result of literature exploration of several cases of capital relocation and the relevance of reallocation theory, namely the growth pole theory, the nation-building theory, and the determining relationship theory among capital cities, distance, and conflict

A capital relocation is one of the more innovative ways to develop a country and its national identity. Regarding Nigeria, one comparative study (Takyi, 2016) states that its capital relocation from Lagos to Abuja was due to traffic problems at the former capital. However, traffic issues would not demand a capital relocation but simply a solution to the congestion. The impact of moving the capital to Abuja, according to Reva (2016), is not overcome the vulnerability of national security (political, military, economic, social, and environmental), considering the state's financial burden. Meanwhile, the capital relocation of Ghana from Accra is to transform its multifunctional capital to have a political role.

In 2005 Myanmar announced the relocation of the capital from Yangon to Naypyitaw. The transfer was to improve state security (Seekins, 2009) because of the long history of rebellion in Myanmar. Another reason is to build a new Myanmar identity as a capital that unites various ethnic groups in Myanmar. With the relocation of the capital, the government attempted to control the country's development (Myoe, 2009) by isolating state employees from the general public. Although the city has limited facilities, it boasts a 20-lane road. The capital city has an uninterruptible power supply - which is unusual in this country. The city is called a "ghost town" because of its lonely appearance (Business news, 2019).

The disparity between the capital and the regions is allegedly one of the main reasons for moving to the capital city. Western Indonesia is considered a developed and prosperous region, while eastern Indonesia is identical to a developing region (Sihombing, 2019). Up to date, Indonesia's economy has been centralized in Java Island, along with the western part of Indonesia, with the Gross Regional Domestic Product (GRDP) reaching 80% in 2018. The capital relocation is expected to be able to tone down the dominance of Java and Sumatera. Investment is also expected to flow into the eastern part, especially in the property and government service sectors.

Therefore, the level of employment will grow, followed by improving welfare and the economy. Prior, to promote regional equality through the acceleration of disadvantaged regions through decentralization (Tirtosuharto, 2013), not the relocation of the capital. However, regional inequality is still the most relevant issue in public policy, including shifting the capital.

Kalimantan, in general, is prone to the forest fire. Another side, however, Kalimantan owns relatively low seismic activity. The capital relocation will require vast lands; consequently, shifts in land used will be inevitable. The deforestation rate will increase with future fast infrastructure development (Azhar et al., 2020). The risk of forest fire and East Kalimantan, a former mining region, will also increase floods. Without proper regional planning, uncontrollable development will lead to environmental issues.

The capital relocation will affect the region and environment and the local people, both negatively and positively. Drastic changes will occur among the local people, so their preparation must also be considered in regional planning. Regional planning covers more than natural and artificial resources. The locals of Banjar, with all their culture, must be conserved against social erosion. However, even without the capital relocation, assimilations with other ethnicities have continued socially, economically, and politically. The involvements of cultural authorities and social figures are necessary to mitigate potential social conflicts.

Based on the above background, this paper aims to study the capital relocation plan from the perspective of regional planning.

METHODS

This research method is descriptive-analytical, which expounds on the extent of the capital relocation from the perspective of regional planning. This research is a desk study from various information and kinds of literature, including studies from the relevant ministries. The scope of this study is limited to four pillars of regional planning: institutional, spatial planning, socio-economics, and the environment. This limitation is intended so that the discussion does not widen. The fifth pillar, politics, are excluded from this study because it is subjective and beyond the author's expertise. However, some studies point to politics and conflict as the reasons for moving the capital. According to Potter (2017), appointing a capital outside the largest city would diminish civil conflicts by limiting each faction from dominating the government. Campante et al. (2013) assumed that the threat to government elites from faction groups in large cities would be further removed. Following that, Campante (2014) proved that governance would be worse off in a capital far removed from a large city. For instance, it would have a high level of corruption and less democracy. Campante showed that the farther the location of the capital, the fewer people would scrutinize the nation’s politics. A remote capital would tend to suffer misgovernance (Campante et al., 2015).

RESULTS AND DISCUSSION

A capital relocation is not a new phenomenon. However, capital relocation is a major nation action, which not all countries would opt for, though some countries have done this for different reasons. In the last 30 years, only a few countries have conducted it, e.g., Nigeria (1991), Kazakhstan (1997), Malaysia (1999), Myanmar (2005), and South Korea (2005). Approximately 30% of all countries have their capital outside their

largest cities (Potter, 2017), including Indonesia, planning to move its capital outside the big cities. The following discusses several aspects such as economics, institutions, spatial planning, social and environment.

Economic potential

The chosen location for the new capital is in North Penajam Paser Regency, East Kalimantan Province. This regency spreads across 3,333 sq. km with a total population of 166,554 (per 2018), distributed over 4 districts, 24 sub-districts, and 30 villages. The four districts are Penajam, Babulu, Waru,and Sepaku. Part of the new capital will be on the Loa Janan District, KutaiKartanegara Regency. The KutaiKartanegara Regency covers 27,263 sq. km, comprises 18 districts and 225 villages/sub-districts, and is home to 735,016 people (2018). The East Kalimantan Province consists of 10 regencies, covers 127,346.92 sq. km, and has a total population of 3.6 million people with a GRDP of Rp464.8 trillion in 2018, which increased by 2.67% from the previous year. Its main economic sector is mining and quarrying.

The North Penajam Paser Regency only offers infrastructure in the form of a road that spans 1,287 km, of which only 212 km is laid with asphalt. The main economic sectors come from mining & quarrying, farming, and manufacturing sectors. North Penajam Paser Regency's GRDP based on current prices in 2018 was at Rp8.85 trillion (BPS Penajam Paser Utara, 2019), its economic growth was merely 4.36%, lower than the national economic growth. This GRDP figure was the second-lowest in East Kalimantan, following Mahakam Ulu Regency's Rp1.5 trillion. For comparison, Kutai Kartanegara Regency's GRDP in 2018 was at Rp160.59 trillion (BPS Kutai Kartanegara, 2019), which increased 8.49% from the previous year. This figure was the highest in the total GRDP of East Kalimantan Province (34.55% of the total). Kutai Kartanegara Regency's dominance in GRDP came from the mining and quarrying sector, which had grown so rapidly that when the mining and quarrying prices dropped, the regency's GRDP also contracted throughout 2014-2016.

North Penajam Paser Regency is now among the underdeveloped regions. However, the regency is expected to grow with the planned capital relocation, supported by the toll road access between Balikpapan and North Penajam Paser, slated for 2021. To support the regency's economy, it has 26 markets. In terms of health facilities, it has 60 units, which comprise 1 hospital, 11 community health centers (Puskesmas), and 3 Puskesmas car units. It has 154 education facilities, which comprise 105 elementary school units, 31 junior high school units, 8 high school units, and 4 vocational high school units.

The Kutai Kartanegara Regency has road infrastructures spanning 2,775.91 km, which consist of roads for the regency, province, and national levels. Its education infrastructure comprises 588 preschools (both state and private-owned), 499 elementary schools, 188 junior high schools, and 65 high schools. Regarding health facilities, it has 3 units hospital, 1 unit maternity hospital, and 905 units of Puskesmas, clinics, health service posts (Posyandu), and village maternity homes (Polindes). For sport, it has 2 sports centers.

The two regencies elaborated above, which share the new capital, do not yet have airport and port access. However, they can utilize East Kalimantan's facilities in Balikpapan City, approximately 70 km away from North Penajam Paser. The potential infrastructure development is deemed reasonable, given the vast landbanks in East Kalimantan and the low risks of earthquake and forest fire.

Institutional aspect

Indonesia's capital relocation from Jakarta (Java Island) to North Penajam Paser (East Kalimantan) is aimed toward development equality since the western part of Indonesia has dominated the national development. The disparity between the western and eastern parts, i.e., between Java Island and the rest, is one of the main reasons to relocate the capital. Kalimantan Island is seen as the middle region in Indonesia. Along with the intent to increase eastern Indonesia's economic growth, the establishment of the new capital is expected to draw in investment and skilled labor, which can be achieved with the support of conducive institutions. Understanding urban economics and growth performance is crucial as part of the institutional aspect that needs to be considered (Huggins, 2016). Huggins stated that growth was not promoted solely from economic capital but also mediated by institutional factors. Institutions that facilitate effective capital input would be able to achieve better results. There is a high correlation between government quality and the regional capacity to innovate (Rodriquez-Pose &Cataldo, 2015).

Consequently, regional actors' obstacles and incentives to innovate are determined by the quality of government in deciding public policies and governance for the political economy. Similarly, the success of the new capital's governance is determined by the quality and capacity of the government. The World Bank's indicator for government quality is divided into six distinct dimensions (Kaufmann et al., 2009): 1) voice and accountability; 2) political stability and absence of violence; 3) government effectiveness; 4) regulatory quality; 5) the rule of law, and 6) control of corruption.

Of course, the capital relocation from Jakarta would have implications in Jakarta and in the new city. As a comparison, a study (Quistorff, 2015) in Brazil found that moving the capital had a significant effect on Brasilia but had no significant impact on the city of Rio de Janeiro to some extent. Rio de Janeiro did not experience a significant drop in GDP, public sector jobs, or the local labor market with the transfer of the capital to Brasilia. The new city to be established should have its unique identity and symbolism. For example, Istanbul, Turkey, aspires to identify itself as a symbol of the international logistic city (Ozdemir, 2010). For that purpose, the Turkish central government, the city authority, and the stakeholders have sponsored many new infrastructure projects to support the city's position as a world-class logistic center. So, what identity will the new capital in North Penajam Paser have? Will this new capital be the main economic center for eastern Indonesia or simply a second-layer entity? The identity or symbol of the new capital must be devised since it will reverberate onto the institutional aspect. Since the reason for the capital relocation is for economic equality, the institutional functions must be able to boost the economy. The investment climate must be conducive, with regulations supporting the ease of investing.

On the contrary, if the new capital's identity is not as a main economic hub, then perhaps it will only serve as a secondary capital city (SCC) that functions as a political center (Kauffmann & Sager, 2019). Generally, the capital of a nation is the biggest city in the country and reflects a unique style of the people's culture, besides the functions as a capital (Ishenda & Guoqing, 2019).

SCC would not be expected to be overly commercial or economic. North Penajam Paser, once it becomes a city, remote from the metropolitan Jakarta and still outside the big city of Samarinda, would be a small city with minimal or non-expansive development. Even so, the inevitable pressure of economic globalization will force the

new capital to compete with other cities. Kauffmann (2018) and Mayer et al. (2016) introduced the concept of locational policy. It was aimed to solve the issue so that new capital can be competitive—but specialized—in the global economy. The role of institutions in the locational policies of a new SCC is to spur that new city to be a political hub, not an economic one, but still possessing the autonomy to absorb a high regional tax. It is a paradox, a challenge that the Indonesian government would have to surmount in order to succeed in the capital relocation.

The identity of a nation's capital plays an important role in forming unique characteristics that set it apart from other cities and regions. Those unique traits would usually draw in domestic people as well as those from abroad. Capital planning should focus on the principles of esthetics, convenience, mobility, sustainability, and efficiency (Takyi, 2016). On the other hand, failing to draw in the people and ignoring those principles would make the new capital an isolated "ghost town".

In Malaysia's case, its capital relocation was an effort to decentralize and reduce traffic jams in Kuala Lumpur and ensure sustainable business center growth (Ho, 2006). Furthermore, Moser (2010) sees the development of Putrajaya City as a new federal administration region that symbolizes Malaysia's strong and modern national ideology, as opposed to its former label as an ex-colonial capital. The city was built as part of the government plan for the future, although despite all the plans, visions, and construction, the future remains unknown, and Putrajaya is still a city in progress (Oliver, 2012). Relocating a capital as a symbol of a nation's independence is usually the case for formerly occupied countries (Rossman, 2018).

The decision to relocate the capital determines the character and development of the new capital, which is a subtly contested "space" and whose urban processes are not equally distributed between the citizens (Kroll, 2008). Undeniably, the fate of the new city will be decided by the number of citizens with power, whether in social status, economic resources, or political influence.

Spatial planning

From the start of the capital's construction, spatial planning must be meticulously done. Strict policies must be executed so that the city's development is under control. Following the current high-tech era, a newly built capital should be smart and modern but still have green space. The spatial strategy to support the development of high technology is essential to create a healthy environment in which innovation thrives. Huang's (2013) study compared successful spatial planning practices in developing high technology between the Eindhoven city-region in the Netherlands and the Hsinchu city-region in Taiwan. The success of both high-tech cities' development cannot be separated from the institutional role, namely the government. In Eindhoven, the governments act as governors and supporters. Conversely, in Hsinchu, the governments act as high-tech development providers.

Seoul, which has been the capital of South Korea for more than 600 years (Hur et al., 2019), is already too crowded and economically saturated. The South Korean government relocated a full-scale public bureaucracy to Sejong city-North Chungcheong province, about 120 kilometers from the capital Seoul. The large-scale relocation of more than 200 public organizations to Sejong required a series of "smart work" to overcome the challenges of changing administrative structures with the new environment (Chun, 2005). The relocation in the South Korean case is a split nature relocation because not all of them have moved to Sejong, as the state symbol

institutions remain in Seoul. Hur et al.'s (2019) study identified that organizational inertia affects the effectiveness of smart work, namely psychological inertia, resource allocation inertia, cognitive inertia, political inertia, and technology inertia. Meanwhile, Kang (2012) sees Sejong City as the newest planned city targeted for completion in 2030 as an Eco-city project and a new administrative city. Sejong's future urban sustainability is supported by Transit-Oriented Development (TOD) and Bus Rapid Transit (BRT) systems, playing an important role in overcoming urban problems

The consequence of being capital is the eventual migration of citizens. The spatial planning must consider sustainability principles with all the externality impacts on physical environmental changes. Hence, the promotion of resilient cities is an urgent need in policymaking (Lu et al., 2017). So the planning perspective has a role in minimizing the negative externalities through proper and well-prepared management (Gomes et al., 2014; Kernaghan & da Silva, 2015).

The construction of a new capital must be done in phases. However, spatial planning cannot be done in phases following the construction. Conversely, the construction should follow the spatial planning done in advance in the form of a master plan. Misplacing the integrity and implementation of this master plan would lead to excessive urban and housing issues. Generally, the urban poor would be the most susceptible; they would act independently and create slums (Obiadi et al., 2019). The master plan should manage the urban space to be sustainable for all groups and activities in the capital. For example, chaotic spatial planning has encouraged illegal street vendors to emerge as informal business actors in big cities. The local government often faces problems when controlling these illegal street vendors. The eviction of street vendors is seen as a symbol of decongesting and beautifying the city (Spire & Choplin, 2018). Urban policies often impact poor neighborhood residents, who are often brutally evicted (Afenah, 2009). The development of a new megaproject and a new master plan encourages opportunities to displace street vendors from the strategic part of the city. It is the importance of sustainable spatial planning so that small traders are not driven out of the city center and can enjoy the cake of development

Spatial planning goes beyond the location of the capital and its supporting suburbs; thus, the spatial planning of those suburbs must be adjusted. The capital's spatial planning correlates with the characteristics of its surrounding cities, such as their mobility pattern and road network (Sen & Quercia, 2018). Jakarta and its surrounding cities (aka Jabodetabekor Greater Jakarta) are integrated with many aspects. The current metropolitan development in developed countries reflects the early post-suburb stage, where the suburbs develop rapidly into independent cities, triggered by the privatization of industrial estates (Firman & Fahmi, 2017).In turn, those surrounding areas also correlate with one another, and such will be the case amongKutai Kartanegara Regency, North Penajam Paser Regency, BalikpapanCity, and Samarinda City. The integration between the capital and its surrounding areas would create a diverse economy and empower the people's economy. The new capital in North Penajam Paser, whose location is between the large cities of Balikpapan and Samarinda, is estimated to affect those two cities, increasing both population and economy. Being flanked by two big cities, the new capital's positioning will be similar to Brasilia's: between Sao Paolo and Rio de Janeiro, Brazil. However, Grimes et al.'s(2017) research has revealed that the massive construction at the Brasilia Capital merely translated to limited citizen

migration, with zero growths on the per capita income and the spatial structures of its surroundings.

Beyond the social and cultural aspects, physical spatial planning must also consider the existing local wisdom. The indigenous people of Kalimantan possess a legacy of knowledge concerning survival in their environment, housing regulations, farming, environmental conservation, and other aspects of life. If the capital's spatial planning can accommodate this local wisdom, it could greatly ensure life harmony. A combination of modern and local-wisdom-oriented principles could create a sustainable spatial plan. The contributions from local cultural authorities, tradition keepers, and the people are essential in learning the local wisdom of the region. In Indonesia, local culture is abundant in each region. Dwijendra's (2019) research has shown that local wisdom can control a city's spatial usage, pattern, and structure.

Social and environmental aspects

Indonesia's capital relocation is crucial, given that Java is overpopulated and occupied by nearly 60% of Indonesia's total population. This extreme number has exceeded the city's infrastructure capacity and led to social and environmental issues. Jakarta has a population of 10.57 million, which is extremely dense and has caused increasingly acute problems, such as traffic jams, floods, waste problems, poor water & air quality, land subsidence, and rising sea levels. Jakarta is the most densely populated city globally (Ward et al., 2013) and the most threatened environmental city. This potential damage affects the economy, health, and biodiversity (Measey 2010) and makes life more vulnerable for the poor in Jakarta (Thiede & Gray, 2017).

Especially regarding water support, as a means of life, its availability must be ensured, while Kalimantan, as a mining region, surely has distinct water concerns. North Penajam Paser has been chosen as the future capital with the environmental considerations that it has low risks of earthquakes. However, Most of East Kalimantan is vastly comprised of peatland, which is prone to floods and lacks groundwater. The capital relocation reasons not withstanding, will imply a migration of the populace. The available landbank will be limited, whereas the facilities and infrastructure will constantly grow. There will be massive shifting inland used that will eventually impact the environment and society. The construction sector would be the main culprit of pollution (Enshassi et al., 2014). Kalimantan's flora and fauna in its forest, which supports the world's lungs, will degrade. The urban problems from Jakarta would also repeat in North Penajam Paser if the environmental aspect were ignored or left unplanned and unanticipated from the get-go.

Deforestation over the peatland cannot be avoided. The drying peatland will become more prone to forest fire during the dry season and floods during the wet season. Next is the carbon emission issue that will follow deforestation. The development would improve income but also increase environmental issues – a trade-off. The increased income is often unequal with the higher cost due to environmental damages. These damages will affect the ecosystem, natural resources, and the public (Chang et al., 2011; Zolfagharian et al., 2012). Therefore relocation of the capital requires documentation of eco-system impact mitigation plans before and after this occurs (Vuurst & Escobar, 2020).

Other than environmental issues, there is also the potential for social issues, since the capital relocation will also entail the migration of the people. There is also the risk of uncontrolled urbanization due to better economic opportunities at the new capital.

Social conflicts might occur, triggered by social jealousy from economic disparities. Socio-cultural assimilations between newcomers and existing locals also need to be anticipated not to trigger social conflicts. The major ethnicities in Kalimantan are the people from Banjar, Bugis, Java, and Madura. So far, they have been able to coexist in peace, despite some minor squabbles. The preparation for the capital relocation is very brief; there is concern that the government is too focused on the physical preparations while the non-physical needs have been ignored. Besides social conflicts, other social issues are common in large cities that might repeat in the new capital, such as vagrancy and unemployment. New residential areas will emerge, and slums for the newcomers that can not compete and are unskilled—another trade-off.

Social and cultural assimilations will hopefully transpire to help cultivate good relationships between newcomers and the existing locals. One example of good socio-cultural assimilation is between the Minangkabau people and the transmigration newcomers (Nova, 2016). After all, 'When in Rome, do as Romans do," or in Indonesia, the adage is something like, 'where we stand, we praise the sky thereof.'

The social disparity can also be sparked from the gap between human resources. Development in one area must not leave behind the locals nor make them the lower class. The migrated people from Jakarta would generally have more advantages in quality compared to the locals. If this is not well managed, it will lead to new problems, such as social jealousy. The new capital should be designed to be a smart city with advanced technology. The locals must not be marginalized due to their inability to compete with newcomers and contribute to the area's development. Besides leveling up the local human resource quality, the application of technological facilities will support the development of a smart city that can increase the locals' welfare.

As for Kazakhstan's case, besides the factors of geography, economy, and politics which are usually the basis of the decision to relocate a capital, according to Schatz (2003), the capital relocation from Almaty to Astana was purposely to overcome the nation's acute challenges in development. As a country just separated from the Soviet Union, Reva (2016) explains why moving the capital in Kazakhstan has open and hidden objectives. The overt aim is to overcome the imbalance of Almaty's existing environment; The new capital in Astana is expected to give a national image as an independent country; and equitable economic development in every part of the country. Meanwhile, the covert objective of moving the capital was to overcome ethnic disparities and ethnic conflicts and distance itself from the influence of the Soviet political elite. The impact of relocating the capital can answer these reasons and objectives, namely being able to strengthen intra-ethnic relations, and Astana has succeeded in attracting development and economic growth beneficial to all the people of Kazakhstan. However, moving the capital to Astana did not improve the environmental problems in the old capital of Almaty.

The city's sustainability as a hub of activities will bring about complex challenges with consequences on the environment: the very air, water, and soil (Keivani, 2010). However, the city also offers hope and great potential to overcome those challenges through the economic agglomeration, which can efficiently tap into all resources and provide services and room for innovation.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This paper is aimed at documenting a perspective from regional planning in relation to Indonesia's capital relocation. It presents a concept covering the various dimensions of regional planning within the economy, institutions, social aspects, and the environment. It also covers spatial planning so that the new capital can provide the desired quality of life sustainably for future generations.

North Penajam Paser, as the future capital, has the potential for spatial and infrastructure developments, thanks to vast landbanks in East Kalimantan and low risks of earthquakes. Besides the economic aspect, the institutional factor also plays a major role in forming a country's capital identity or symbol. The identity will show the character of the people and nation. Spatial development will surely affect the externalities, whether positively or negatively. Therefore spatial planning must consider the principles of sustainability. Spatial planning involves all the stakeholders and must combine modern spatial planning concepts with local wisdom. The paradoxes and trade-offs from a regional planning perspective must be managed to mitigate the negative externalities.

Recommendations

The government is expecting to be able to provide reasons for moving the capital openly to the public. The spatial and institutional masterplan should be clear from the beginning to not create new economic, institutional, or spatial problems. All stakeholders, both decision-makers and affected parties, are involved so that synergistic coordination and cooperation occur.

REFERENCES

Afenah A. (2009). *Conceptualizing the effects of neoliberal urban policies on housing right: an analysis of the attempted unlawful forced eviction of an informal settlement in Accra, Ghana*. London, University College London, Development Planning Unit Working Paper, 139. Accessed on August 2020. https://www.ucl.ac.uk/bartlett/development/publications/2009/nov/dpu-working-paper-no-139

Azhar, H.N., Fatima, H.H. & Tamas I.N. (2020). Preliminary study of Indonesia capital city relocation based on disaster mitigation principle with mental model approach. *E38 Web of Conferences 148.* https://doi.org/10.1051/e3sconf/202014806002.

BPS Kutai Kartanegara (2019). *Kutai Kartanegara dalam Angka 2019*. https://kukarkab.bps.go.id/publication.html?page=3

BPS Penajam Paser Utara. (2019). *Penajam Paser Utara dalam Angka* 2019. https://ppukab.bps.go.id/publication/2019/08/16/2de447e1ea2cf40a3c45779f/kabupaten-penajam-paser-utara-dalam-angka-2019.html

Business news. (2019). Capital change: A look at some countries that have moved their capitals. *The Economics Times*. Accessed on August 19, 2020. https://economictimes.indiatimes.com/news/international/world-news/capital-change-a-look-at-some-countries-that-have-moved-their-capitals/nigeria-lagos-to-abuja/slideshow/69183882.cms

Campante, F.R., Do, Q.A. & Guimaraes, B.V. (2013) *Isolated Capital Cities and Misgovernance: Theory and Evidence*. Technical Report, National Bureau of Economic Research.

Campante, F.R., & Do, Q.A. (2014). Isolated Capital Cities, Accountability, and Corruption: Evidence from US States. *American Economic Review*, 104 (8), 2456-2481

Campante, F.R., Do, Q.A. & Guimaraes, Q.A. (2015). *Capital Cities, Conflict, and Misgovernance*. LIEPP Working Paper, Research Group Ëvaluation of Democracy.

Chang Y., Riesand, R.J. & Wang, Y. (2011). The quantification of the embodied impacts of construction projects on energy, environment, and society based on I-O LCA. *Energy Policy*, 39(10), 6321-6330.

Chun, Y. (2005). *The administrative central city and the efficiency of national management*. Proceedings of State Affairs Conference of Korean Association for Public Administration

Dwijendra, N.K.A.(2019) How the local wisdom influences the sustainability of spatialdevelopment in Denpasar, Bali, Indonesia. *Bhumi, Jurnal Agraria dan Pertanahan*, 5(3), 42-52.

Enshassi, A., Kochendoerfer, B. & Rizq, E. (2014) An evaluation of environmental impacts of construction projects. *Revista ingeniería de construcción, 29*(3), 234-254. https://dx.doi.org/10.4067/S0718-50732014000300002

Firman, T. & Fahmi, F.Z. (2017) The Privatization of Metropolitan Jakarta's (Jabodetabek) Urban Fringes: The Early Stages of "Post-Suburbanization" in Indonesia. *Journal of the American Planning Association*, 83(1), 68-79, http://dx.doi.org/10.1080/01944363.2016.1249010

Gomes, J.O., Borges, M.R.S., Huber, G.J. & Carvalho, P.V.R. (2014). Analysis of the resilience of team performance during a nuclear emergency response exercise. *Appl. Ergon* 45, 780–788. http://dx.doi.org/10.1016/j.apergo.2013.10.009

Grimes, A., Matlaba, V.J. & Poot, J. (2017). Spatial Impacts of the Creation of Brasilia: A Natural Experiment. Environment and Planning A. *Economy and Space*, 49(4), 784-800. https://journals.sagepub.com/doi/pdf/10.1177/0308518X16684519

Huang, W.J. (2013). *Spatial Planning and High-tech Development: A Comparative Study of Eindhoven city-regional, the Netherlands and Hsinchu city-region in Taiwan*. TUDelft. The Netherlands

Huggins, R. (2016). Capital, Institutions and Urban Growth Systems. *Cambridge Journal of Regions, Economy and Society*, 9(2), 443-463. https://doi.org/10.1093/cjres/rsw010

Hur, J.-Y., Cho, W., Lee, G. &. Bickerton, S.H. (2019). The "Smart Work" Myth: How Bureaucratic Inertia and Workplace Culture Stymied Digital Transformation in the Relocation of South Korea's Capital. *Asian Studies Review*, 43(4), 691-709. https://doi.org/10.1080/10357823.2019.1663786

Illman, E. (2015). *Reason for relocating capital cities and their implications.* Praque, 69. [Bachelor Thesis]. Charles University, Faculty of Social Sciences, Institute of Political Studies, Department of Political Science.

Ishenda, D.K. & Guoqing, S. (2019). Determinants in Relocation of Capital Cities.*J. Public Adm. Gov*. 9, 200. https://doi.org/10.5296/jpag.v9i4.15983

Kang, J. (2012). *Study on future sustainability of Sejong city, South Korea's multifunctional administrative city, focusing on implementation of Transit Oriented Development.*Master thesis in Sustainable Development at Uppsala University, No.93,41 pp, 30ECTS https://core.ac.uk/download/pdf/51179061.pdf

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2009). *Governance Matters VIII: Aggregate and Individual Governance Indicators 1996-2008*. Policy Research WP Series No. 4978. World Bank, Washington, DC

Kauffmann, D. (2018). *Varieties of Capital Cities: The Competitiveness Challenge for Secondary Capitals.* Cheltenham, UK: Edward Elgar Publ. https://dx.doi.org/10.7892/boris.120411

Kaufmann, D. & Sager, F. (2019). How to Organize Secondary Capital City regions: Institutional Drivers of Locational Policy Coordination. *Governance*, 32, 63-81. https://doi.org/10.1111/gove.12346

Keivani, R. (2010). A review of the main challenges to urban sustainability. *International Journal of Urban Sustainable Development*, 1(1-2),5-16. https://doi.org/10.1080/19463131003704213

Kernaghan, S. & da Silva, J. (2014). Initiating and sustaining action: Experiences building resilience to climate change in Asian cities. *Urban Clim*. 7, 47–63. http://dx.doi.org/10.1016/j.uclim.2013.10.008

Kroll, C. (2008). Brasilia or the Limits of Theory. Agora. *J. Urban Plan*, Des, 23–27

Lu, P., Shen, Y.T. & Lin, T.H. (2017). Environmental Risks or Costs? Exploring Flooding and the Urban Heat Island Effect in Planning for Policymaking: A Case Study in the Southern Taiwan Science Park. *Sustainability*, 9, 22-39. http://dx.doi.org/10.3390/su9122239

Lyons, K. (2019). *Why is Indonesia Moving its Capital City? Everything you Need to Know*. Available at: https://www.theguardian.com/world/2019/aug/27/whyis-indonesia-moving-its-capital-city-everything-you-need-to-know. (accessed August 2020).

Mayer, H., Sager, F., Kauffmann, D. & Warland, M. (2016). Capital City Dynamics: Linking Regional Innovation Systems, Locational Policies and Policy Regimes. *Cities*, 51, 11-20

Mayer, H., Sager, F., Kauffmann, D. & Warland, M. (2017). The Political Economy of Capital. *Cities*. https://doi.org/10.4324/9781315545837.

Measey, M. (2010). Indonesia: a vulnerable country in the face of climate change. *Glob. Major E-J* 1, 31–45.

Moser, S. (2010). Putrajaya: Malaysia's New Federal Administrative Capital. *Cities*, 27 (4), 285-297

Myoe, M. (2006). The Road to Naypyitaw: Making Sense of the Myanmar Government's Decision to Move its Capital. *SSRN Electric Journal*. https://doi.org/10.2139/ssrn.1317156

Nova, Y. (2016). Dampak Transmigrasi Terhadap Kehidupan Sosial Masyarakat: Studi Sejarah Masyarakat Timpeh Dharmasraya. *Jurnal Ilmu Sosial Mamangan,* 5(1), 23-36

Obiadi, B. N., Ezezue, A.M. & Uduak, P.U. (2019). Abuja: Nigeria's Spatial Economic Turmoil and Urban Development Disarray. *Current Urban Studies,* 7, 371-398. https://doi.org/10.4236/cus.2019.73019

Oliver, S. (2012). Putrajaya: A Capital for the Future. *The Unfamiliar*, 2(2), 44-51. https://doi.org/10.2218/unfamiliar.v2i2.71

Ozdemir, D. (2010). Strategic Choice for Istambul: A Domestic or International Orientation for Logistics?. *Cities,* 27 (3), 154-163

Potter, A. (2017). Locating the Government: Capital Cities and Civil Conflict. *Research and Politics*, 1-7

Quistorff, B. (2015). Capitalism? Effects of the 1960 Brazilian Capital Relocation. Available at SSRN: https://ssrn.com/abstract=2588620

Reva, D. (2016). *Capital City Relocation and National Security: The Case of Nigeria and Kazakhstan*. A mini-dissertation in the Department of Political Sciences at the University of Pretoria.

Ritter, M. (2019). *President Joko Widodo: new capital city will be on Borneo*, in Proceedings of the Palace Press Conference August 26, 2019, (Jakarta).

Rodríguez-Pose, A. & Cataldo, M.D. (2015) Quality of government and innovative performance in the regions of Europe.*Journal of Economic Geography*, 15(4), 673–706. https://doi.org/10.1093/jeg/lbu023

Rossman, V. (2018). *Capital Cities: Varieties and Patterns of Development and Relocation*. New York, NY.Routledge.

Schatz, E. (2003). *When Capital Cities Move: The Political Geography of Nation and State Building*.The Kellogg Institute for International Studies. Working Paper #303-February 2003

Seekins, D.M. (2009). 'Rubway chickens' and Myanmar identity. *City,* 3(1), 63-70. http://dx.doi.org/10.1080/13604810902726202

Sen, R. & Quercia, D. (2018). World wide spatial capital. *PLoS ONE* 13(2), e0190346. https://doi.org/10.1371/journal.pone.0190346

Sihombing, P., R. (2019). Does the Gap Between East and west Still Exist? A Study of Indonesia's Disparities. *Udayana Journal of Social Sciences and Humanities*, 3(1). https://doi.org/10.24843/UJoSSH.2019.v03.i01.p01

Spire, A. & Choplin, A. (2018). Street Vendors Facing Urban Beautification in Accra (Ghana): Eviction, Relocation and Formalization. *Journal of Urban Research,* 17-18. https://doi.org/10.4000/articulo.3443

Takyi, S.A. (2016). Comparative Study of Capital City Elements: The Case of Ghana and Nigeria. *African Geographical Review*, 35(2), 168-191 http://dx.doi.org/10.1080/19376812.2015.1134335

Thiede, B. C. & Gray, C.L. (2017). Heterogeneous climate effects on human migration in Indonesia. *Popul. Environ*, 39, 173–195. http://dx.doi.org/10.1007/s11111-017-0282-2

Tirtosuharto, D. (2013). *Regional Inequality in Indonesia: Did Convergence Occur Following the 1997 Financial Crisis?*. The 23rd Pacific Conference of Regional Science Association International (RSAI) and the 4th Indonesian Regional Science Association (IRSA) Institute 2013

Vuurst , V.P. & Escobar, L.E. (2020). Perspective: Climate Change and the Relocation of Indonesia's Capital to Borneo. *Front. Earth Sci,* 8(5). http://dx.doi.org/10.3389/feart.2020.00005

Ward, P. J., Pauw, W.P., Buuren, M.W. & Marfai, M.A. (2013). Governance of flood risk management in a time of climate change: the cases of Jakarta and Rotterdam. *Env. Polit*. 22, 518–536. http://dx.doi.org/10.1080/09644016.2012.683155

Watts, J. (2019). Indonesia Announces Site of Capital City to Replace Sinking Jakarta. Available at: https://www.theguardian.com/world/2019/aug/26/indonesia-new-capital-city-borneo-forests-jakarta. (accessed August 2019).

Zolfagharian S., Nourbakhsh, M., Irizarry, J., Ressang, A. & Gheisari, M. (2012). *Environmental impacts assessment on construction sites*. Construction Research Congress 2012,1750-1759.

Analysis of social welfare program and married women labor participation in West Sumatra

Isra Yeni[1*]; Urmatul Uska Akbar[2]; Yollit Permata Sari[3]; Idris Idris[4]; Melti Roza Adry[5]; Dewi Zaini Putri[6]

Faculty of Economics, Universitas Negeri Padang, Indonesia

**To whom correspondence should be addressed. Email: Israyeni1991@fe.unp.ac.id*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.12862	18.05.2021	24.08.2021	28.08.2021	31.08.2021

Abstract

Social welfare program from the government has a role in reducing poverty rates and improving the welfare of poor households. Through social assistance, it can increase household income and indirectly alleviate the need for women to work. This study aims to analyze the effect of government social assistance on the probability of married women participating in the labor market. This study uses secondary data from the National Socio-Economic Survey (SUSENAS) in 2019 in West Sumatra. Using the logit model, the results of this study show that married women who are receiving social assistance have a greater opportunity to participate in the labor market.

Keywords: *Labor participation, Married women, Social welfare program*

JEL Classification: D69, J16, J40

INTRODUCTION

Developing countries mostly carry out social assistance from the government to overcome poverty rates. This program continues to grow globally. Many kinds of social programs are provided, such as tuition fees, aid for pregnant women, early childhood development, health, consumption, empowering women, poverty, and reducing inequality (Baird et al., 2018). Various evidence (Fiszbein et al., 2009; Ibarrarán et al., 2017) shows that social assistance programs play an important role in reducing poverty in the short term and reducing income inequality and can promote the accumulation of human capital in low-income families.

Since 2013 the poverty rate has decreased compared to the previous year in Indonesia. This condition is supported by the program from the government that aims to reduce poverty in Indonesia. After the crisis in 1998, the government began issuing social assistance programs such as Social Safety Network (JPS) to alleviate the poverty rate. The government has also launched other subsidy programs to provide basic needs such as rice for the Poor known as Raskin, cash assistance funds due to the increase in fuel oil (BBM). In addition, the government also assists a student in need, such as Cash Transfers for Poor Students (BSM), National Health Insurance (JKN), and the Family Hope Program (PKH) (TNP2K, 2018).

Garganta et al. (2017) explain that social assistance from the government can increase household income and indirectly alleviate the need for women to work. The existence of social assistance can prevent married women from entering the labor

market. In addition to this, social assistance received by the mother can relieve the mother from the pressure to find work or work for longer hours. However, different from what is explained by De Mel et al. (2012), Fafchamps et al. (2014), and Mckenzie & Woodruff (2008), social assistance from the government can support poor households, especially for women to work in the informal sector such as small scale business activity.

The decision of a married woman to work and earn a living is flexible because married women are not the only breadwinners in the household (Garganta et al., 2017). The main role in earning a living is the husband as the head of the household, while the mother is responsible for taking care of the children and husband. The existence of a social assistance program from the government influences the decision of women to work or not work because the assistance from the government has reduced the burden in meeting their needs so that mothers can focus on taking care of the household. However, for some women, it uses to open a business so that it can increase income and reduce poverty (Baird et al., 2018)

LITERATURE REVIEW

Previous research about the relationship between social assistance from the government and opportunities for women to work or not work has not been established. However, some literature describes the effect of social assistance from the government on increasing the number of workers working in micro-enterprises (De Mel et al., 2012; Fafchamps et al., 2014; Mckenzie & Woodruff, 2008). Cash transfers have encouraged poor households to start small businesses and find work in the informal sector (Baird et al., 2018). Salehi-Isfahani & Mostafavi-Dehzooei, (2018), in their research, also explained that households that receive assistance from the government, such as cash transfer, remain in the labor market, so there is no significant effect between cash transfers from the government with the supply of labor.

Different studies are described by Hagen-Zanker et al. (2017). Her research explains that cash transfers increase women's empowerment and encourage women to work at home. However, when the woman is the head of the household, it has a different effect. Women who act as heads of households positively affect working as entrepreneurs after receiving cash assistance from the government. Another study (Garganta et al., 2017) explains that households that receive social assistance programs from the government reduce women's transition to being active in the labor market. It is because a mother receives assistance from the government is needed to take care of households.

The social assistance by the government can prevent women from participating in the labor market compared to other family members. This can be explained because (Baird et al., 2018) the income elasticity of the supply of female labor tends to be greater than that of male labor, especially for women who are married and act as secondary workers in the household (Das et al., 2019; Eissa & Hoynes, 2004; Kimmel, 1998; Naz, 2004; Ribar, 1995; Tamm, 2009). In addition, the role of women is flexible to enter the labor market so that women are not burdened with decisions to earn a living. In general, a household that receives cash assistance from the government is a mother (Fiszbein et al., 2009).

According to Garganta et al. (2017), based on administrative data from the AUH program (ANSES 2014), around 96 % of the households receiving assistance are mothers. Therefore, mothers as the main beneficiaries consider cash assistance as additional income earned to meet household needs. So that social assistance can increase the economic needs of mothers and reduce the activities of mothers to be actively involved in the labor market. On the other hand, the money transfer from the

government program allows mothers in poor households to avoid low-paying jobs and focus on their children's growth, development, and education because they have quality time with their mothers. On the other hand, Magnus & Henrekson (2018) explained that a housewife prefers to work flexibly, such as working as an entrepreneur rather than outside the home. It is because a mother wants quality time with her children.

Fernandez & Saldarriaga (2014) explains that households with parents can generate income from work and must be able to allocate their time more efficiently to be with the children. Therefore, cash transfer assistance to increase household income might encourage mothers to prefer not to work. When mothers are not working, mothers can allocate their time with children and take care of the household. However, it is different from the mother, who acts as the head of the household. Mothers who have the head of a household status will still be in the labor market even though they receive cash assistance from the government. On the other hand, mothers who benefit from social assistance can work in a small-scale business with flexible time.

Apart from social assistance from the government, demographic and socio-economic factors also affect mothers' opportunities to work or not work. The research described by Hu (2008) shows that the variables of husband's income, women's education, and the number of preschool-aged children affect women's decisions to choose to work or not. The high income of husbands encourages wives not to be in the labor market. The husband's household needs have been met so that the wife does not need to work anymore. Mother's education is also one variable that affects the chances of a mother working or not. Mothers who have higher education will tend to choose to enter the labor market because, with an increase in human capital, there will be an Opportunity Cost to be sacrificed if they do not work. The variable of preschool-aged children also influences the mother's decision not to work outside the home. Having preschool-aged children encourages mothers to choose more time with their children at home because the role of mothers is very much needed in child development.

Another study explains that the area of residence and the mother's working hours influence a mother to work or not work. Research conducted by Gündüz-Hoşgör & Smits (2008) explained that mothers living in urban areas had a greater chance of becoming housewives compared to mothers living in rural areas. Anqi (1989), Granro & Kaplan (1994), Hu (2008), and Treas & Tanja van der Lippe (2011) explain that the mother's working hours also influence the mother's decision to work or not work. Mothers who work longer hours or full time will have a greater chance of leaving the labor market than mothers who work more flexible hours.

Several debates regarding the effect of providing social assistance on the opportunities for mothers to choose work or not work causes researchers interested in analyzing the provision of social assistance by the government on the opportunities for mothers to choose to work or not work. The social assistance that will be used in this research is taken from SUSENAS data in 2019. This study also analyzes the influence of demographic, social, and economic factors on women's opportunities to choose to work or not work.

METHODS

This study aimed to analyze the effect of social assistance from the government on the chances of married women choosing to work or not. This study also looked at the influence of demographic, social, and economic factors on the opportunities for married women to work or not. To achieve this goal, the data used is secondary data from the National Socio-Economic Survey (SUSENAS) in 2019. The sample used is married women who are in households that receive social assistance from the government. The social assistance used is in the form of households that receive assistance from the

Family Hope Program (PKH), Receipt of the Smart Indonesia Program (PIP), Social Protection Cards (KPS)/Prosperous Family Cards (KKS), and social assistance/subsidies from the local government**.**

The logit model is used to analyze the effect of social assistance from the government on the opportunity for married women to choose to work or not. The results of the variables in the logit model are dichotomous or binary. The main variable used is social assistance from the government. The binary dependent variable in the estimation using the logit model is whether married women choose to work or not after receiving social assistance from the government.

The general specifications of the logit model are described by Gujarati (2004) in the form of the dependent variable equation as follows:

$$P_i = \mathrm{E}(\mathrm{Y} = 1\,|X_i) = \frac{1}{2a + e^{-(\beta_1 + \beta_2 X_i)}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Equation 1 is simplified into the following equation :

$$P_i = \frac{1}{1 + e^{-z}} = \frac{e^z}{1 + e^z} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(2)}$$

Where, $z = \beta_1 + \beta_2 X_i$. In equation 1, the P_i value is the chance for a married woman to work and the value $(1 - P_i)$ is the chance for a woman to work. So the value of $(1 - P_i)$ can be written as

$$1 - P_i = \frac{1}{1 + e^{-z}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3)}$$

Then from the above equation becomes:

$$\frac{P_i}{1 - P_i} = \frac{1}{1 + e^{-z}} = e^{Z_i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(4)}$$

The equation above explains that $\frac{P_i}{1-P_i}$ is the odds ratio, which is the chance for a woman to work or not work after receiving social assistance from the government. Furthermore, the 4th equation is changed using natural logarithms so that the Logit model can be written as follows:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = Z_i \\ = \beta_1 + \beta_2 X_i + u_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(5)}$$

Where the value of L_i is an odds ratio that is not only linear to the value of X_i, but also linear to the parameters so that the equation L_i is called the Logit model.

The empirical equation based on the above description using the logit model to estimate the chances of married women choosing to work or not work after receiving social assistance from the government can be written as follows.

$$L_i = \left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 \textit{SocialAssistance} + \beta_2 \textit{Socioeconomic} + \beta_3 \textit{Demographics} + u_i \quad \ldots\ldots \text{(6)}$$

Equation 6 explains that the opportunity for women to work or not work is influenced by the main variable, namely government social assistance. The dummy dependent variable Y = 1 is a married woman who chooses to work, while Y = 0 is a married woman who chooses not to work. Other independent variables used are demographic vector variables and socio-economic vectors.

RESULTS AND DISCUSSION

Descriptive statistics in this study can be explained in Table 1. The dependent variable uses a dichotomy variable with a value of 1 if a married woman works and a value of 0 if a married woman does not work. The number of observations of married women was 12328 people. Of the total observations, 7,710 were married women who worked and as many as 4,618 married women who did not work. This figure explains that many married women choose to work rather than not work. The entry of working women into the labor market certainly has many reasons, namely gender equality, economic factors, and other supporting factors (Anqi, 1989; de Jong et al., 2017; Gündüz-Hoşgör & Smits, 2008; Hu, 2008; Hwang & Jisoo, 2014).

Table 1. Descriptive statistics

Variabel	Obs	Min	Max
Dependent Variable Pr (Y)	12328	0	1
Social assistance	12328	0	1
Home Status	12328	0	1
Women age	12328	15	60
Women Education	12328	0	22
Husband's Education	12775	0	22
Husband's occupation sector	12775	0	1
Natural logarithm of expenditure per capita	12328	12.190	16.991
Number of household members	12328	1	16
Number of household members undef five years old	12328	0	4
Region	12328	0	1

The independent variable in this study is social assistance from the government. The social assistance from the government that is received by households is in the form of assistance from the Family Hope Program (PKH), Receipt of the Smart Indonesia Program (PIP), the Social Protection Card (KPS) / the Prosperous Family Card (KKS), and social assistance/subsidies from the local government. The social assistance variable uses a dummy variable with a value of 1, namely households receiving social assistance, while 0 is households that do not. From 12,328 observations, 5,964 were observed who received social assistance from the government, and as many as 6,545 observations did not receive social assistance from the government. So it can be explained that quite a lot of households receive social assistance from the government.

The next variable is home status. Status of the house variable uses a dummy variable with a value of 1, namely the woman is in a household that owns a private house, while the value of 0 if the woman is in a household where the ownership of the house is contract / other. The number of households in the observation that had privately owned houses in West Sumatra was 9,043 observations. In comparison, the remaining 3,325 observations of their houses were contract/another status. From these observations, it can be explained that households in West Sumatra are more prosperous, with many owning houses under private ownership.

The age variable for married women was also used in selecting the sample. The observations in this study were women who were at the working-age that is 15-60 years. When viewed from the perspective of education (Years of Schooling), the total length of education taken by the observed women was 22 years. The most length of education for women was 8 years, with the number of observations of 9,368 women. This number explains that the education taken by women in the sample is still relatively low.

The next variable used in this study is the husband's education and the husband's occupation sector. The length of education of the husbands in the sample is 22 years. However, the number of tertiary education institutions is still small compared to those

of secondary school graduates. The length of education still dominated the husband's education in the sample for 8 years, with the number of husbands who had education for 8 years was 9,086 while the rest were college graduates and some did not go to school at all. The husband's occupation sector variable was also used in this study. The husband's work sector uses a dummy variable where the value is 1 if the husband works in the formal sector and is worth 0 if the husband works in the informal sector. The number of husbands who work in the formal sector is 3,329 people, while 9,481 husbands work in the informal sector.

Per capita income variable is one of the determining factors widely used by some researchers to see the relationship to the probability of married women working or not (Garganta & Gasparini, 2015). Thus this study also includes the per capita income variable. The per capita income variable used in this study shows that the maximum per capita income in the sample is Rp.23.941.845 per month and a minimum per capita income of Rp.196.889 per month. The minimum amount of per capita income in West Sumatra tends to be relatively small, so this amount is included in the category of underprivileged households.

The sample's maximum number of household members is 16, and the minimal number of household members is 1. The use of the number of household members under 5 years of age because they need the role of parents, especially mothers in the household, makes mothers have to decide whether to work. The last variable used in this study is the area of residence. The area of residence variable uses a dummy variable, with a value of 1 if the household is in an urban area and 0 when living in a rural area. Of the total observations, there were 4,773 observations in urban areas and 7,555 observations in rural areas.

Logit model estimation results

The logit model's estimation results show that the Pseudo R-square value is 0.0355 and the likelihood ratio test has a significant effect. This research estimate is feasible to be conducted and analyzed to explain the opportunities for women to participate in the labor market.

The estimation results are described in Table 2 using Equation 6. It shows that the variables of social assistance, women's age, women's education, husband's education, type of husband's work, expenditure per capita, number of household members, and number of household members under 5 years of age has a significant effect on women's opportunities to participate in the labor market.

Table 2. Probabilities for women to participate in the labor market

Variabel	Odds Ratio	Std.Err	z	P > z
Social assistance	1.171***	.046	4.01	0.000
Home Status	.935	.043	-1.44	0.149
Women age	1.020***	.002	9.19	0.000
Women Education	1.037***	.011	3.28	0.001
Husband’s Education	1.022**	.011	1.98	0.048
Husband's occupation sector	.838***	.038	-3.90	0.000
Natural logarithm of expenditure per capita	1.433***	.065	7.92	0.000
Number of household members	1.031**	.013	2.43	0.015
Number of household members undef five years old	.662***	.024	-11.35	0.000
Region	1.012	.043	0.30	0.768
_Cons	.003	.002	-8.83	0.000

****) Significant on α=1%, **) Significant on α=5%,*

Logit model interpretation is seen based on the value of the odds ratio. The main variable affecting women's opportunities to participate in the labor market is the

variable social assistance from the government. Women in households receiving social assistance are 1.17 times more likely to participate in the labor market. The same result is explained by Corona & Gammage (2017), explaining that providing cash transfers from the government to the community helps overcome poverty and encourages women to enter into micro-businesses. The assistance received can be used by housewives to participate in the labor market, especially in micro-enterprises. However, different results were found by Garganta et al. (2017). He sees that social assistance from the government can increase household income and indirectly alleviate women's work needs. Social assistance received by households can free mothers from the pressure to find work or work long hours in the labor market.

The variable age of women also significantly affects women's opportunities to participate in the labor market. This study explains that the older women are, the greater the chance for women to participate in the labor market as much 1.02. The same result is supported by Ye & Zhao (2018). He explained that the increasing the age of women, the higher the chance for women to work or enter the labor market.

The next variable is women's education (Years of Schooling), significantly affecting women's opportunities to participate in the labor market. The results in Table 2 explain that the longer a woman takes education, the higher the chance to participate in the labor market than 1.03 times. Higher investment expenditures on higher education encourage women to choose to enter the labor market. The same result is also explained by Garganta & Gasparini (2015), women with low education had fewer opportunities to work than women with education. So that educated women have a greater chance of being in the labor market. The husband's education variable (Years of Schooling) also influences women's opportunities to participate in labor. Women whose husbands are highly educated are 1.02 times more likely to enter the labor market than women whose husbands have low education.

The husband's type of work significantly affects women's opportunities to participate in the labor market. In Table 2, it can be seen that the odd ratio value of the variable type of husband's occupation is 0.83. This explains that women whose husbands work in the formal sector are 0.83 times less likely to enter labor. This can be explained because husbands who work in the formal sector spend more time outside the home, so that the role of women in the household is very much needed, especially those who already have children under five years old. The same research was explained by Jaka & Mateja (2013), a husband who works in the non-governmental (informal) employment sector has a wife who also works in the same sector.

The next variable is expenditure per capita, which affects women's opportunities to participate in the labor market. The results showed that the higher the expenditure per capita, the 1.43 times greater for women to participate in labor. The increase in per capita expenditure encourages women to enter the labor market to meet household needs. The increase in the cost of living encourages women to enter the labor market to meet increasing household needs.

The number of household members also significantly affects women's opportunities to participate in the labor market. Based on the odds ratio value in Table 2, it is explained that the more the number of household members, the 1.03 times more women are participating in the labor market. The increase in the number of household members encourages women to enter the labor market. The study results explained by Garganta & Gasparini (2015) that other family members who do not work and are the responsibility of the head of the household encourage women to enter the labor market to help meet household needs.

The last variable that affects women's opportunities to participate in the labor market is the number of household members under 5 years old. The results explain that women in households with children under 5 years old have a 0.66 times smaller chance of participating in labor. The results of this study are supported by research conducted by de Jong et al. (2017) and Hu (2008). They explained that in East Asian Countries, more women are at home if they have preschool-aged children. The presence of children in the household encourages women to spend more time in the household. This is due to the important role of mothers in the development of children during the age of five or under 5 years. Hasibuan et al. (2019) and Holroyd et al. (2020) explained in their research that the presence of mothers is very important in supporting children's development well for long-term health.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study explains that social assistance, women's age, women's education, husband's education, type of husband's work, expenditure per capita, number of household members, and number of household members under 5 years have a significant effect on women's opportunities to participate in the labor market. Several previous research results also support these results.

Social assistance is the main variable used in the model. This finding is quite interesting because women in households receiving social assistance have greater opportunities to participate in labor. Women's participation in the labor market can come from government social programs used by mothers in households to open small businesses that aim to increase household income in the future.

Recommendations

The findings in this study reveal that social assistance from the government can increase the number of women working, especially in the informal sector, so that this government policy can increase household income and reduce poverty. Policy recommendations from the government are expected to encourage women to participate in the labor market, enhancing social assistance from the government. On the other hand, local governments can also provide counseling to women who want to enter the labor market to help increase their incomes and get them out of poverty.

REFERENCES

Anqi, X. (1989). What About Married Women Who Quit Working and Return Home? Shanghai Women Are Laden with Anxiety; 45 Percent Favor “Employment by Stages ” and “Flexible Work Schedule.” *Chinese Education*, *22*(2), 50–52. https://doi.org/10.2753/CED1061-1932220250

Baird, S., McKenzie, D., & Özler, B. (2018). The effects of cash transfers on adult labor market outcomes. *IZA Journal of Development and Migration*, *8*(1). https://doi.org/10.1186/s40176-018-0131-9

Corona, M. E. O., & Gammage, S. (2017). Cash transfer programmes, poverty reduction and women’s economic empowerment: Experience from Mexico. *ILO Working Paper No. 1/2017*. https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/documents/publication/wcms_571096.pdf

Das, S., Lee, S. H., Kumar, P., Kim, K. H., Lee, S. S., & Bhattacharya, S. S. (2019). Solid waste management: Scope and the challenge of sustainability. *Journal of Cleaner Production*, *228*, 658–678. https://doi.org/10.1016/j.jclepro.2019.04.323

de Jong, E., Smits, J., & Longwe, A. (2017). Estimating the Causal Effect of Fertility on Women's Employment in Africa Using Twins. *World Development*, *90*, 360–368. https://doi.org/10.1016/j.worlddev.2016.10.012

De Mel, S., McKenzie, D., & Woodruff, C. (2012). One-time transfers of cash or capital have long-lasting effects on microenterprises in Sri Lanka. *Science*, *335*(6071), 962–966. https://doi.org/10.1126/science.1212973

Eissa, N., & Hoynes, H. W. (2004). Taxes and the labor market participation of married couples: The earned income tax credit. *Journal of Public Economics*, *88*(9–10), 1931–1958. https://doi.org/10.1016/j.jpubeco.2003.09.005

Fafchamps, M., McKenzie, D., Quinn, S., & Woodruff, C. (2014). Microenterprise growth and the flypaper effect: Evidence from a randomized experiment in Ghana. *Journal of Development Economics*, *106*, 211–226. https://doi.org/10.1016/j.jdeveco.2013.09.010

Fernandez, F., & Saldarriaga, V. (2014). Do benefit recipients change their labor supply after receiving the cash transfer? Evidence from the Peruvian Juntos program. *IZA Journal of Labor and Development*, *3*(1), 1–30. https://doi.org/10.1186/2193-9020-3-2

Fiszbein, A., Schady, N., Ferreira, F., Grosh, M., Kelecher, N., Olinto, P., & Skoufias, E. (2009). *Conditional Cash Transfers: Reducing Present and Future Poverty, A World Bank Policy Research Report*. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/2597.

Garganta, S., & Gasparini, L. (2015). The impact of a social program on labor informality: The case of AUH in Argentina. *Journal of Development Economics*, *115*, 99–110. https://doi.org/10.1016/j.jdeveco.2015.02.004

Garganta, S., Gasparini, L., & Marchionni, M. (2017). Cash transfers and female labor force participation: the case of AUH in Argentina. *IZA Journal of Labor Policy*, *6*(1). https://doi.org/10.1186/s40173-017-0089-x

Granro, C. S., & Kaplan, E. (1994). Returning to Work Following Childbirth: The Relationship Between Intentions and Behavior. *Journal of Applied Social Psychology*, *24*(10), 873–896. https://doi.org/10.1111/j.1559-1816.1994.tb02364.x

Gujarati, D. N. (2004). Basic Econometrics, 3rd edition. In *New York*. https://doi.org/10.1126/science.1186874

Gündüz-Hoşgör, A., & Smits, J. (2008). Variation in labor market participation of married women in Turkey. *Women's Studies International Forum*, *31*(2), 104–117. https://doi.org/10.1016/j.wsif.2008.03.003

Hagen-Zanker, J., Pellerano, L., Bastagli, F., Harman, L., Barca, V., Sturge, G., Schmidt, T., & Laing, C. (2017). Briefing Shaping policy for development The impact of cash transfers on women and girls A summary of the evidence. *ODI Policy Briefing*, *March*.

Hasibuan, Y., Batubara, A., & Suryani, S. (2019). Mother's Role and Knowledge in Young Children Feeding Practices on the Nutritional Status of Infant and Toddler. *Global Journal of Health Science*, *11*(6), 158. https://doi.org/10.5539/gjhs.v11n6p158

Holroyd, T. A., Wahl, B., Gupta, M., Sauer, M., Blunt, M., Gerste, A. K., Erchick, D. J., Santosham, M., & Limaye, R. J. (2020). International Journal of Infectious Diseases Characterizing mothers and children at risk of being under-immunized in India : A latent class analysis approach. *International Journal of Infectious Diseases*, *100*(2019), 59–66. https://doi.org/10.1016/j.ijid.2020.08.056

Hu, C.-Y. (2008). *A longitudinal study of married women ' s probability of being housewives in reforming urban China*.

Hwang, & Jisoo. (2014). Housewife, "Gold Miss," and Equal: The Evolution of Educated Women's Role in Asia and the U.S. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2371979

Ibarrarán, P., Medellín, N., Regalia, F., & Stampini, M. (2017). Así funcionan las transferencias condicionadas: Buenas prácticas a 20 años de implementación. In *Así funcionan las transferencias condicionadas: Buenas prácticas a 20 años de implementación*. https://doi.org/10.18235/0000631

Jaka, V., & Mateja, V. (2013). The role of husbands: Support or barrier to womens entrepreneurial start-ups? *African Journal of Business Management*, *7*(36), 3730–3738. https://doi.org/10.5897/ajbm11.3040

Kimmel, J. (1998). Child care costs as a barrier to employment for single and married mothers. *Review of Economics and Statistics*, *80*(2), 287–294. https://doi.org/10.1162/003465398557384

Magnus, C., & Henrekson, M. (2018). Avoiding the Housewife Stigma : Self-Employment as a Female Career Choice. *IFN Working Paper Np. 1200*. https://doi.org/10.13140/RG.2.2.14460.03206

Mckenzie, D., & Woodruff, C. (2008). Experimental evidence on returns to capital and access to finance in Mexico. *World Bank Economic Review*, *22*(3), 457–482. https://doi.org/10.1093/wber/lhn017

Naz, G. (2004). The impact of cash-benefit reform on parents' labour force participation. *Journal of Population Economics*, *17*(2), 369–383. https://doi.org/10.1007/s00148-003-0157-y

Ribar, D. C. (1995). A Structural Model of Child Care and the Labor Supply of Married Women. *Journal of Labor Economics*, *13*(3), 558–597. https://doi.org/10.1086/298385

Salehi-Isfahani, D., & Mostafavi-Dehzooei, M. H. (2018). Cash transfers and labor supply: Evidence from a large-scale program in Iran. *Journal of Development Economics*, *135*, 349–367. https://doi.org/10.1016/j.jdeveco.2018.08.005

Tamm, M. (2009). *Child benefit reform and labor market participation*.

Treas, J., & Tanja van der Lippe. (2011). *The Happy Husband? Working Wives, Homemakers, and Life Satisfaction*. *92617*, 1–40.

Ye, B., & Zhao, Y. (2018). Women hold up half the sky? Gender identity and the wife's labor market performance in China. *China Economic Review*, *47*, 116–141. https://doi.org/10.1016/j.chieco.2017.08.002

Identifying spatial correlation and factors influencing regional economic growth in Southern Sumatra

Nengsi Puspita Dewi*; Tanti Novianti; Dedi Budiman Hakim

Faculty of Economics and Management, IPB University, Indonesia

**To whom correspondence should be addressed. Email: nengsipuspitadewi@apps.ipb.ac.id*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.13422	21.06.2021	28.07.2021	11.08.2021	31.08.2021

Abstract

This study analyzes the spatial autocorrelation of economic growth and labor and the factors that influence economic growth between districts/cities in the Southern Sumatra region. The data used is secondary data sourced from the Bureau of Central Statistics. The method used is a quantitative approach by applying the Moran Index, LISA, and multiple regression models. This study shows that the spatial autocorrelation of economic growth did not occur in the Southern Sumatra region. Meanwhile, the spatial autocorrelation of labor occurs in this region so that it affects each other. This study's finding that jointly the variables of potential market indicator, fixed capital investment, human capital, and labor force participation rate have a significant effect on GRDP. Likewise, partially the potential market indicators, capital fixed asset investment, human resources, and labor force participation rates have a positive and significant effect on GRDP.

Keywords: *Local Indicator, Morans'I index, Spatial Autocorrelation, Spatial Panel*

JEL Classification: O47, R11, R12

INTRODUCTION

Natural resources in each region have different potential. From these differences, natural resources need management and domestic resources that can encourage infrastructure development and investment of human capital, business capital, technology, and information to develop existing domestic resources (resource endowment) to become productive on an economic scale (Adifa, 2007). Resource endowment theory states that regional economic development depends on the natural resources owned and the demand for commodities produced from these resources. In the short term, the regional resources are an asset to produce the goods and services needed (Perloff & Wingo, 1961).

As an illustration, the provinces of South Sumatra, Bengkulu, Bangka Belitung Islands, and Lampung geographically have the advantages of different production factors, economic potential, and resources. The differences in each region trigger linkages with economic activities that are useful for maintaining sustainable economic growth. The Southern Sumatra region has the lowest total GRDP with a 2015-2019 range of 2,983,978.7 billion. Meanwhile, Central Sumatra has the highest total GRDP of 4,662,148.6 billion. The difference in the amount of GRDP on the Island of Sumatra

proves that the spatial aspect is one of the considerations resulting from regions that influence economic growth. The farther away the region is, the smaller the spatial autocorrelation effect.

Southern Sumatra region is currently developing into four provinces, consist of South Sumatra, Bengkulu, Bangka Belitung Islands, and Lampung. The population as a whole has increased from 2015-2019. The province with the highest average population in 2015-2019 in the Southern Sumatra region is Lampung Province, amounting to 8,286,037 people. The lowest average population in 2015-2019 is the Bangka Belitung Islands Province, amounting to 1,430,835 people. The increase in this population triggers interaction of the population to full of their necessities, such as economic, governmental, and social activities. The form of economic activity carried out by the community in an area, such as looking for work or working in another area, can lead to various livelihoods.

According to Boukebbab & Boulahlib (2015), spatial interaction between regions is the movement of people, goods, or information between origin and destination regions through geographical space in the form of flows between locations. The existence of interrelated interactions between regions shows the economic growth that cannot claim to believe in the region itself. Therefore, the economic growth of a region will be largely built by the development of the surrounding area, especially with the entry of production factors from the surrounding area (Heryanti, Junaidi, & Yulmardi, 2014). In the research of Soares, Rustiadi, & Mulatsih (2017), the flow of production factors that enter from other regions shows dependence between regions.

The system of inter-regional linkages are based on an analysis of regional economic development, in which the form of interregional linkage in the economic field is in the form of: the flow or flow of goods and the market chain for semi-finished goods and final goods, production linkages, consumer patterns (shopping), economic control and ownership patterns, income streams including transfers and remittances, capital flows, formal and informal financial systems, medical labor (labor migration) and education (Bendavid-Val, 1991). The existence of economic events in the form of demand and supply can determine the economic growth of each region (Bräuninger & Niebuhr, 2011).

In addition, Mariana (2013) states that the availability of facilities allows a person to move from one area to another, especially areas that have closeness between counties/cities with one another, allowing the movement of residents to work or find work in an area. Population movement is defined as the migration activity that forms human capital (Scardaccione, et al. 2010). Indications of spatial effects between regions are shown based on differences in total GRDP, influenced by geographical conditions, economic structure, and employment similarities, and population migration from one area to another. Based on this phenomenon, this study focuses on analyzing the spatial interaction of the economy and labor and identifying the factors that influence economic growth between counties/cities in the Southern Sumatra region.

METHODS

This study uses the relevant data on Southern Sumatra's 4 provinces with 49 counties/cities over 5 years. The type of data used in this study is secondary data (Time Series). The secondary data used in this study were sourced from various relevant agencies such as the Central Bureau of Statistics Publications, which were accessed through the official website and government agencies that could support this research

data. The data used is in panels from 2015 to 2019 consisting of 49 counties/cities of Southern Sumatra Province. The dependent variables in this study include regional income data or Gross Regional Domestic Product (GRDP) of districts/cities in the Southern Sumatra region, detailed according to business fields. To eliminate the effect on prices, the GRDP variable used is constant price GRDP. At the same time, the independent variables include human capital, fixed asset investments, labor, and potential market indicators. Table 1. presents 5 variables, definitions, and indicators used in the study.

Table 1. Definitions of variables

Variable	Definition	Indicator
GRDP	The total value of goods and services (output) or added value produced by an area (county/city) in a certain period, usually one year.	GRDP by business field in each county/city in the Southern Sumatra region based on 2010 constant prices.
Human Capital	Human capital can include aspects of education, training, and health that produce expertise and skills, which will affect the productivity of work.	The percentage of people with a junior college degree or above in the region is fifteen and above.
Fixed Assets Investment	Expenditures for capital goods that have a service life of more than one year and are not consumer goods. PMTB includes residential and non-residential buildings, other buildings such as roads and airports, and machinery and equipment.	Fixed assets investment data is part of the expenditure GRDP in each area of Southern Sumatra.
Labor	Labor input to produce output	The percentage of the workforce to the working-age population collected from the bureau statistics publications counties/cities.
Market Potential Indicator	The spillover effect between regions in economic development.	The market potential indicator will be calculated by dividing GDP by the euclidean distance.

The analytical tools used are the Moran index, Moran scatterplot, location indicator spatial association (LISA), and OLS regression models. This method is appropriate to determine the spatial effect of economic growth and labor and the factors that influence economic growth in the region.

According to Lee & Wong (2001), the Moran Index tests spatial dependencies or autocorrelation between observations or locations. At this stage, economic growth and labor characteristics are analyzed using Moran's I to prove spatial dependencies or spatial influences between counties/cities. Moran's Global Index is formulated as follows:

$$I = \frac{N\sum_{i=1}^{n}\sum_{j=i}^{n} W_{ij}(x_i-\bar{x})(x_j-\bar{x})}{(\sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij})\sum_{i}^{n}(x_i-\bar{x})^2} \quad \text{.......} \quad (1)$$

Where I means Moran Index, X_i and X_j are the GDRP of Region i and j, N is the number of regions, and W is a spatial weight matrix. This paper gives the element value in W as the inverse distance weight (IDW). The use of the inverse distance weight in this study was chosen by considering the assumption that as the geographical distance increases, it will affect the spatial interaction between regions, which means that the spatial interaction between regions will decrease due to the geographical distance of the regions

getting further away.

Furthermore, The LISA test was carried out to find a spatial autocorrelation relationship in each observation area which the Moran index could not explain. LISA is formulated as follows:

$$I_i = Z_i \sum_{i=1}^{n} W_{ij} Z_j \quad \ldots\ldots (2)$$

Where Z_i and Z_j are $Z_i = \frac{(x_i - \bar{x})}{\sigma_x}$, $Z_j = \frac{(x_j - \bar{x})}{\sigma_x}$ Zi and Zj are standardized data. W_{ij} is the weighting between locations i and j. σ_x is the standard deviation of the variable x. X_i is the number of observations of GRDP/labor in county/city i. X_j is the number of observations of GRDP/labor in the county/city j. At the same time, $\bar{X}$ is the average number of observations of GRDP/Labor.

The results of the Moran index will be described based on the Moran Scatterplot, which consists of four quadrants. Each quadrant is limited by the average of the Y and WY lines. A quadrant is a division of regional groups that can determine the relationship between regions, both positive and negative. At the same time, the region has high characteristics if the value is above the average. On the other hand, areas with low characteristics have values below the average. The four quadrants referred to are as follows (Zhukov, 2010):

1. Quadrant I: Consists of areas with high characteristics surrounded by areas with high characteristics (HH, High-High clustering). Quadrant I is the Hot-Spot because it consists of areas with high characteristics or areas that have positive spatial relationships.
2. Quadrant II: Consists of areas with low characteristics surrounded by regions with high characteristics (LH, Low-High clustering). Quadrant II is a spatial outlier because it consists of regions with different characteristics. If the region tends to cluster in spatial outliers, the spatial relationship is negative.
3. Quadrant III: Consists of an area with low characteristics surrounded by an area with low characteristics (LL, Low-Low clustering). Quadrant III is the Cold-Spot because it consists of areas with low characteristics. If the region tends to cluster in the Cold-Spot area, the spatial relationship is positive.
4. Quadrant IV: Consists of areas with high characteristics surrounded by regions with low characteristics (HL, High-Low clustering). Quadrant IV is referred to as spatial outliers, the same as quadrant II because this area consists of different characteristics. If the region tends to cluster in spatial outliers, the spatial relationship is negative. In contrast, spatial interaction is non-existent if the area is randomly distributed in all quadrants.

This study has adopted the frequently used Harris' market potential function. According to Wenqing (2013), market potential indicators show a Spillover Effect that arises due to the regions' growth poles or growth centers affected by the agglomeration effect. The function is formulated as follows:

$$MP_{it} = \sum_{j \neq i} \frac{PDRB_{jt}}{d_{ij}} \quad \ldots\ldots (3)$$

$PDRB_{jt}$ is the GDRP of region j in year t, and dij is the Euclidean distance between the capital cities of region i and region j.

The regression equation model that will be used in this study is determined by the results of the Moran I test. If the results of Moran I show a spatial autocorrelation,

the model to be used is panel regression with spatial modeling. The spatial panel data model is a form of development or modification that considers the surrounding area or the data to be used influences neighbors (Equation 4).

$$lnY_{it} = \alpha + u_i + \sum_{i=1}^{N} w_{ij} lnY_{jt} + \beta_1 lnK_{it} + \beta_2 lnMP_{it} + \beta_3 KL_{it} + \beta_4 L_{it} + \rho \sum_{i=1}^{N} w_{ij} \phi_{jt} + v_{it} \quad (4)$$

Meanwhile, if the results of the Moran Index show no spatial autocorrelation, the model used is static panel regression. The use of this model is considered appropriate because the marginal effect of the explanatory variable is seen from two dimensions, namely individual and time, so that the estimated parameters will be more accurate than other models. In addition, technically, panel data can provide informative data, reduce collinearity between variables, and increase degrees of freedom, increasing efficiency. The static panel regression model specifications are as follows:

$$lnY_{it} = \alpha_0 + \beta_1 lnK_{it} + \beta_2 lnMP_{it} + \beta_3 KL_{it} + \beta_4 L_{it} + v_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

where the subscript i stands for the region, t for the year, and Yit for the GDRP of Region i in the Year t; K_{it} is capita fixed assets investment. MP_{it} is a market potential indicator that shows in equation (3). KL_{it} represents a change in human capital, where KL_{it} is the percentage of people with a junior college degree or above in the population aged fifteen and above in region i and year t, and L_{it} is the labor force participation rate in region r and year t.

RESULTS AND DISCUSSION

Spatial analysis techniques applied to economic, labor spatial correlation in Southern Sumatra

The Moran Index statistic corresponding to Moran scatterplots and Local Indicator of Spatial Association (LISA) has been calculated in this study. Moran Index provides an overall measure of Spatial Autocorrelation. Moran scatterplots show a graphic representation of spatial correlation and enable an investigation of possible local spatial correlation. LISA accounts for the local effects of the phenomenon.

Moran's Index Test with Moran Scatterplots

The spatial correlation of GDRP and Labor in the Southern Sumatra region will be measured by calculating Moran Index. Table 2 shows the calculation results and test values of Moran's I Index with inverse distance weight matrix for 2015-2019.

Table 2. Global Moran Index of GRDP and number of labor 2015-2019

Data	Year	Moran Index	Prob.
GDRP	2015	0.01461	0.3542
	2016	0.01467	0.3524
	2017	0.01447	0.3533
	2018	0.01397	0.3579
	2019	0.01384	0.3596
Labor	2015	0.06635*	0.00034
	2016	0.07149*	0.00015
	2017	0.07384*	0.00010
	2018	0.07689*	0.00006
	2019	0.07807*	0.00005

*Note: the level of significance at *1%*

The results indicate that spatial correlations do not exist for economic growth in Southern Sumatra. Table 2 shows the value of the Moran index has decreased every year. Unfortunately, this value does not significantly affect the spatial correlation with a 5% or 10% significance level. Counties/cities in the Southern Sumatra region have a considerable distance from each of the provincial capitals of the Southern Sumatra province. As is well known, the provincial capital is the center of the growth of a province which is assumed to have facilities in various aspects such as economy, government, education, health, which are far more complete than other administrative areas. Thus, it is difficult for residents in an area to move from one area to another. It supports the assumption that the farther the geographical distance, the smaller the degree of spatial interaction. In addition, infrastructure in the form of roads and modes of transportation are other factors that result in the strength of interaction between regions being very small and insignificant.

Meanwhile, based on the results in Table 2, the amount of labor in Southern Sumatra has a spatial correlation with each other. Based on the probability test, which is smaller than the level significant at 1%. Table 2 shows a positive moran index value from 2015-2019, which means Southern Sumatra has a positive spatial autocorrelation. When viewed as a whole, the Moran index value from 2015-2019 has increased every year. This increase in value shows the strength of interaction between regions is getting stronger than in previous years. The higher the Moran index value, the stronger the impact of spatial correlation between areas. The Moran value of the labor in 2019 is the highest Moran index value compared to the previous four years. It means the strongest spatial interaction occurred in the Southern Sumatra region in 2019.

The grouping of regional economic growth detected by spatial autocorrelation is not suitable for spatial interpretation because the results of the Moran index are not significant, which means that there is no link between economic growth in the Southern Sumatra region. However, The spatial correlation pattern of the Southern Sumatra labor is shown in Figure 1, which is plotted into a quadrant of the Morran Scatterplots. Based on Morran Scatterplots, the spatial correlation grouping pattern is relatively the same from 2015-2019. Therefore, these areas are divided into four quadrants as follows:

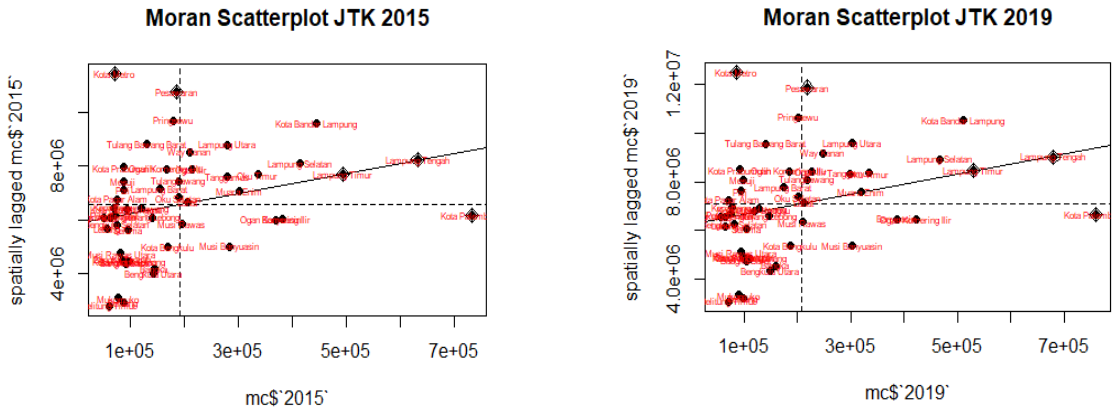


Figure 1. Moran Scatterplot of the amount of labor in the Southern Sumatra

Quadrant I (High-High) are included in the high labor surrounded by counties/cities with the same high consists of thirteen counties/cities spread over two provinces, namely Lampung province which consists of Central Lampung Regency, East Lampung, South Lampung, North Lampung, Tanggamus, Way Kanan, Pesawaran,

Tulang Bawang, and Bandar Lampung City. Meanwhile, the other 4 regencies/cities are Muara Enim, Ogan Ilir, Lahat, and East OKU districts which are located in the province of South Sumatra. ***Quadrant II (Low-High)*** consist of five counties/cities all located in Sout Sumatera Province, namely Musi Banyuasin, Banyuasin, Ogan Komering Ilir, Musi Rawas, and Palembang City.

While, ***Quadrant III (Low-Low)*** is the main cluster from all of the quadrants consisting of twenty-one counties/cities spread over three provinces, namely South Sumatra, Bengkulu, and Bangka Belitung Islands. Bengkulu province is the most dominantly areas, which is as many as eleven regencies/cities consisting of Kepahiang Regency, Central Bengkulu, Rejang Lebong, Kaur, West Coast, South Bengkulu, Seluma, Lebong, Muko Muko, North Bengkulu, and South Bengkulu. Bengkulu City. The other ten regencies/cities included in this quadrant grouping are located in the provinces of South Sumatra and the Bangka Belitung Islands which consist of Empat Lawang Regency, North Musi Rawas, Lubuk Linggau City, East Belitung Regency, Belitung, Bangka, South Bangka, Central Bangka, Bangka West and the city of Pangkal Pinang.

The fourth Quadrant (High-Low) consists of five counties/cities in Lampung provinces: Pringsewu, Tulang Bawang Barat, Mesuji, West Lampung counties, and Metro city are located in the province of Lampung. Meanwhile, Pali, Ogan Komering Ulu, South OKU counties, Pagaralam, and Prabumulih cities are located in South Sumatra province.

Local Indicator of Spatial Autocorrelation (LISA)

Regional economic growth in 2015 with a significant LISA of 10% value was included in the High-High cluster, namely Banyuasin, East Lampung, and South Lampung counties. Whereas in 2019, only two districts had local spatial autocorrelation values, namely Banyuasin and East Lampung, shown in figure 1. Based on the analysis results, most economic growth in the Southern Sumatra region is independent, not affected by changes between counties. On the other hand, Figure 2 shows the spatial labor's LISA Cluster Map in 2015 and 2019. There is a significant labor spatial autocorrelation in several districts/cities in two clusters: High-High and Low-High Clusters.

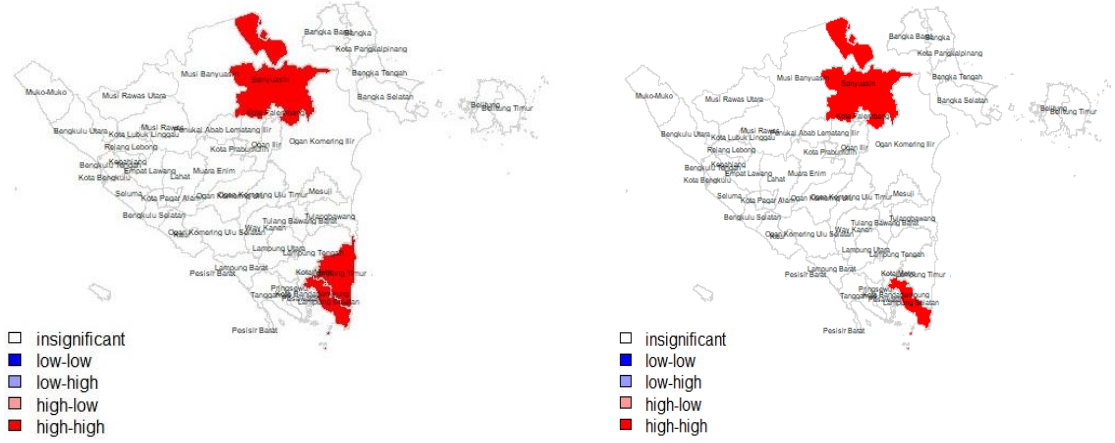


Figure 1. LISA cluster maps economic growth spatial 2015 and 2019

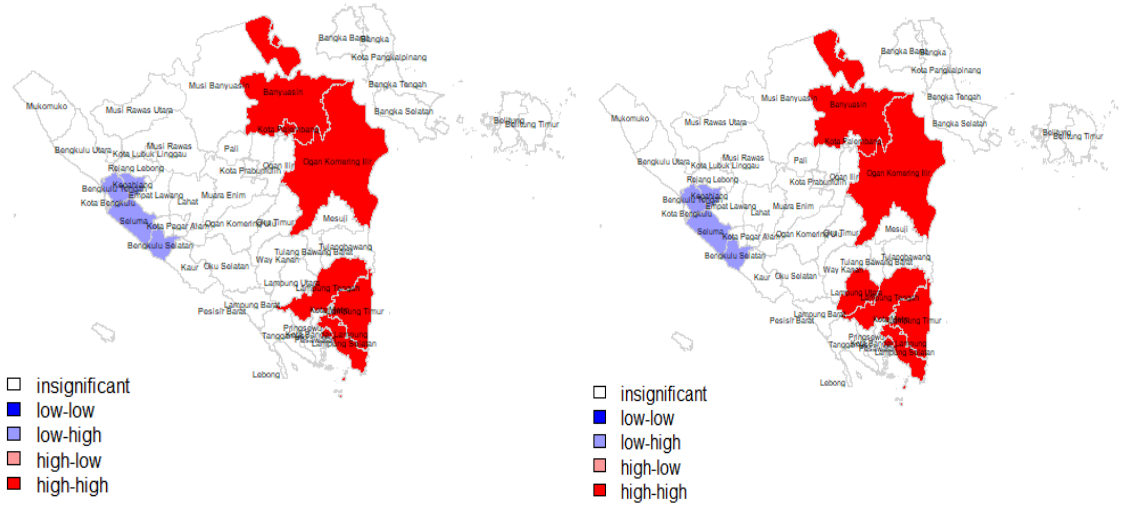


Figure 2. LISA cluster maps labor spatial 2015 and 2019

In Figure 2, LISA Cluster Maps for Labor 2015 and 2019 show the region grouping occurs in High-High and Low-Low clusters. The region included in the high-high cluster grouping is counties/cities located in South Sumatera and Lampung provinces with a level significance of ten percent. These regions, Palembang and Bandar Lampung Cities are the capital province of South Sumatera and Lampung. The capital province is the center of economic activity; therefore, the surrounding regions, namely Banyuasin Regency, Ogan Komering Ilir, Central Lampung, East Lampung, South Lampung, are affected by the economic activities that occur in the center of economic activity. Most of the counties/cities in Bengkulu Province are in the Low – High cluster, which means that the region has a low number of laborers and groups with other counties/cities that have a high number of laborers. The existence of a local spatial autocorrelation that is negative to the number of laborers in the Bengkulu province, namely Seluma, Bengkulu Tengah, South Bengkulu, and Kepahiang counties, is caused by the uneven distribution of added value in each region.

Residents in the city are labor in the agriculture sector and government employees who only rely on wages or salaries. Meanwhile, the greater added value comes from taxes and surplus from a business in the nearest city, Bengkulu city. This finding is supported by Bawono's (2011) research, which states that the added value of urban areas will be greater than that of rural areas. Furthermore, the spatial local correlation pattern that is not significant means no grouping of workers. The Province of the Bangka Belitung Islands and some areas in the other three provinces are districts/cities with many workers. Still, they do not have cluster significance with neighboring counties/cities. This is also determined by the geographical location where the province of the Bangka Belitung Islands is divided into archipelagos. Thus, the distribution of labor in the counties/cities of the BABEL province is not significant enough to act as growth centers for the surrounding regions.

Factors influencing economic growth in Southern Sumatra Region

Based on the 2015-2019 Moran I GRDP test results shown in table 2, the 2015-2019 Moran GRDP value is not significant. The probability value is greater than the significance level of 5% or 10%, so there is no spatial autocorrelation in the model. It is due to the geographical distance between regions that are not close together, inefficient infrastructure, and public transportation resulting in a low level of population density.

Therefore, the economic growth of the Southern Sumatra region is independent or does not affect each other. Thus, the appropriate model to explain the factors that influence the economic growth of the Southern Sumatra region is the static regression panel model because the spatial panel model sees the influence of space. In contrast, the economic growth of the Southern Sumatra region does not have the effect of neighbors.

As shown in Table 3, Sum r-squared resid value from the weighted statistic of 2.354680 is smaller than the unweighted statistic of 4.072382. It means that the heteroscedasticity problem can be solved. Durbin Watson test is used to test the presence or absence of autocorrelation. In the model, before being weighted, it has a value of 0<dw<dL(1.73), so it can be concluded that there is a positive autocorrelation problem. Therefore, to overcome autocorrelation in the model, estimation is carried out using Generalized Least Square weighting. Thus, the problems of heteroscedasticity and autocorrelation can be overcome (Juanda 2009). The multicollinearity test shows that the partial correlation value between all independent variables analyzed is smaller than 0.8 (Rho Spearmen Correlation), which means that free of multicollinearity.

Tabel 3. The result of model estimation

Dependent Variable LNPDRB			
Variabel		Koefisien	Prob.
C	Constant	1.949208	0.0000
LNKIT	Capita Fixed Assets Investment	0.805061*	0.0000
LNMPIT	Market Potential Indicator	0.034062*	0.0001
KLIT	Human Capital (The Percentage Of People With A Junior College Degree Or Above In The Population Aged Fifteen And Above)	0.002304*	0.0020
LRIT	The Labor Force Participation Rate	0.001758*	0.0020
R-Squared = 0.979931; $F_{Statistic}$ = 13490.33; Prob(F-Statistic) = 0.000000			
sum r-square resid weighted = 2.354680; dan sum r-square resid unweighted = 4.072382; $DW_{statistic}$ weighted = 1.204774; $DW_{statsitic}$ unweighted = 1.581646;			

*Note: the level of significance at *1%*

The results of panel regression with Fixed Effect Model (FEM) show that all independent variables have a significant positive effect on the economic growth of counties/cities in the Southern Sumatra region with a significance level of one percent. Capita Fixed Assets Investment has a significant positive effect on GRDP with a coefficient value of 0.80501. The coefficient value of 0.80501 indicates that when there is an increase in investment in fixed assets by 1%, it can increase economic growth by 0.80501%, ceteris paribus assumption. This is similar to Wenqing's (2013) research, which states that fixed capital formation positively affects regional economic growth. In addition, the results of research estimates on this variable are in accordance with Solow's growth theory which states that capital accumulation is one of two inputs that play an important role in output growth. Harrod-Domar's growth theory states that investment or capital formation has a direct effect on economic growth.

Then, the next independent variable is the labor force, which has a positive and significant effect on economic growth. An increase in the labor force by 1% can increase economic growth by 0.00176%. The positive relationship between labor variables and economic growth is similar to Nizar, et al. (2013), which is that the labor force has a positive effect on regional economic growth. This result is also in accordance with Solow's growth theory, which states that labor is one of the two inputs that play an important role in output growth. The more the workforce working in an

area, the higher the ability to produce output. This will encourage the level of aggregate supply so that it will encourage economic growth.

The estimation results of market potential indicator variables show a positive and significant effect on economic growth at a one percent level of significance with a coefficient of 0.0341. This coefficient value means that an increase of 1% of market potential indicators can increase economic growth by 0.0341%. According to Wenqing (2013), market potential indicators indicate a spillover effect that arises as a result of externalities resulting from agglomeration in a region. This is in line with the new economic geography (New Economic Geographic Theory), which focuses on the importance of the location of economic activities. The results of this study are also similar to Dewi & Masbar (2016), which state that economic growth will increase due to agglomeration, which triggers economic activity in increasing land use so that the price of a plot of land becomes high.

The human capital variable, which is represented by the percentage of the population aged 15 years and over according to the diploma level or more that has been completed, produces a coefficient value of 0.0023 with a probability smaller than the five percent of level significant, which means that the variable is positive and significant to economic growth. The coefficient value means that if there is an increase of 1% in the number of workers who have diploma education and above, it will increase economic growth by 0.0023%. This is similar to the research of Odit, et al. (2018), which states that human capital plays an important role in economic growth, especially as an engine for increasing the level of output, besides that human capital also shows an increase in productivity which with the presence of good human resources. Educated can facilitate the application of new technology in an area. Not only that, the new economic growth theory considers aspects of human capital and technology. Therefore, these research results align with the new economic growth theory (New Growth Theory), which states that the accumulation of human capital can provide greater and more innovation or Research and Development (R&D). This can lead to endogenous growth.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

There was no spatial dependence on the economic growth of counties/cities in Southern Sumatra. However, inter-regional linkages occur in the development of the labor force in the region. It means that the counties/cities in the region interact with each other in meeting the needs of workers in each region.

The grouping of relationship patterns is formed due to spatial interactions in the employment of counties/cities in the Southern Sumatra region. The cluster of the spatial interaction county/city labor force in the region is in the four quadrants, namely the quadrant with clusters of High-High, Low-High, Low-Low, High-Low.

Almost all economic growth counties/cities in the Southern Sumatra region do not have local spatial autocorrelation. Furthermore, statistical panel data regression analysis show that Gross Fixed Capital Formation, market potential, percentage of population indicators aged 15 years and over according to diploma education and above and, the percentage of the workforce has a significant positive effect at a significant level of 0.05% on Domestic Product Regional Gross Domestic Product.

Recommendations

Alternative recommendations based on the results of this study include that the government of each county/city in the Southern Sumatra region needs to continue to improve and maintain its economic growth. This can be done in various ways, such as paying attention to the leading sectors in each region so that inter-regional linkages can be useful in supporting a sustainable growth economy. Differences in leading sectors trigger the need for human resources in each region differently. Therefore, the government needs to focus on leading sectors that are useful in determining regional development policies.

In addition, the government of each region can make efforts to develop investment development strategies such as in the field of infrastructure facilities in the form of road access between districts/cities, public facilities, and public transportation to support the level of population mobility so that relations between counties become more effective and efficient. For labor and human capital in each county, the government can improve labor quality through education followed by technological developments in each region. The inter-regional linkages need to be considered and coordinated in regional development planning. This is done in order to generate synergies and progress together with the surrounding area.

REFERENCES

Adifa, Y. (2007). *Analisis Kesenjangan Pembangunan Antar Wilayah Pembangunan Di Kabupaten Alor Provinsi Nusa Tenggara Timur*. [Master Theses]. Institut Pertanian Bogor.

Bawono, N. (2011). *Keterkaitan Spasial Perbedaan Produktivitas Tenaga Kerja Kabupaten/Kota Di Pulau Jawa*. [Master Theses]. Institut Pertanian Bogor.

Bendavid-Val, A. (1991). *Regional and Local Economic Analysis for Practitioners*. New York: Greenwood Publishing Group, Inc.

Boukebbab, S., & Boulahlib, M. S. B. (2015). The Spatial Interactions Using the Gravity Model: Application at the Evaluation of Transport Efficiency at Constantine City, Algeria. *Advances in Intelligent Systems and Computing*, *365*, 305–318. https://doi.org/10.1007/978-3-319-19216-1

Bräuninger, M., & Niebuhr, A. (2011). Agglomeration, Spatial Interaction and Convergence in the EU. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.756725

Dewi, A. E. P., & Masbar, R. (2016). Aglomerasi dan Pemanfaatan Ruang di Kota Banda Aceh. *Jurnal Ilmiah Mahasiswa (JIM)*, *1*(2), 311–320.

Heryanti, Y., Junaidi, & Yulmardi. (2014). Interaksi Spasial Perekonomian dan Ketenagakerjaan Antar Kabupaten/Kota di Provinsi Jambi. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 2(2), 99-106

Lee, J., & Wong, D. W. S. (2001). *Statistical Analysis with Arcview GIS*. New York: John Wiley and Sons.

Mariana. (2013). Pendekatan Regresi Spasial Dalam Pemodelan Tingkat Pengangguran Terbuka. *Jurnal Matematika Dan Pembelajaranya*, *1*(1), 42–63.

Nizar, C., Hamzah, A., & Syahnur, S. (2013). Pengaruh Investasi dan Tenaga Kerja Terhadap Pertumbuhan Ekonomi Serta Hubungannya Terhadap Tingkat Kemiskinan di Indonesia. *Jurnal Ilmu Ekonom*i, *1*(2), 1-8.

Odit, M. P., Dookhan, K., & Fauzel, S. (2018). The impact of education on economic growth: The case of India. *International Business & Economics Research Journal*,

66(1), 253–262. https://doi.org/10.11118/actaun201866010253

Perloff, H., & Wingo, L. J. (1961). Economic Growth Natural Resources and Economic Growth. In Joseph (Ed.), *Natural Resources Endowment and Regional*. Washington D.C: Resouces for the Future.

Scardaccione, G., Scorza, F., Casas, G. Las, & Murgante, B. (2010). Spatial autocorrelation analysis for the evaluation of migration flows: The Italian case. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, *6016 LNCS*(PART 1), 62–76. https://doi.org/10.1007/978-3-642-12156-2-5

Soares, L., Rustiadi, E., & Mulatsih, S. (2017). Analisis Disparitas dan Interaksi Spasial di Tomor-Leste. *Journal of Regional and Rural Development Planning*, *1*(1), 74–86.

Wenqing, P. (2013). Regional Correlation and Spatial Spillovers in China's Regional Economic Growth. *Social Sciences in China*, *34*(3), 125–139. https://doi.org/10.1080/02529203.2013.820566

Zhukov, Y. M. (2010). Applied Spatial Statistics in R , Section 4 Spatial Point Processes Spatial Data and Basic Visualization in R. *Statistics*, 1–18.

Pricing strategy at the local salt industry institutional structure of East Java, Indonesia

Siti Komariyah[1]; Lilis Yuliati[1]; Mustofa Mustofa[2*]; Nely Supeni[2]

[1)] Department of Economics and Development Studies, Faculty of Economics and Business, University of Jember, Indonesia
[2)] Program of Economics Development Study, STIE Mandala Jember, East Java, Indonesia

**To whom correspondence should be addressed. Email: mustofa@stie-mandala.ac.id*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.11698	08.01.2021	27.06.2021	28.06.2021	31.08.2021

Abstract
This study aims to create a strategy to increase local salt prices in the East Java Region. The analytical method used in this study is the Analytical Hierarchy Process (AHP) method to create a strategy to increase local salt prices in East Java. The analysis reveals that the problems in the field can be classified into three groups of problems, namely salt quality problems, marketing problems, and problems in financing. Based on these problems, the main policy alternatives we make are product standardization, market regulation, and financial regulation.

Keywords: *AHP, Salt farming, Salt market*

JEL Classification: C49, Q1, Q12

INTRODUCTION

Salt is one of the main ingredients of human needs for various purposes, both for consumption and industry. The need for high-quality salt continues to increase during the growth of the industry. Sodium Chloride (NaCI) is traditionally used as a food additive in food processing because it plays an important role in texture and storage (Muhandhis et al., 2019; Rochwulaningsih et al., 2019). Therefore, the function of salt cannot be replaced by another ingredient. Salt is positioned as a strategic commodity that needs to be cultivated and developed appropriately, especially in areas with extensive coastlines, including Indonesia.

Indonesia is one of the countries with the longest coastline in the world. Nevertheless, these advantages cannot fulfill the national salt needs, so Indonesia needs to import salt. The abundant amount of salt imports has caused the price of salt to fall on the market. One root of the problem is the lack of absorption of salt for the industry. Moreover, several other problems are national salt processing technology: 1) still fairly traditional, 2) the transfer of land functions from salt ponds to settlements, 3) salt production volume still depends on solar heat, and 4) national salt quality is still low (Rochwulaningsih, 2017; Santosa, 2015; Sudaryana & Pramesti, 2018).

The problem of Indonesian salt also originates from the marketing chain, which

involves many parties such as distributors, wholesalers, retailers, and salt selling agents. Agents involved in salt distribution determine the desired profit margin. The phenomenon of high-profit margins determined by distributors and other salt agents requires consumers to incur greater costs to buy salt, giving rise to negative consumer perceptions of the state in managing the performance of national salt fulfillment (Muhandhis et al., 2019; Sudaryana & Pramesti, 2018).

In general, salt production in Indonesia is carried out by coastal communities using traditional technology. Nevertheless, the existing governance in coastal communities related to the activity of the salt processing industry is still weak and vulnerable in terms of socio-economy (Rochwulaningsih, 2017). Despite the existing problems, the government has established regulations to protect and empower salt farmers and fishers, especially coastal communities, namely Law No.7 of 2016. Besides, in 2011 the Indonesian government implemented the Salt Empowerment Business Program and introduced various industrial technologies. Regulations and programs established by the Indonesian government aim to protect the traditional aspects of salt production to ensure salt quality (Badan Pengkajian dan Pengembangan Perdagangan, 2016). Therefore, it needs to be identified and analyzed to formulate existing problems to find the right strategy to strengthen the salt industry institutions in East Java to achieve economic sustainability.

Based on SWOT analysis, previous literature studies mention that the highest priority weight is on adequate production land (strength), inadequate distribution capital (weakness), demand for premium quality salt (opportunity), and short dry season in the production process (threat) (Wati et al., 2018). Research results by Wati et al. (2018), the right strategy is to increase raw material salt production, develop processed salt itself, and expand the marketing area. It also needs the implementation of appropriate government policies and effective and efficient production management. It`s consistent with the research results from Sudaryana & Pramesti (2018), which shows a significant relationship between the salt production governance strategy and the implementation of policies towards improving people's welfare. It is one of them related to salt prices that farmers expect, where when the price of salt on the market is stable and following price standards, farmers' concerns about loss of production can be suppressed. Prices that are applied on the market are also based on the quality of the salt produced.

Based on the research results by Jumaeri et al. (2018); Santosa (2015) related to salt production, improving the quality of salt can be done by modifying the traditional salt production process by placing HDPE geomembrane. The result of this modification is claimed to increase the number of salt products and NaCI levels that meet or even exceed the Indonesian National Standard (SNI), which is above 94.75%. Muhandhis et al. (2019) suggested a strategy to increase the salt supply chain by using land intensification scenarios with thread-filtering technology, geomembrane, and tunnel systems claimed to increase farmer profits in the shortest dry season. At the same time, Rochwulaningsih (2017) emphasizes developing an entrepreneurial mindset that can support group/cooperative businesses with coaching, advocacy, technological facilities, and business capital in salt production.

This research is based on institutional theory and agency theory. Institutional theory is related to governance, strategy, institutional system of the production process from upstream to downstream, including cooperation and agreements made by farmers, traders/collectors, and stakeholders. At the same time, the theory agency is more about explaining the relationship between capital owners and organizational managers. Thus,

this study aims to identify the problem of salt prices in East Java by organizing it into a hierarchy to get the right strategic planning for increasing the national salt price.

LITERATURE REVIEW

The institutional theory provides a signal from the view of an open system that the environment influences an organization. The environment in an organization is part of social construction that plays a role in building character and rules (Clegg, 1981). In this context, institutional, commonly called "institutions," are rules that regulate the social conditions of individuals and organizations. Institutions consist of regulative, normative, and cultural cognitive elements and related resources carrying out activities in managing the stability and meaning of an organization to achieve its goals (Mahalingam & Levitt, 2007). The regulatory element in this institutional concept uses explicit rules and supervision activities; this normative element is seen from the prescriptive dimension, while the cultural-cognitive element depends on individual and organizational cognition. Conceptually, institutions describe how institutional strength leads to conformity behavior in social settings (Biesenthal et al., 2018). Apart from the organization, institutional theory can also influence human resources. The integration of institutional concepts in managing human resources and indirectly can impact an organization of human resources, which is applied infield practice (Lewis et al., 2019). The institutional theory that integrates cognitive, normative, and regulative elements is one of the ideas from the emergence of Neo-Institutional theory.

Institutional as a rule of the organization in carrying out its functions and tasks to achieve its objectives. These game rules are aimed at all relevant stakeholders, both internal and external, who have links with organizational activities. The purpose of the game rules was formed so that all related parties could carry out their duties and functions by their portions. They would not trigger the emergence of various problems that would lead to organizational instability (Slimane et al., 2019). Overall, institutionalism is more focused on the relations between the organization and the stakeholders involved therein who interact in the institutional environment. Interaction in this institutional environment includes management, marketing, production, and services and goods. So, it will integrate internal and external components in the organization that still has a connection. The institutional concept that was built also emphasized the combination of rules and socio-cultural conditions in an organization. This institutionalization is also adapted to the traditions inherent in the condition of an organization, accompanied by rules that have a positive contribution that can have a significant impact on organizational performance (Slimane et al., 2019). Organizational behavior also plays a routine role to be instituted, which will be carried out by all relevant organizational stakeholders.

The emergence of agency theory results from differences in views between agency shareholders and managers that trigger a conflict of interest. This theory describes the relationship between stakeholders (owners of capital) in an organization as the agency's principal and the organization's manager, which often creates conflict with asymmetric information. The emergence of this asymmetric information manifests the differences in interests between capital owners and managers. Models in agency costs and ownership structure play a central role in corporate governance (Jensen & Meckling, 1976). The agents' behavior needs to be a concern to detect the problem that triggers a conflict of interest. According to (Jensen & Meckling, 1976), this agency theory can appear in the smallest scope of an organization because each stakeholder has

an interest based on the principle of maximizing utility. This principle maximizes greater profits in the short term to trigger problems (Laiho, 2011).

Classical agency theory assumes that humans as self-interested individuals with inherent opportunistic traits eventually trigger interest (Yusuf et al., 2018). These differences in interests are usually reflected by fraudulent and non-transparent behavior and a lack of managerial responsibility to the organization, resulting in conflicts with the capital owners. Assumptions of interest have a profound influence on the development of policies and practices. At the same time, overall corporate governance regulations focus on the right remuneration package and monitoring managers to control opportunistic behavior (Feldman, 2020). However, personal interests in organizational management studies can positively impact by not expecting a reward in personal material benefits. Because their orientation is not only in personal interest but rather leads to the performance and existence of the organization. Issues of interest in agency theory impact organizational performance as reflected by the instability of performance and injustice in the organization. Because each stakeholder will try to maximize their profits and create an imbalance, for example, with the interest of maximizing these benefits, asymmetrical information will emerge, the instability of the organization's conditions, and stakeholder relationships and in the long run, will affect the sustainability of the organization's existence.

METHODS

Data

The data used in this study is primary data, which was obtained through interviews and filling out questionnaires directly to respondents/informants. The research location and respondents/informants used in this study were selected through the purposive sampling technique. The purposive sampling technique is based on selecting samples that match the salt supply chain process criteria, namely actors who are considered to have complete information. The location of this research is East Java Province, one of the areas that have the highest salt production in Indonesia. Respondents used in this study were farmers, traders or collectors, and stakeholders involved in salt production and salt trade in East Java Province. The respondents are ten respondents who are considered to have complete information about the salt supply chain in East Java Province.

Table 1. Sample research respondents

Respondents	Frequency
Farmer	5
Traders / collectors	3
Stakeholder	2
Total	10

Technical analysis

Technique The analysis used in this study is the AHP *(Analytical Hierarchy Process*). AHP (*Analytical Hierarchy Process*) is a supporting technique in reaching decisions developed by Thomas L. Saaty. The AHP technique will decipher complex multi-factor or multi-criteria problems (Dizioli et al., 2016; White, 1987). Thus, a complex problem can be broken down into groups that are then organized into a hierarchical form so that the problem will appear more structured and systematic (Li et

al., 2018; Yavuz & Baycan, 2013).

The steps are taken to analyze the AHP (method a*nalytical Hierarchy Process*) divided into eight steps (Saaty, 2002).

1. Breakdown complex problems into several small selection elements which then arrange elements into hierarchical forms. The problems to be solved are broken down into elements, namely criteria and alternatives, then arranged into a hierarchical structure. This stage allows a complex decision to be structured into a hierarchy of the overall objectives to various criteria/sub-criteria and the lowest level. The structure of this research hierarchy is as follows.

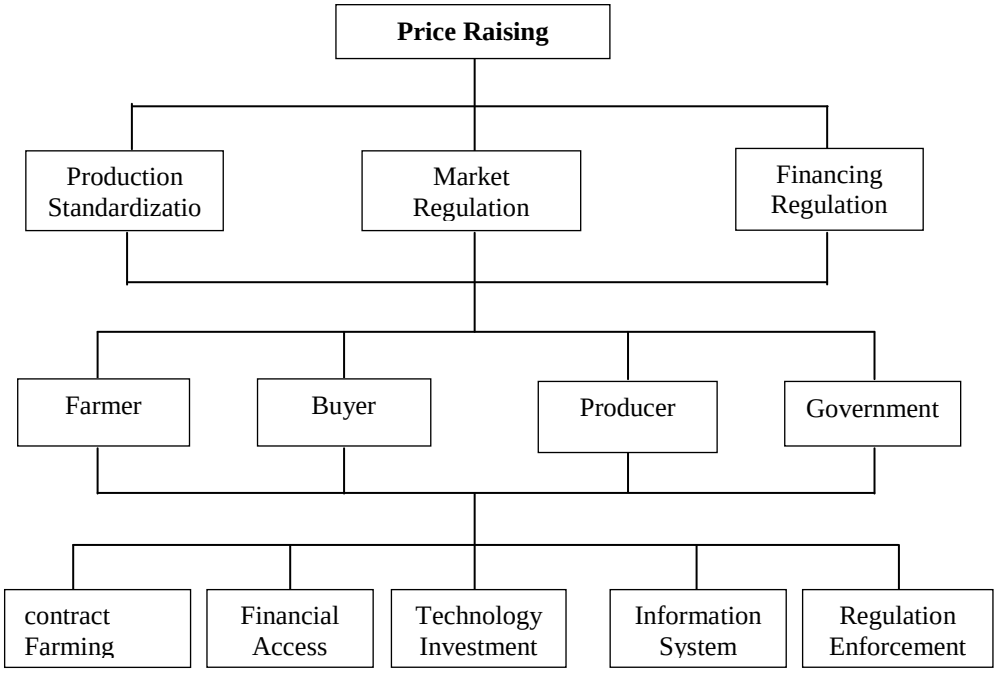


Figure 1. AHP hierarchical structure

2. Make a series of pairwise comparisons between elements according to the ratio scale. If the hierarchy has been arranged, the next step is to describe the priorities of each element at each level.
3. Use the eigenvalue method to estimate the weight relative of each element. Pairwise comparisons produce a relative ranking matrix for each level of the hierarchy. The number of matrices depends on the number of elements in each level. The composition of the matrix depends on the number of elements at the lowest level that connect them.

RESULTS AND DISCUSSION

The problems faced by salt farmers in East Java are the same as the problems faced by farmers in general, namely the demand and the instability of crop prices on the market. Salt is one of the commodities that have very high demand. Salt is used as a food ingredient in the community and raw materials from various industries, small and large industries. Therefore, the level of salt demand can be very high. Farmers can determine the price of salt for their crops and cover the shortage of the needs of the industry. Still, the conditions in the field show the opposite.

The existence of institutional theory (Institutional Theory) in the results of this study is emphasized in the pattern of relationships that create rules for all players in the salt industry in East Java from upstream, downstream to policymakers. The rules of the game that are applied to all organizations are the chain of rules in the salt industry, which has strong components in the form of actors and agreed rules. In running the marketing chain, several actors consist of farmers, collectors, industry, policymakers (government) to salt products in the hands of consumers. In each actor, he has a stake in creating rules of the game, which all stakeholders agreed upon. However, in practice in the field, the game rules are only dominated by a few actors, resulting in asymmetric information in determining the price system, the nominal selling price of salt, and the supply and demand needed by consumers.

This research tries to provide a strategy for improving the salt industry's institutional pattern in East Java. The analysis results are shown in 4 hierarchies of priority strategies, and then these priorities are applied to all actors. In the analysis results, a strategy will appear, which is indicated by the dominance of which actors play a dominant role in implementing the strategy. These results can be mapped a priority policy that should be done to minimize institutional governance problems in the salt industry in East Java.

Meanwhile, the agency theory is implemented in a relationship between all the actors contributing to the salt industry marketing pattern rules. There are two important terms in agency theory, namely agency, and principal. Each of them has their interests, triggering institutional conflicts that occur in the organization. The conflict causes unclear rules of the game, asymmetric information from the supply and demand side of the market, and price information. This condition will predominantly disadvantage actors such as farmers who have various limitations on access and capital. So far, the obstacles faced by salt farmers are also the result of a conflict of interest between the actors by prioritizing individual benefits.

Field observations show that farmers have difficulty selling their variety to the industry and can only sell their salt to cooperatives and middlemen. Farmers do not have the power to determine the selling price of their salt and play a role as a price taker. This condition is motivated by the difficulty of farmers directly selling their salts to the industry and the bonds between farmers and middlemen preventing them from selling their crops to others. This bonding occurs because of the lack of capital owned by the farmer so that the farmer makes a loan to the middleman with the payment of his harvest, but this is sometimes binding even though the loan has been paid off. Farmer is also forced to accept a lower price than the market price and accept the price determined by the middleman of the capital owner. This condition illustrates that the lack of financial access that farmers own also has a role in determining the price of harvest salt.

The government's salt import quota also determines the problem of salt prices on the market. The amount of substitution salt from abroad used by the industry will reduce the demand for local salt that the industry can use. On the other hand, foreign salt prices also tend to be cheaper than local salt prices, providing unrest for local salt farmers. Public unrest is also strengthened by games carried out by certain elements by hoarding imported salt and releasing it on the market during the salt harvest season. It makes the competition between local salt and imported salt even greater in the market.

As the user of salt as one of the raw materials for production, the industry prefers imported salt, which has good quality and higher NaCl content. One reason for the lack of local salt demand in the industrial sector is more due to the lack of NaCl content produced by local farmers, especially salt farmers in East Java, other than that the reasons for the level of cleanliness in the warehousing system and relatively higher

water content than imported salt. On the other hand, the salt cultivation method carried out by salt farmers in East Java mostly still uses traditional methods by utilizing solar and soil heat. Some farmers have used geomembrane media so that the yields obtained are cleaner. However, there are also obstacles in the warehousing system being implemented. The standardization of salt production produced by salt farmers in East Java also becomes an important point in determining the selling price of salt. The lack of standardization of salt yields makes local salt less competitive with imported salt products, so a strategy is needed to increase local salt prices in East Java.

This study uses the Analytical Hierarchy Process (AHP) to formulate a strategy to increase local salt prices in East Java using the analysis tool *Analytical Hierarchy Process* (AHP). Strategies used to increase local salt prices in East Java through standardization of salt production, market regulations, and financing regulations. The selection of the three regulations is based on identifying problems in the field carried out.

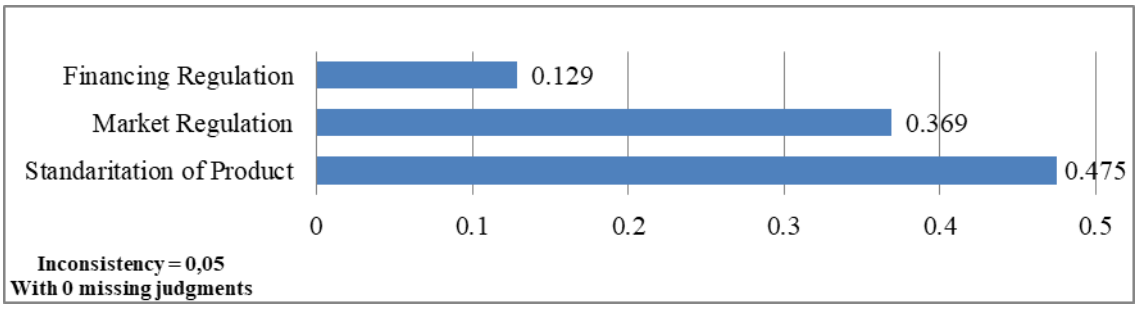


Figure 2. Strategic priorities in increasing local salt prices in East Java.

Figure 2 explains the strategic priorities to increase local salt prices in East Java with analysis tools Analytical Hierarchy Process (AHP). The strategy that has the priority that needs to be done is the standardization of salt production with 0.475. The market regulation strategy with a value of 0.396 becomes the second priority undertaken. On the other hand, the financing regulation strategy becomes the last priority strategy carried out with a value of 0.129.

The strategy to increase local salt prices in East Java requires efforts in product standardization. Some local salt products in East Java still have standards that do not meet industry criteria, one of which is still high water content, resulting in poor salt quality. So that if applied to industrial raw materials, the quality of industrial products is also not optimal. However, in recent years through efforts to improve the quality of local salt by the central and regional governments, the quality of local salt in East Java has begun to show significant improvement. This result is supported by several laboratory tests conducted by the East Java Maritime and Fisheries Service. The results showed that the salt originating from the countries of origin of imports, namely Australia and India, was caused, the NaCL levels of Australian salt were 92.99%, and India was 91.04%. At the same time, the results of NaCL levels from the local salt of the people of Sumenep East Java showed a figure of 94.10%. In vaginal discharge, Australian salt reaches 53.73%, India reaches 35.43%, while local salt reaches 57.31%. Australian salt is 0.01% in water content, Indian 0.07%, and local salt is Sumenep East Java, which reaches 0.01% (Rozack, 2018). These results confirm that the current quality of local salt with various efforts made by the government in terms of production technology can improve the quality and competitiveness of local salt in East Java. The quality of salt is determined by the content of water, NaCl, and vaginal discharge. It is also seen from the content of sodium and sodium, which has benefits for the body for

daily activities (Drake et al., 2011). The high demand for salt in people's daily consumption and the needs of the food industries require the government to meet the specified supply to reduce salt imports and improve local salt producers' welfare.

Furthermore, alternative policies that can be prioritized are related to market regulation, which becomes the path for marketing salt products. Various salt-related policies have been issued to encourage contribution to improving the quality and competitiveness of local salt. The position of local salt, which has been in decline for almost two decades, has impacted reducing the welfare of local farmers. In line with these conditions, the government as a policymaker takes various strategic steps through the Minister of Trade Regulation as outlined in Permendag No. 58 / M-Dag / Per / 9/2012 related to the import salt trade system. The Regulation of the Minister of Trade regulates import restrictions that are only allowed for consumption and industrial salt. This regulation provides leeway and the opportunity to supply local salt to ordinary households to cover daily needs (Rochwulaningsih, 2013). Then, this regulation is strengthened by the government's existence of new regulation, namely through Government Regulation No. 9 of 2018 concerning Procedures for Import Control for Fisheries Commodities and Contingents as Raw Materials and Industrial Auxiliary Materials. Based on the Government Regulation, the import of fishery and salt commodities must follow the relevant ministers' recommendations. The action was taken to minimize actions that could harm and protect local salt farmers (Pangestu, 2018).

On the other hand, capital is also important for developing products and improving the quality of local salt in East Java. Capital constraints are faced by some salt farmers on a small scale. The role of banks is very important to encourage the movement of capital to local salt farmers to achieve the expected production capital. Banks can play a role through loan capital in business loans specific to salt farmers with lighter and less burdensome collateral. Also, the payment system can be adapted to the system and cycle of salt farmers from start to harvest.

Every main strategy has its agent priority. In this study, three main strategies are used to increase the price of local salt in East Java. First is the Standardization of Salt Production, then Market Regulation and Financial Regulation. Figure 3 explains the priority of agents in the standardization of salt. The standardization strategy for salt agent production, which has an important role, is farmers with a value of 0.402. The agent with the second priority is the government with a value of 0.305. Producers and buyers are the third and fourth agent priority with values of 0.227 and 0.065.

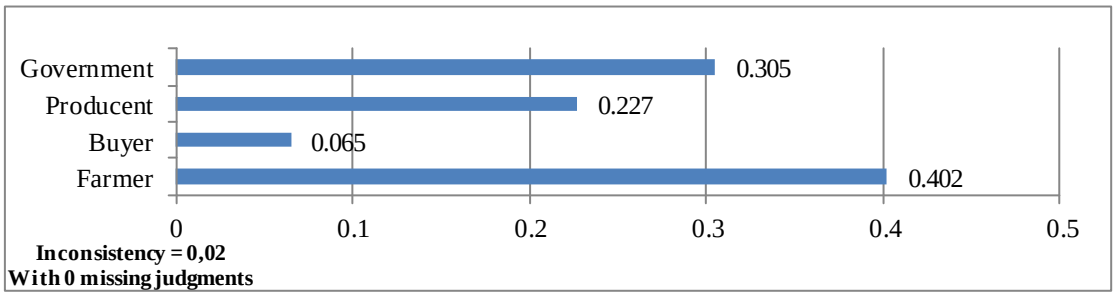


Figure 3. Priority of agents in the standardization of salt production

One of the problems salt farmers face in East Java is the lack of standardization of salt products produced to be less desirable by industry or producers. So to overcome this problem, it is necessary to have guidelines and socialization to farmers about how to produce good salt so that salt produced by salt farmers in East Java is more standardized

and can be accepted and following the criteria used by the industry. To realize this, the agents who have the main role in achieving the main strategy are farmers, the main actors in the salt production process. Farmers are expected to follow the guidelines for good salt production to have good quality. The agent that becomes the main actor after farmers is the government expected to create these guidelines.

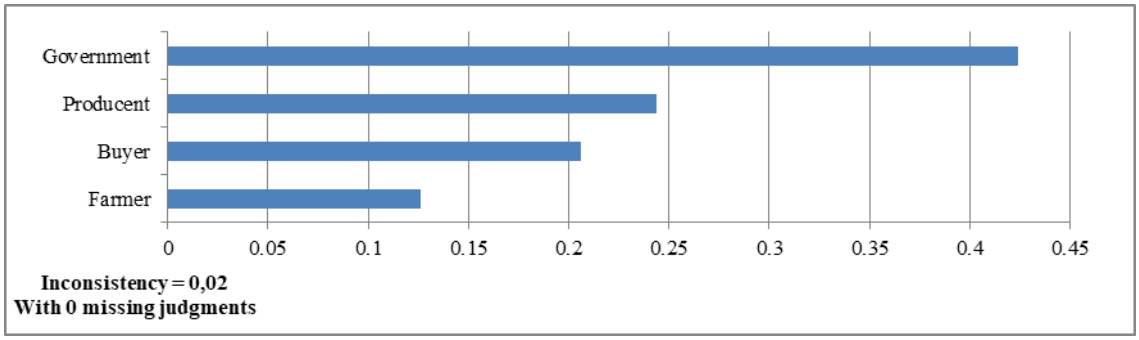


Figure 4. Priority of agents in market regulation

Agent market regulation strategy has the most important role in the government, with a value of 0.424. Furthermore, agents with an important role in the second market regulation are producers with a value of 0.244. Then the buyer and the farmer become agents with the third and fourth priorities with a value of 0.206 and 0.126.

One issue that arises and causes the low and unstable price of local salt is the large import quota allowed by the government (Muhandhis et al., 2019), which is utilized by certain agents so that there is a price game in the market. To minimize it, there is a need for a market regulation that regulates the percentage of salt used by the industry then limits the import quota of salt, which is increasingly narrowed, as well as farmers' protection in the form of determining the lower limit of local salt prices. To realize this, the agent who has the biggest role is the government.

The government has an important role in regulating the percentage of local salt use for industry parties, limiting the quota of salt imports, and determining the lower limit of local salt prices. With this regulation, it is expected that the level of demand and absorption of local salt will be greater and the price of salt on the market more stable. Then, the next most important agent is the producer. Producers have a significant role in the formation and implementation of market regulations. It is because producers are agents who can absorb local salt production in large quantities. Besides, producers are also actors and users of imported salt, so producer participation in realizing the market regulation is quite important.

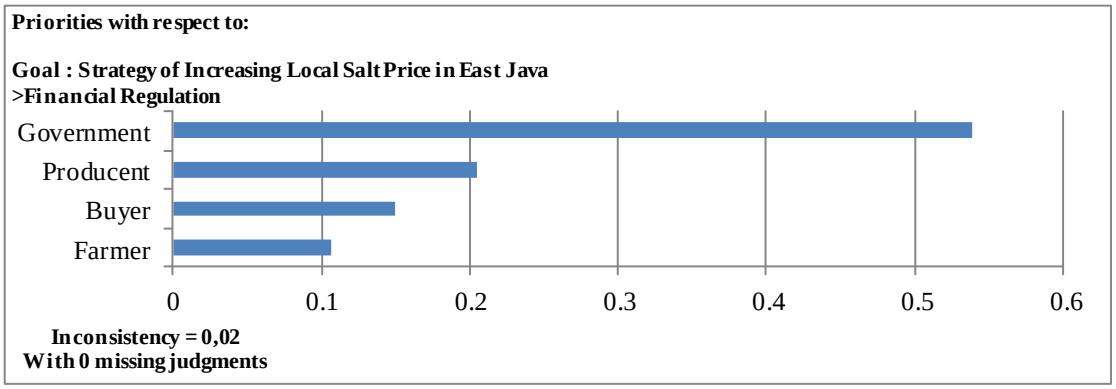


Figure 5. Agent priorities in financing regulations

An agent with an important role in strengthening financing regulations is the government, with a value of 0.539. The producer agent that has a value of 0.205 becomes the second priority. On the other hand, buyers and farmers are the third and fourth priorities with 0.150 and 0.106.

The emergence of the main strategy of financing regulation is motivated by the existence of a binding bond between farmers and middlemen caused by the lack of access of farmers to obtain capital loans. So to reduce this, it is necessary to have financing regulations involving certain agents. The analysis shows that the agents considered to have the most important role in creating financing regulations are the government and the producers. The role of the government in creating financing regulations for salt farmers in East Java will provide opportunities for farmers to access capital loans in financial institutions. It can make it easier for farmers to develop their salt cultivation and improve the quality of the salt they produce without having a relationship binding and detrimental to farmers. In addition to the government's role, creating financing regulations also needs support from producers who can absorb offers in salt harvest from farmers in East Java. Without absorption of large amounts of demand, the application of financial regulations will be difficult because of the ability of farmers to guarantee.

In addition to the main strategy that policymakers will carry out in general based on the analysis results, stakeholders also have the authority to choose and optimize their production. Based on the analysis results, farmers have several alternatives to increase the standardization of local salt production.

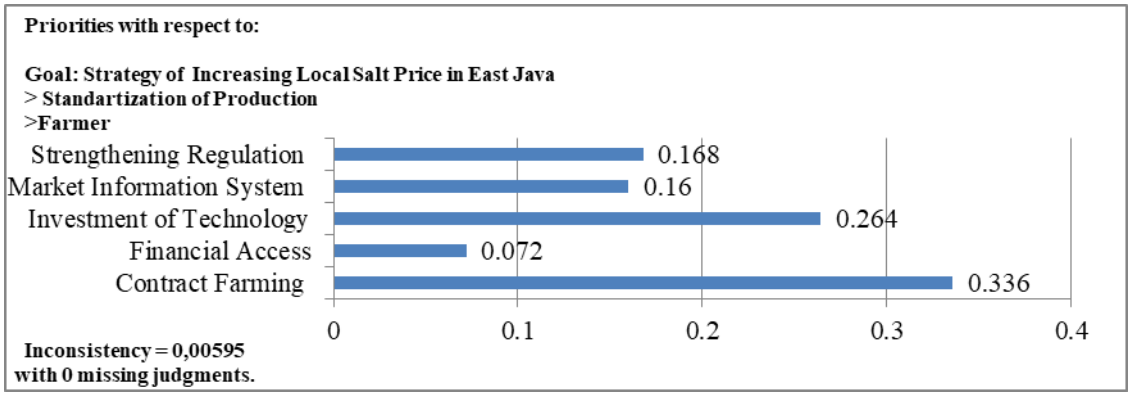


Figure 6. Farmer's strategic priority in salt production standardization

Priority strategies carried out by farmers to achieve an increase in local salt prices in East Java through standardization of production can be seen in Figure 6. The priority that farmers need to do by farmers in improving salt production standardization is contract farming. Strategy is contract farming a top priority because it has an index hierarchy of 0.336. The second priority that needs to be done is to increase technology investment with a value of 0.264. In the strategy of strengthening government regulation, it becomes the third priority with a value of 0.168. On the other hand, the market information system strategy with a value of 0.160 makes the strategy with the fourth priority. The index hierarchy value of 0.072 on the financial access strategy makes the strategy with the last priority.

To improve salt standards that need to be done by farmers, which is doing partnership or contract farming with companies so farmers will know the standards and

quality of salt as demanded by the industry or company. Contract farming as a form of institutional rules for local salt management in East Java will cover various aspects. Contract farming can be a reference, control, and control of salt farmers in conducting their production. Contract farming is bridging between farmers and companies or industries in increasing production results and maintaining production sustainability. With contract farming, farmers will know the standardization of production needed by the market, which meets the standards. They can break the marketing chain that started selling salt through middlemen, with the existence of contract farming that can be done directly with the company. It will reduce transaction costs and cut the marketing flow quite long so far.

In addition to the importance of contract farming, there needs to be a large investment, especially by the government, to maintain the sustainability of local salt production. This sustainability can be achieved when the quality and quantity of salt can follow the market's standards. It also becomes a benchmark for local salt competitiveness to increase competitiveness, impacting import performance that can be suppressed. Investment in technology has become very important, and this is because local farmers still use traditional methods, so that this will become an obstacle to increasing the quantity and quality of salt by market demand. The importance of technological investment, especially in salt production, will contribute to farmers obtaining high-quality salt. This technology is very important to be applied, especially in salt production and testing the quality of salt to obtain maximum results. High-quality production results will increase the price of salt to obtain higher income, which can increase welfare. Also, strengthening regulations, especially market regulation, is urgently needed because symmetrical price information is needed. There is no game in the institutional salt flow, especially in East Java. Transparency is needed especially concerning supply, demand, and prices in the market.

Another strategic priority that the buyer can carry out as one of the stakeholders that are quite instrumental in the local salt marketing chain is also very important to consider.

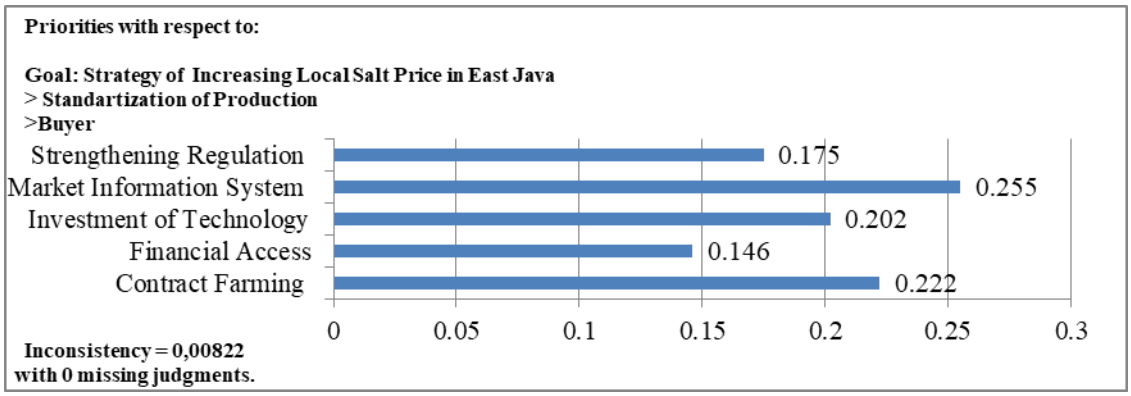


Figure 7. Buyer strategy priorities in salt production standardization

Figure 7 explains that the market information system strategy is the priority that needs to be done. It can be seen from the index value *hierarchy* of 0.255. Meanwhile, the contract farming strategy became the second strategy with a value of 0.222. Strategic technology investment has a value of 0.202, making the strategy a third priority. The strategy of strengthening government regulations and easy access to

finance with a value of 0.175 and 0.22 make the fourth and fifth priorities.

Based on the analysis results, the buyer has the first strategic priority regarding market information systems. Buyers as distributors and buyers need openness and full information about the market to determine the amount of price applied when buying salt from farmers. Besides, buyers also need contract farming, which will guide buyers regarding the openness of demand and supply of goods. Information disclosure is very important to know market conditions as well as the quality required. So the buyer can distribute the information to farmers so that it can be an effort to encourage the quality of local salt products.

Other stakeholders who have a very important role, namely producers, are especially related to the quality and standards of production. The analysis shows that contract farming is an alternative to a very powerful and dominant strategy that must be carried out.

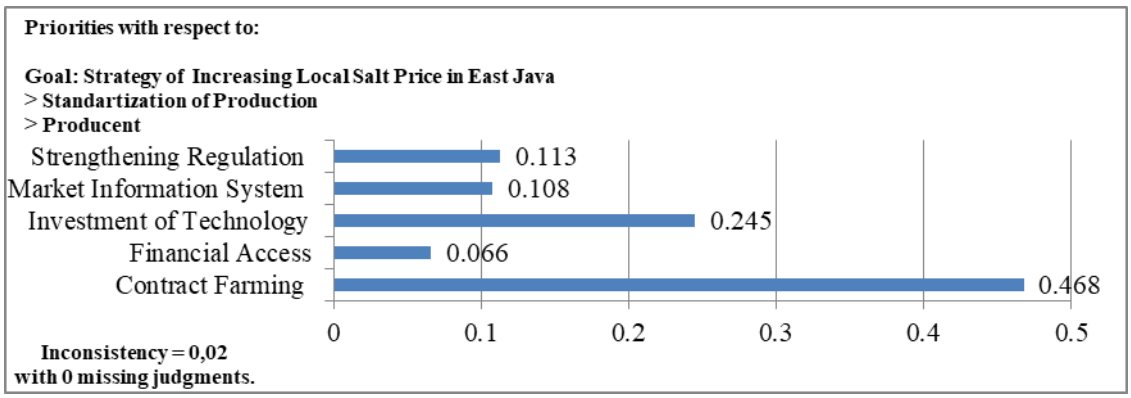


Figure 8. The priority of producer strategies in salt production standardization

Figure 8 explains the priority strategies that need to be carried out by producers in increasing salt production standardization. The priority strategy that needs to be done to improve the standardization of salt production for producers is contract farming. The strategy is to contact farming a top priority because the index value is hierarchy 0.468. The second priority made by producers is technology investment with a value of 0.245. Meanwhile, strategies to strengthen government regulations, market information systems, and financial access are the third, fourth, and fifth priorities with a value of 0.113, 0.108, and 0.066.

Contract farming is an action that is important to be implemented because it can be a solution to some complex problems that occur. Through contract farming, internal and external relations between all stakeholders can become more intense. The information obtained can also be easily achieved both from production, management, marketing, and the fulfillment of quality standards of production results. Another strategy that can be done through technology investment. Producers as partners of salt farmers have the right to make technology investment efforts to increase the quality of salt production according to the reference standard. This investment can be made according to a legal agreement made between the farmers and producers.

While from the government's side, as a policymaker that regulates the flow and management system and marketing of regional wealth, the government has the right to make strategies in improving salt quality standards from salt production.

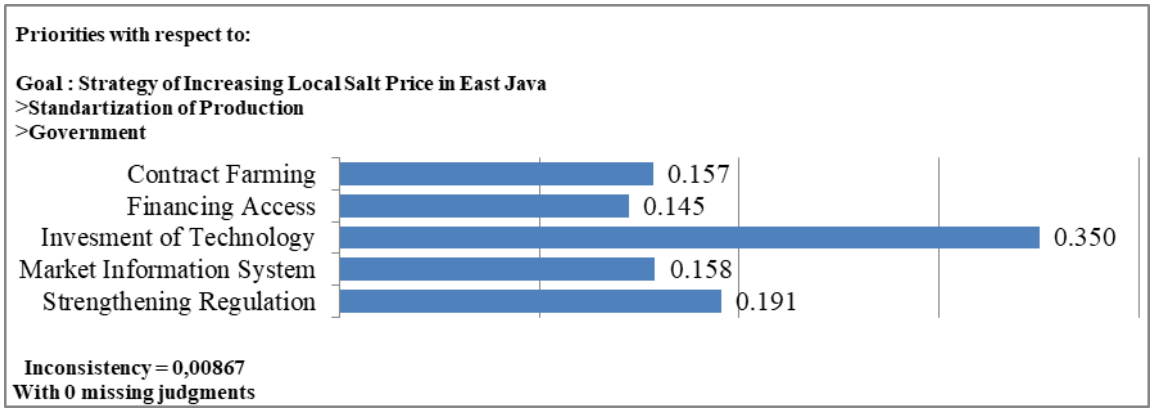


Figure 9. Priority government strategies in salt production standardization strategy

Priorities undertaken by the government in increasing salt production standards are technology investments with a value of 0.350. The strategy to strengthen regulation becomes the second priority strategy with a value of 0.191. In the market information system becomes the third priority with a value of 0.158. On the other hand, the contract farming strategy becomes the fourth strategy with a value of 0.157, almost the same as the market information system strategy. The strategy with the last priority is financial access with a value of 0.145.

Based on the analysis results, technology investment is a powerful alternative for the government to meet the local salt quality standards. In recent years, the government has been trying to invest in technology to improve the quality and quantity of local salt production. Between investments that have been made also show success even though massively have not achieved maximum success. This result is supported by the performance of the local salt quality in East Java that can reach the desired standard based on the results of laboratory tests in the East Java Fisheries and Fisheries Service. In addition to technology investment, strengthening policies is a strategy that is quite a priority because the government has full power in managing policies appropriately and well following the existing field conditions.

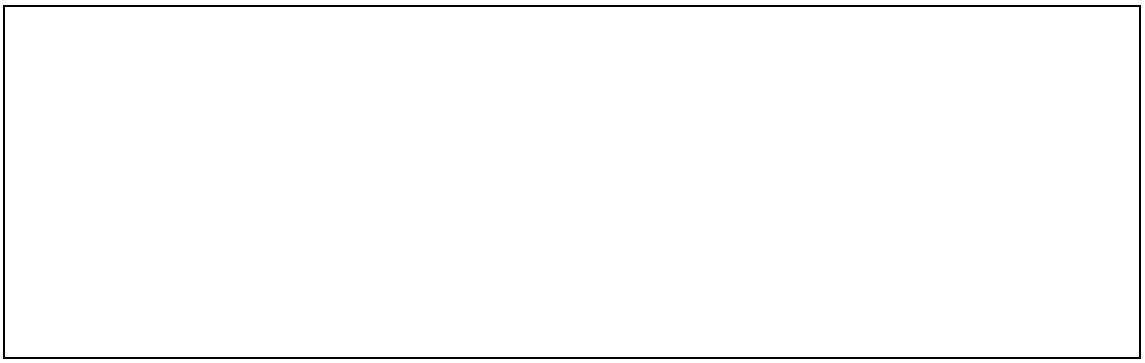


Figure 10. Priority farmers' strategies in market regulation

Improving market regulations that need to be a priority strategy by farmers is strengthening government regulations. It can be seen from the index value hierarchy of 0.310. The second priority strategy in improving market regulation by farmers is contract farming with a value of 0.287. The index hierarchy value of 0.26 on the market information system strategy makes the strategy the third priority. Meanwhile, technology investment strategies and financial access have 0.75 and 0.68, making strategies with fourth and fifth priorities.

Farmers' strategic priorities are related to the first market regulation, which is strengthening government regulations, and the second priority is contract farming strategy. Strengthening government regulations related to market mechanisms is urgently needed by farmers because it is expected to protect the price of salt in the market so that farmers receive revenue commensurate with the management effort that they are working on. The strategy can be in the form of a minimum salt price in the market. Effective implications are linked to the protection of consumers and producers so that all parties involved receive mutual benefits. Also, contract farming is a second top priority for farmers in market regulation because one of the important drivers in increasing farmer production is contract farming (Niu et al., 2016). One of the existence of contract farming is that increasing farmer productivity reduces supply chain risk, streamlines marketing activities, facilitates farmers' access to a larger market, and increases total profits for companies and farmers (Wang et al., 2014). Therefore, contract farming can reduce crop uncertainty, facilitate the adoption of new production technologies, and increase output with lower production costs.

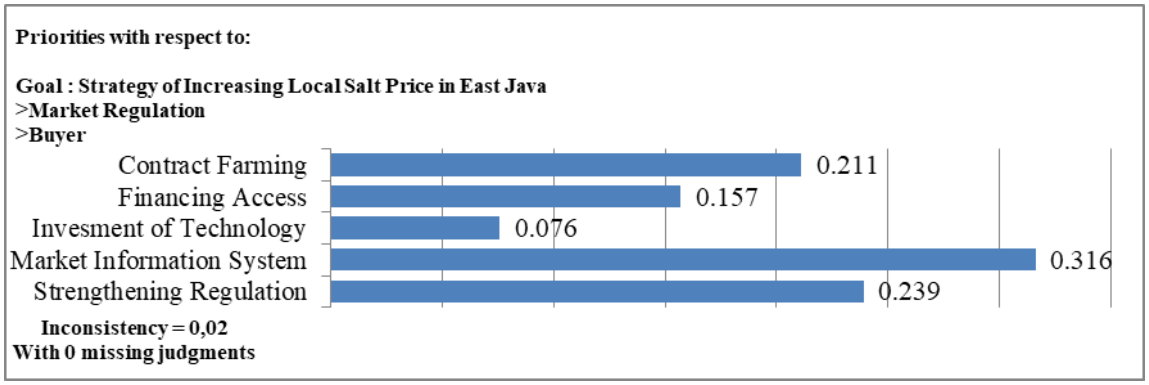


Figure 11. Priority of buyer strategy in market regulation

The buyer determines strategy priority that needs to be done in improving market regulation is a market information system. This condition can be seen from the index value hierarchy of 0.316. The second priority for buyers to improve market regulation is to strengthen government regulations with a value of 0.239. Meanwhile, strategy contract farming became the third priority with a value of 0.211. The fourth and fifth priority strategies are financial access and technology investment with values of 0.157 and 0.076.

The buyer's priority is market regulation, the market information system strategy, and government regulation. The existence of a market information system forms a more complex, effective, and efficient supply chain to complete transactions and transfer information related to the ability to provide production needs (Gereffi et al., 2005). A market information system unites various data items into a coherent whole for decision-making needs, such as improving the planning, implementation, and control of product marketing (Food and Agriculture Organization of the United Nations, n.d.). Therefore, with the development of market information systems, buyers can easily obtain complete information about the products they want to buy based on the desired quality and quantity. Besides strengthening government regulations that are also strict in maintaining the market mechanism running, all parties involved in economic activities obtain benefits and benefits.

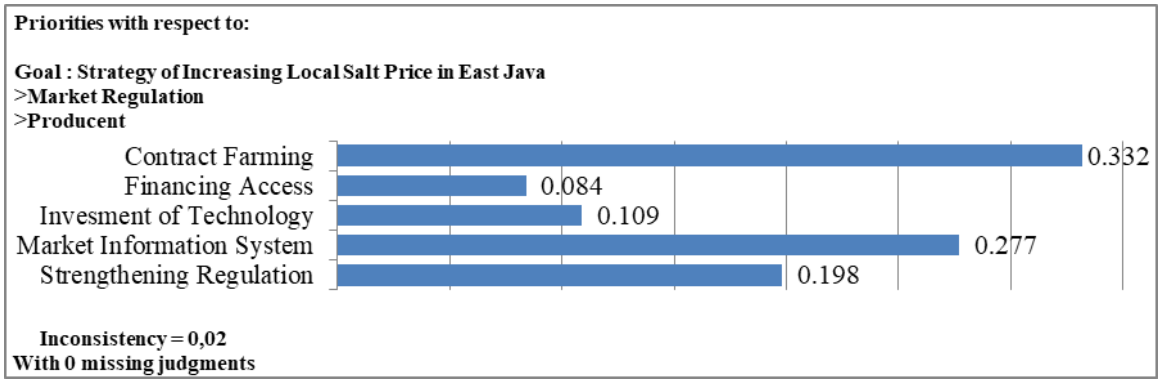


Figure 12. Priority of producer strategies in market regulation

The strategic priority producers need to improve market regulation is an increase in contract farming with a value of 0.332. In the market information system, strategy is the second priority, with a value of 0.277. The index hierarchy value of 0.198 owned by the strengthening of market regulation makes strategy a third priority. Meanwhile, technology investment strategies and financial access become the fourth and fifth strata with 0.109 and 0.084.

Producer strategy priorities related to market regulation based on AHP analysis are contract farming and the two market information systems. There is a binding agreement between the farmer and the production company or other parties involved in processing in contract farming. This agreement does not rule out the possibility of conflict to get a significant positive influence from contract farming. It requires appropriate institutional arrangements that can reach all parties, especially farmers (both farmers who are relatively poor and rich in their areas) (Ton et al., 2017; Wuepper & Sauer, 2016). Therefore, a party involved in contract farming needs to make an agreement that can benefit all parties. Next, the second strategic priority is a market information system that is very important for the production process because it involves information on the supply of raw materials (inputs) production.

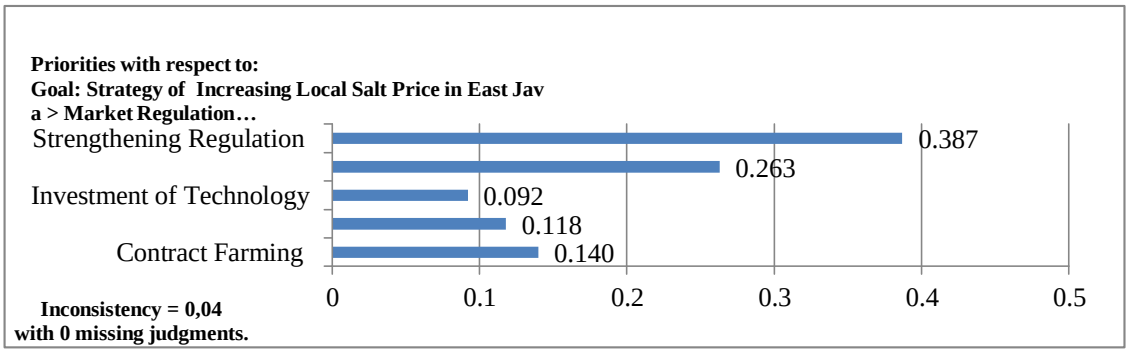


Figure 13. Priority government strategies in market regulation

The government in improving market regulation has a strategic priority that needs to be done is to strengthen government regulation. The strategy of strengthening government regulation is a priority based on the results of the AHP analysis with a value of 0.387. The second strategy priority with a value of 0.263 is the market information system. The contract farming strategy becomes the third strategy with a value of 0.140. Meanwhile, financial access and technology investment strategies are the fourth and fifth strategic priorities with 0.118 and 0.092.

The priority of the market regulation strategy by the government is the strengthening of government regulations, and the second is the strengthening of market information systems. Strengthening government regulations is a top priority because this aspect is the basis or basis used as a reference for conducting economic activities without violations that can harm either party. In addition to regulations made appropriately and relevant by developing conditions, the government can also facilitate developing market information systems. Based on the explanation from FAO, the market information system has four components: an internal reporting system, a marketing research system, a marketing intelligence system, and a marketing model.

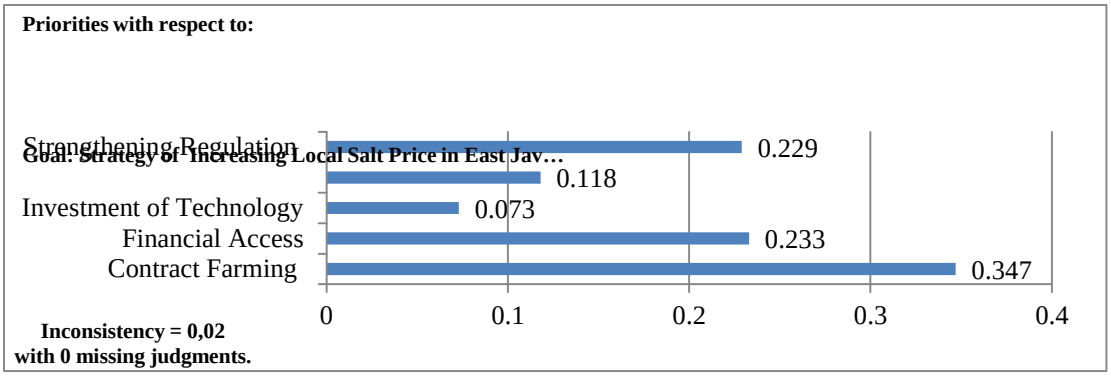


Figure 14. Priority farmers' strategies in financing regulation

Prioritas strategy carried out by farmers in financing is to increase contract farming. A value of 0.347 makes contract farming a top strategic priority. The second priority strategy is financial access with a value of 0.233. On the other hand, strengthening government regulation is the third strategy with a value of 0.229. Values reaching 0.118 and 0.073 make the fourth and fifth priority of the market information system strategy and technology investment.

The first strategic priority by farmers is related to financing regulations based on the results of the AHP analysis, namely contract farming, and the second priority is financial access. Contract farming creates a surplus, increases farmers' access to production, credit, and technology inputs, and increases output and productivity (Maertens and Vande Velde, 2017). Contract farming can reduce production risks between farmers and buyers. Contract farming will succeed in a supportive environment, which means that political, legal, and financial factors must support the private sector and contract farming (Kristianto, 2013). Next, the second priority is the financial access strategy for farmers, making it easy for them to obtain capital for the production process. With adequate financial access, it will support the performance and productivity of salt farmers because they have sufficient capital to process and supply production inputs.

Figure 15. Priority buyer strategies in financing regulations

Figure 15 explains the priority of buyer strategies in financing regulation. The priority strategy according to the buyer in financing regulations is financial access with a value of 0.271. The second strategic priority in financing regulation for Bayer is contract farming with a value of 0.233. Strengthening government regulations became the third regulation with a value of 0.215. Market information systems and technology investments are the fourth and fifth strategic priorities with 0.197 and 0.085.

The buyer's strategic priority is related to the first financing regulation: financial access and second contract farming. Providing financial access makes it easier for buyers to obtain capital to purchase products so that the economic process can run smoothly. Furthermore, related to the strategy of contract farming for buyers for financing regulations, the buyer has the function of buying and marketing salt and bears the burden of production risk. The buyer shares the burden of production risk by investing in or investing in salt cultivation. There will be a good relationship between the farmer and the buyer because the buyer can foster and meet the needs of farmers. Contract farming that farmers need from buyers, such as the choice of planting location, preparation of nursery land and development of salt cultivation, technical assistance in cultivation, and production management to increase the production of salt farmers, is the profit gained by farmers. At the same time, the profit obtained by the buyer is that the buyer obtains a continuous supply with quality and quality by the agreement.

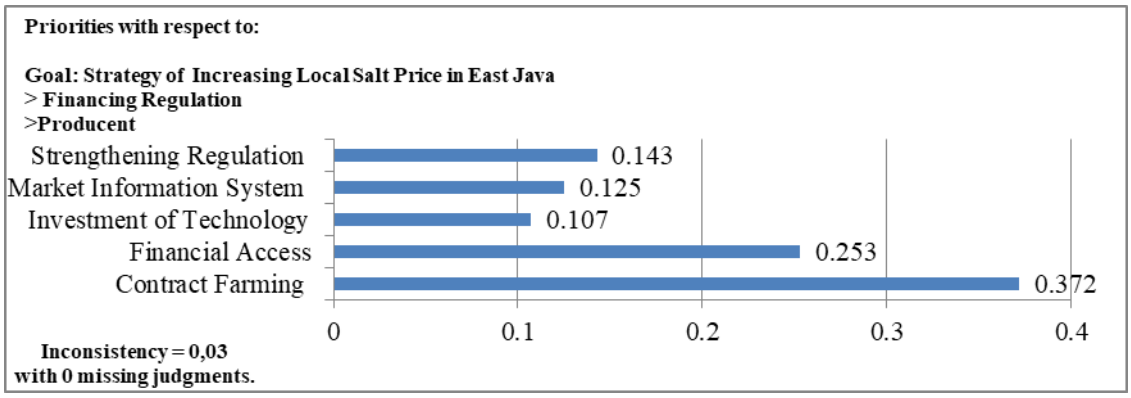


Figure 16. Priority of producer strategies in financing regulations

A priority strategy was undertaken by producers in strengthening financing regulations in contract farming with a value of 0.372. Financial access is the second strategy with a value of 0.253. Strengthening government regulations became the third regulation with a value of 0.143. Market information systems and technology

investment are the fourth and fifth priorities with values of 0.125 and 0.107.

The analysis results using the AHP method show that the priority of the producer strategy is related to financing regulations, namely establishing cooperation with salt farmers in East Java in the form of partnership relations. With a partnership relationship, producers can also provide capital for partner salt farmers with agreements that both parties have agreed. Then the second priority of producers is financial access. The partnership between producers and farmers shows that producers demand farmers to standardize the quality of salt used in their production activities. To achieve this, farmers need capital greater than previously. Therefore, financial access becomes a very important part for farmers (International Finance Corporation, 2014). Producers can act as a liaison between farmers and financial institutions to be able to obtain capital loans. Therefore, further schemes are needed regarding capital lending procedures involving three business actors. First, the scheme that can be used is that the producer only acts as a liaison without further involvement in the guarantee process carried out by farmers, including the level of the guarantor. Then the second scheme is with the intervention of producers in the capital loan process, the producer also has a role as a guarantor to financial institutions.

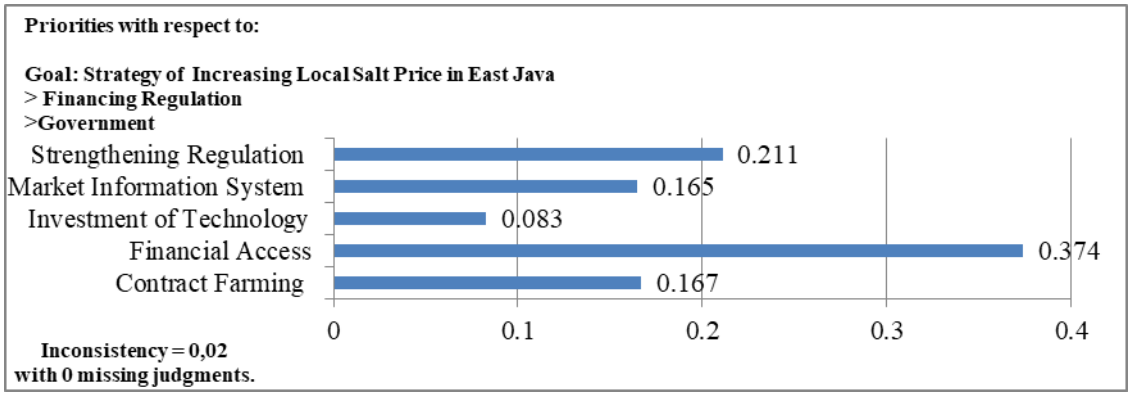


Figure 17. The government's strategic priorities in financing regulations.

The government in strengthening financing regulations has a strategic priority: easy access to finance with a value of 0.347. The second priority in strengthening financing regulations from the government is strengthening regulations. On the other hand, contract farming is the third priority, with a value of 0.167. Market information systems and technology investments become the fourth and fifth strategies with values of 0.165 and 0.374.

An alternative government priority in terms of financing regulations is to increase the ease for salt farmers in East Java to access finance, considering financial access is one of the important factors in agricultural activities (Corporación Financiera Internacional, 2011; Tulman, 2014). The government has an important role in connecting financial institutions and salt farmers in East Java to access and obtain capital loans from financial institutions. The ease of access to finance for salt farmers in East Java can be realized by government intervention in the formation of access by entering into agreements with financial institutions to provide access to capital loans for salt farmers in East Java. Access to finance is one factor that also determines the price of salt received by farmers. Therefore, with financial access being bridged by the government, farmers can have little power to determine the price of their harvest salt. It can also be supported by strengthening government regulations related to limiting the

number of salt imports and determining the lower limit of salt prices that farmers can accept. With this clarity, the financial institutions can trust and calculate the ability of farmers to repay capital loans.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The problem with the price of salt is caused by the institutional problems of the actors who are not transparent, giving rise to information asymmetry, which causes the condition of the salt price to weaken. The salt price problems can be grouped into salt quality, salt demand level, and capital problems. A hierarchy was formed with three main policy strategies to increase local salt prices in East Java: product standardization, market regulation, and financial regulation. Based on the three main objective strategies, we included agents or actors involved in the three aspects. These aspects are farmers, buyers, producers, and the government. The final arrangement of the hierarchy is five alternatives that can be done, first farming contract, access to finance, technology investment, information systems, and strengthening regulations.

Recommendations

The policy strategy for increasing local salt prices in East Java is the standardization of production, market regulation, and financial regulation. The agents or actors who have the most important roles in standardizing production are farmers and the government. The most important actors in market regulation are the government and then the producers. Governments and producers have the largest role in financial regulation. Furthermore, to standardize products, the strategy that becomes the main priority for farmers and producers is contract farming and technology investment. From the buyer side, the priority strategy is market information system and contract farming, while from the government side is a technology investment and regulatory strengthening.

In the context of the market regulation strategy, the policy priorities undertaken by farmers are strengthening regulations and contract to farm. In contrast, the policy priorities for buyers are the market information system and strengthening regulations. The alternative producers of policies that are priorities, namely contact farming and market information systems. The alternative government policies become priorities in market regulation, namely strengthening regulations and market information systems. Furthermore, alternatives that become policy priorities for farmers and producers in financial regulation strategies are contract farming and financial access. For buyers, the main priority of alternative policies is financial access and contract farming. From the government side, the alternative policy priorities are access to finance and strengthening regulations.

REFERENCES

Badan Pengkajian dan Pengembangan Perdagangan. (2016). Info Komoditi Garam. Salim, Z. & Munadi, E. (Eds.). Jakarta: Al Mawardi Prima.

Biesenthal, C., Clegg, S., Mahalingam, A., & Sankaran, S. (2018). Applying institutional theories to managing megaprojects. *International Journal of Project Management*, *36*(1), 43–54. https://doi.org/10.1016/j.ijproman.2017.06.006

Clegg, S. (1981). Organization and Control. *Administrative Science Quarterly*, *26*(4), 545–562. https://doi.org/10.1093/OBO/9780199756384-0068

Corporación Financiera Internacional. (2011). *Scaling Up Access to Finance for Agricultural SMEs Policy Review and Recommendations*. *October*, 79. http://documents.worldbank.org/curated/en/477491468162872197/pdf/713200WP0Box37000Agrifinance0Report.pdf

Dizioli, A., Guajardo, J., Klyuev, V., Mano, R., & Raissi, M. (2016). Spillovers from China's Growth Slowdown and Rebalancing to the ASEAN-5 Economies. *Working Paper*. International Monetary Fund.

Drake, S. L., Lopetcharat, K., & Drake, M. A. (2011). Salty taste in dairy foods: Can we reduce the salt? *Journal of Dairy Science*, *94*(2), 636–645. https://doi.org/10.3168/jds.2010-3509

Feldman, E. R. (2020). Corporate Strategy: Past, Present, and Future. *Strategic Management Review*, *1*(1), 179–206. https://doi.org/10.1561/111.00000002

Food and Agriculture Organization of the United Nation. (n.d.). *Chapter 9: Marketing Information Systems*. Retrieved May 10, 2020, from http://www.fao.org/3/w3241e/w3241e0a.htm

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78–104. https://doi.org/10.1080/09692290500049805

Jensen, M.C. & Meckling, W.H. (1976). Theory of the Firm: Managerial Behavior, Agency Cost and Ownership Structure. *Human Relations*, 3(4), 305–360.

Kristianto, F. (2013). *An introduction to Contract Farming*. Technical Centre for Agricultural and Rural Cooperation (ACP-EU), 1–8.

Laiho, T. (2011). *Agency theory and ownership structure-Estimating the effect of ownership structure on firm performance*. [Master's thesis] 87. Department of Economics, Aalto University, School of Economics. Retrieved from: https://aaltodoc.aalto.fi/handle/123456789/629

Lewis, A. C., Cardy, R. L., & Huang, L. S. R. (2019). Institutional theory and HRM: A new look. *Human Resource Management Review*, *29*(3), 316–335. https://doi.org/10.1016/j.hrmr.2018.07.006

Li, H., Ni, F., Dong, Q., & Zhu, Y. (2018). Application of analytic hierarchy process in network level pavement maintenance decision-making. *International Journal of Pavement Research and Technology*, *11*(4), 345–354. https://doi.org/10.1016/j.ijprt.2017.09.015

Maertens, M., & Vande Velde, K. (2017). Contract-farming in Staple Food Chains: The Case of Rice in Benin. *World Development*, *95*, 73–87. https://doi.org/10.1016/j.worlddev.2017.02.011

Mahalingam, A., & Levitt, R. E. (2007). Institutional theory as a framework for analyzing conflicts on global projects. *Journal of Construction Engineering and Management*, *133*(7), 517–528. https://doi.org/10.1061/(ASCE)0733-9364(2007)133:7(517)

Muhandhis, I., Susanto, H., & Asfari, U. (2019). Development of system dynamics model to increase salt fulfillment ratio. *Procedia Computer Science*, *161*, 867–875. https://doi.org/10.1016/j.procs.2019.11.194

Niu, B., Jin, D., & Pu, X. (2016). Coordination of channel members' efforts and utilities in contract farming operations. *European Journal of Operational Research*, *255*(3), 869–883. https://doi.org/10.1016/j.ejor.2016.05.064

Pangestu, R. G. (2018). Perlindungan Hukum terhadap Petambak Garam Rakyat Dikaitkan dengan Berlakunya Peraturan Pemerintah Nomor 9 Tahun 2018 tentang

Tata Cara Pengendalian Impor untuk Komoditas Perikanan dan Pegaraman sebagai Bahan Baku dan Bahan Penolong Industri. *Dialogia Iuridica*, *10*(1), 77–95. https://doi.org/10.28932/di.v10i1.1064

Rochwulaningsih, Y. (2013). Tata Niaga Garam Rakyat Dalam Kajian Struktural. *Jurnal Sejarah Citra Lekha*, *17*(1), 59–66.

Rochwulaningsih, Y. (2017). Salt Production Business Potential in Aceh as Capital for the Coastal Communities Welfare. *Journal of Maritime Studies and National Integration*, *2*(1), 23–30. https://doi.org/10.14710/jmsni.v2i1.2882

Rochwulaningsih, Y., Sulistiyono, S. T., Utama, M. P., Masruroh, N. N., & Rukayah, S. (2019). Traditional knowledge system in palung salt-making in Bali Island. *Journal of Ethnic Foods*, *2*, 4–10. https://doi.org/https://doi.org/10.1186/s42779-019-0018-2

Rozack, A. (2018). *Hasil Penelitian Lab, Kualitas Garam Lokal Lebih Bagus dari Impor*. Jawa Pos. https://radarsurabaya.jawapos.com/read/2018/02/21/51283/hasil-penelitian-lab-kualitas-garam-lokal-lebih-bagus-dari-impor

Santosa, G. W. (2015). Development of Traditional Salt Production Process for Improving Product Quantity and Quality in Jepara District, Central Java, Indonesia. *Procedia Environmental Sciences*, *23*(Ictcred 2014), 175–178. https://doi.org/10.1016/j.proenv.2015.01.027

Slimane, B.K., Chaney, D., Humphreys, A., & Leca, B. (2019). Bringing institutional theory to marketing: Taking stock and future research directions. *Journal of Business Research*, *105*, 389–394. https://doi.org/10.1016/j.jbusres.2019.06.042

Sudaryana, B., & Pramesti, P. (2018). The Strategy of Welfare Improvement for Salt Farmers in Indonesia. *MATEC Web of Conferences*, *05062*, 1–7. https://doi.org/https://doi.org/10.1051/matecconf/201815005062 The

Ton, G., Desiere, S., Vellema, W., Weituschat, S., & D'Haese, M. (2017). The effectiveness of contract farming for raising income of smallholder farmers in low- and middle-income countries: a systematic review. *Campbell Systematic Reviews*, *13*(1), 1–131. https://doi.org/10.4073/csr.2017.13

International Finance Corporation. (2014). *Access to Finance for Smallholder Farmers*. Washington, DC: International Finance Corporation. Retrieved from: https://openknowledge.worldbank.org/handle/10986/21679 License: CC BY 3.0 IGO

Wang, H. H., Wang, Y., & Delgado, M. S. (2014). The transition to modern agriculture: Contract farming in developing economies. *American Journal of Agricultural Economics*, *96*(5), 1257–1271. https://doi.org/10.1093/ajae/aau036

Wati, Y. M., Daryanto, A., & Setiawan, I. (2018). Pengembangan Strategi Bersaing PT. Garam (Persero) Dalam Tataniaga Garam Indonesia. *Jurnal Kesejahteraan Sosial*, *2*(01), 21–27. https://doi.org/10.31326/jks.v2i01.149

White, G. P. (1987). The implementation of management science in higher education administration. *Omega*, *15*(4), 283–290. https://doi.org/10.1016/0305-0483(87)90016-8

Wuepper, D., & Sauer, J. (2016). Explaining the performance of contract farming in Ghana: The role of self-efficacy and social capital. *Food Policy*, *62*, 11–27. https://doi.org/10.1016/j.foodpol.2016.05.003

Yavuz, F., & Baycan, T. (2013). Use of Swot and Analytic Hierarchy Process Integration as a Participatory Decision Making Tool in Watershed Management.

Procedia Technology, *8*, 134–143. https://doi.org/10.1016/j.protcy.2013.11.019

Yusuf, F., Yousaf, A., & Saeed, A. (2018). Rethinking agency theory in developing countries: A case study of Pakistan. *Accounting Forum*, *42*(4), 281–292. https://doi.org/10.1016/j.accfor.2018.10.002

Internal auditors' quality as a mediation variable in fraud prevention in the government of Jambi Province

Netty Herawaty[1]; Haryadi Haryadi[2*]; Enggar Diah Puspa Arum[3]; Sri Rahayu[4]

Faculty of Economics and Business, Universitas Jambi, Indonesia

**To whom correspondence should be addressed. Email: haryadikamal@gmail.com*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.11378	15.12.2020	22.04.2021	14.07.2021	31.08.2021

Abstract

This study aims at examining and analyzing the effect of the government internal control system and the role of internal auditors directly and indirectly on fraud prevention through the quality of internal auditors. This study uses primary data obtained from questionnaires distributed to examiners in 11 districts/municipalities within the province and representatives of the Jambi Province Financial and Development Supervisory Agency. Sampling was carried out on the entire population, namely auditors with the functional auditor position, amounting to 272. The samples processed were 225 people. SEM-PLS has been employed as the main tool of analysis. The results showed that the government internal control system variable directly or indirectly affected fraud prevention. Meanwhile, the role of internal auditors does not directly affect fraud prevention. This variable affects fraud prevention through the mediating variable of the quality of the internal auditors as the quality of the internal auditors is said to be the full mediation.

Keywords: *Fraud, Government, Internal auditors*

JEL Classification: M42, M48

INTRODUCTION

The function of internal examination is to ensure the reliability of the information, conformity with policies, plans, procedures and laws and regulations, protection of assets, use of resources economically and efficiently, and achievement of objectives (Institute Internal Auditors (IIA), 2016). Internal control is the processes, policies, and procedures designed by management to ensure reliable financial reporting and financial reporting in accordance with the applicable accounting framework. Auditors need to consider assessing the severity of internal control weaknesses, including the vulnerability of assets or liabilities to loss or fraud (Tuanakotta, 2014). The Indonesian Government issued Government Regulation Number 60 of 2008 concerning Government Internal Control System (SPIP). This Government Regulation aims to provide adequate assurance on achieving organizational goals through effective and efficient activities, financial reporting reliability, safeguarding state assets, and compliance with laws and regulations.

Government Regulation number 60 of 2008 in article 48 explains that internal supervision is carried out by the Government Internal Supervisory Apparatus (APIP).

APIP conducts internal supervision through: (1) audit; (2) review; (3) evaluation; (4) monitoring; and (5) other supervisory activities. The government internal control apparatus, as referred to in Article 48 paragraph (1) consists of: (1) BPKP; (2) Inspectorate General or other names that functionally carry out internal control; (3) Provincial Inspectorate; and (4) District/municipality Inspectorate. Apparatus behavior must be maintained, and therefore it is necessary to formulate an APIP code of ethics, to maintain the quality of the results of audits conducted by government internal control officials in accordance with audit standards.

The ability of the Government Internal Control System (SPIP) to achieve the goals of an organization requires the role of an internal auditor. The main focus in the past, the role of the internal auditor, was as a watchdog in the company. Whereas now and in the future, the modern internal auditing process has shifted to become an internal consultant who provides input in the form of thoughts to improve the existing system and act as a catalyst. The function of the internal auditor as a watchdog makes its presence less favorable by other organizational units. The consultant function for internal auditors is a relatively new role. The consultant's role brings internal auditors to always increase their knowledge of the auditor profession and the business aspects to assist management in solving a problem. The ability to recommend solving a problem for the internal auditor can be obtained through years of experience in auditing various functions in the company (Srihadi, 2018).

The level of corruption in Indonesia is currently still very high; this can be seen from the Corruption Perspective Index (CPI) results in 2018. The country's score is 38, with a rating of 89. Procurement is one of the biggest sources of corruption in the public financial sector. The Indonesian public procurement system is widely believed to be the main source of budget leakage that allows corruption and collusion, which has contributed greatly to the deterioration of services for Indonesia's poor people (Tuanakotta, 2007).

Jambi Province consisting of nine districts and two cities. Based on the results of an audit conducted by the Indonesian Financial Audit Agency (BPK), representatives of Jambi Province obtained an opinion on the Financial Statements of the regency/city government in the Jambi Province for 2018 to obtain an unqualified opinion. Obtaining opinions in the 2018 fiscal year, all districts and cities in Jambi Province obtained unqualified opinions. The Audit Results Report shows that evidence of the performance of Jambi Province is getting better and shows that there is an opinion achievement in financial statements. The achievement of this opinion cannot be separated from the role of an internal auditor in resolving financial system issues and supervision. The role of internal auditors has now shifted from being a watchdog to a catalyst and consultant role. Pickett (2010) states that there is a shift in the role of the old auditor into a new dimension.

Based on the Audit Results Report (LHP), Jambi province financial audit agency has shown the acquisition of good opinions. For the 2018 financial reports, all districts/cities received unqualified opinions. The increase in the acquisition of unqualified opinion from the Financial Audit Agency (BPK) does not guarantee that fraud in the regional government does not occur, which eventually becomes an act of corruption. Some of the problems are related to conditions in Jambi Province; namely, there are still many corruption cases in government and non-government (Gabrillin, 2018).

In 2016 each agency must assess the maturity of each Government Internal Control System (SPIP). The Financial and Development Supervisory Agency (BPKP)

has provided Regulation of the Head of BPKP Number 4 of 2016 concerning assessment guidelines and strategies for increasing the maturity of the Government Internal Control System (SPIP). The target that must be achieved is that in 2019, the Government Internal Control System (SPIP) reaches level 3 on a scale of 1-5 in 2019.

Internal Audit Capability Model (IACM) is a framework that describes the basic things needed to realize effective internal public sector supervision. The IACM matrix has level 1 to level 5. Level 1 (Initial), level 2 (Infrastructure), level 3 (Integrated), level 4 (Managed), level 5 (Optimizing). Each level has 6 elements, namely the role of services (services and role of internal audit), human resource management (people management), performance management and accountability, culture, and organizational relations, and governance structures.

The research on the effect of internal control on fraud prevention found that different results, control environment, control activities, monitoring, and information communication did not significantly affect fraud prevention. In contrast, risk assessment and information technology affected fraud prevention. This study further finds that poor background checks, monitoring, and inaccurate records are some of the main challenges facing internal control in the government sector (Oduro, Marfo & Cromwell, 2018). The results of the study state the importance of internal audits in detecting accounting fraud (Drogalas et al., 2017). Strengthening internal control will minimize fraud (Agwor & Akani, 2017).

Research on the role of internal auditors has been conducted by Rahayu (2018), examining the role of auditors in the form of qualitative, quantitative research. Leading authors include Husni (2019), which examines soft and hard control, while Firmansyah & Ahmad (2019) examine the role of internal audit on fraud. Rahayu et al. (2018) examine the changing roles of the auditors in recent times. However, Inapty & Martiningsih (2016) examined the role of internal audits on information quality.

Based on the BPK Audit Results Report (LHP) for semester 1 of 2019, there were 7236 findings or 48%. The results of the LHP show that the Government Internal Control System (SPIP) has not been implemented effectively in the government. The role of APIP is still lacking in improving the quality of governance and the weak application of the Government Internal Control System (SPIP) in government circles. The maturity value of the Government Internal Control System (SPIP) and the results of quality assurance for the improvement of the APIP capability obtained by the District / City and Jambi Province until December 2019 are still at number 2.

METHODS

The population of this study includes all auditors in the inspectorate and BPKP, namely auditors with the Functional Auditor Position (JFA). A total of 272 people were sampled, with 225 people processed.

This study uses primary data by distributing questionnaires obtained directly from inspectors in 9 districts and 2 cities in Jambi Province and the Financial and Development Supervisory Agency (BPKP) representatives of Jambi Province. This study used a questionnaire with a 7-point numerical scale.

The test tool used in this study is Structural Equation Modeling (SEM) using the SEM-PLS (full meaning) program. The exogenous variables used in this study are the Government Internal Control System (SPIP) and the role of internal auditors with fraud prevention as an endogenous variable, and the quality of internal auditors as a mediating variable.

This study uses formative indicators for X1 and Y2 and reflective indicators for variables X2 and Y1. The Government Internal Control System (SPIP) variable uses five indicators in accordance with Government Regulation No. 60 of 2008, such as control environment, risk assessment, control activities, information and communication, and monitoring. The role of internal auditors uses new dimension changes according to Pickett (2010), which are soft controls, self-assessment, risk, preventive, business knowledge, audit strategy, and value. Auditor quality uses the Internal Audit Capability Model (IACM) with service role indicators (services) and the role of internal audit, human resource management, professional practices, performance management and accountability, organizational relationships, and culture and governance structures. Fraud prevention uses fraud diamonds, such as incentives, opportunities, rationalizations, and capabilities.

RESULTS AND DISCUSSION

Evaluation of measurement model (outer model)

This study uses formative indicators for the government internal control system (X1) and fraud prevention (Y2). Indicator weights are used to evaluate formative constructs by evaluating indicator reliability through significant weight (p-value) (Ghozali & Latan, 2014). There are three criteria for assessing the outer model in the reflective model: Convergent Validity, Discriminant Validity, and Composite Reliability. Convergent validity can be seen from the loading factor> 0.7 and the acceptable Average Extracted (AVE) value is > 0.5.

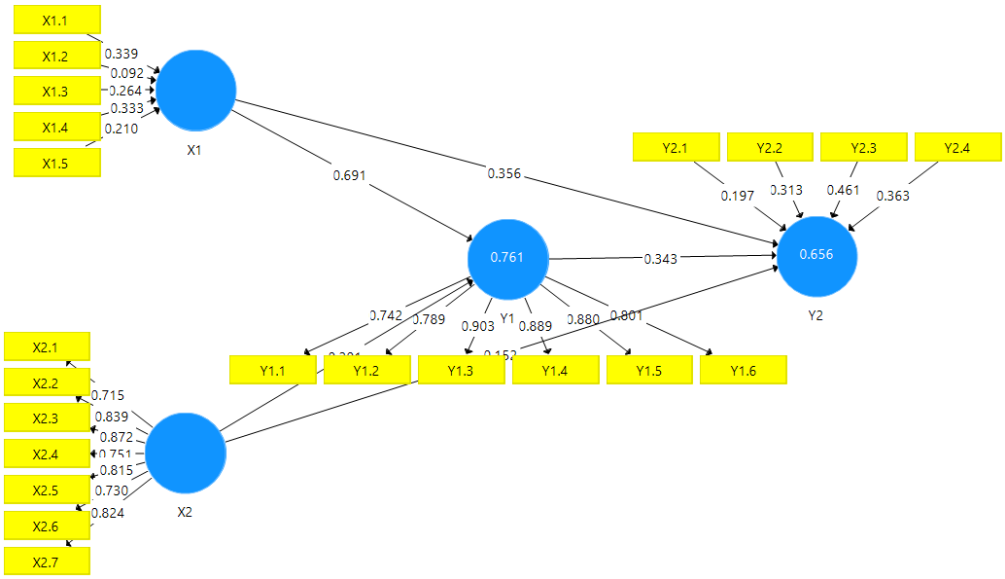


Figure 1. Loading factor value

The AVE, Composite Reliability, and Cronbach's alpha values can be seen in Table 1. A model has a good discriminant validity if each cross-loading value of a latent variable has the greatest value compared to other cross-loading values for other latent variables. This research is valid because it has the highest cross loading to the intended construct than cross-loading to other constructs.

Composite reliability (CR) is used to test the reliability value between the indicators of the constructs that make it up. A variable is good if the composite reliability value is ≥ 0.7 and the recommended Cronbach's alpha value is above 0.7

Ghozali and Latan (2014). The following is the value of composite reliability and Cronbach's alpha value.

Table 1. AVE, composite reliability, and Cronbach's alpha

	AVE	Composite Reliability	Cronbach's alpha
The role of the internal auditor	0.631	0.923	0.901
Quality of internal auditors	0.699	0.933	0.912

Indicator weights are used to evaluate formative constructs by evaluating indicator reliability through a significant weight (p-value) <0.05 (Ghozali and Latan, 2014). This study has shown a P-value below 0.05

Table 2. Indicator weights value

Indicator	**P-value**
Control environment <- Government Internal Control System (SPIP)	0.000
Risk assessment <- Government Internal Control System (SPIP)	0.019
Control activities <- Government Internal Control System (SPIP)	0.002
Information and communication <- Government Internal Control System (SPIP)	0.000
Monitoring <- Government Internal Control System (SPIP)	0.001
Incentive <- Fraud Prevention	0.006
Opportunity <- Fraud Prevention	0.000
Rationalization <- Fraud Prevention	0.000
Capability <- Fraud Prevention	0.000

Evaluation of the structural model (inner model)

Evaluation of the structural model is carried out to see the relationship between latent constructs that have been previously hypothesized. The structural model was evaluated using the R-Square for the independent variable and the t-test and the significance of the structural path parameter coefficients.

Table 3. The R square value of the structural model

	R Square
Quality of internal auditors (Y_1)	0.761
Fraud prevention (Y_2)	0.656

Table 3 shows that the R square value for the quality of internal auditors variable (Y1) is 0.761 or 76.1% and for the fraud prevention variable (Y2) is 0.656 or 65.6%. This value means the variable of the Internal Government Control System (X1) and the role of the internal auditor (X2) can explain the variable quality of the internal auditor (Y1) by 76.1%. The variables of the Government Internal Control System (X1), the role of the internal auditor (X2), the quality of the internal auditors (Y1) were able to influence the fraud prevention variable (Y2) by 65.6%.

In addition to using R square, the evaluation of the structural model can also use the Q^2 Predictive relevance value. Q^2 is used to assess the predictive validity (predictive relevance) or the relevance of a set of exogenous latent variables on endogenous latent variables. The value of Q2> 0 indicates that the model has Predictive relevance, whereas $Q^2 \leq 0$ indicates that the model lacks Predictive relevance.

The Q2 Predictive relevance value in this study $=1-(1-R_1^2)(1-R_2^2)$ = 0.760. The value of Q^2> 0. It can indicate that the estimation results of the model show good predictive validity.

The basis of testing the hypothesis is the values contained in the output Path Coefficients (Mean, STDEV, t-values). If the t-statistic value is less than the t-table

value or the p-value is greater than 0.05, then hypothesis 0 or H0 will be accepted. If the t-statistic value is more than the t-table value or the p-value is smaller than 0.05, the Ho will be rejected.

Table 4. Estimation of structural equation parameters

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-Values
Direct Effect					
SPIP -> Quality of internal auditors	0.691	0.693	0.071	9.676	0.000
SPIP -> Fraud prevention	0,356	0.358	0.109	3.254	0.001
Role of internal auditors -> Quality of internal auditors	0.201	0.201	0.072	2.779	0.006
Role of internal auditors -> Fraud prevention	0.152	0.145	0.101	1.507	0.133
Quality of internal auditors -> Fraud prevention	0.343	0.347	0.086	4.005	0.000
Indirect Effect					
SPIP -> Quality of internal auditors -> Fraud prevention	0.237	0.241	0.064	3.696	0.000
Role of internal auditors-> Quality of internal auditors -> Fraud prevention	0,069	0.070	0.031	2.239	0.026

The Government Internal Control System (SPIP) affects the quality of internal auditors

The Government Internal Control System (SPIP) coefficient on the quality of internal auditors is 0.691 with a ρ-value of 0.000 less than 0.05, which explains that the Nul Hypothesis (H_0) is rejected. This means that the Government Internal Control System (SPIP) has a significant direct effect on the quality of internal auditors. An increase in the SPIP by 1 unit will increase the quality of the internal auditors by 0.691, assuming the other variables are constant. This result is in line with the research of Sari et al. (2019), Yusof et al. (2019), Putu (2017). This result is not in line with the research of Firmansyah (2019), D'Onza & Sarens (2018), Firmansyah & Harahap (2017).

The role of internal auditors affects the quality of internal auditors

The role of internal auditors coefficient on the quality of internal auditors is 0.201 with a P-value of 0.006 less than 0.05, so that the decision is to reject the null hypothesis (H_0). It means that the role of the internal auditor has a significant direct effect on the quality of the internal auditor. An increase in the role of the internal auditor variable by 1 unit will increase the quality of the internal auditor by 0.201, assuming the other variables are constant.

The result is in line with the research of Rahayu et al. (2018), Rustendi (2017), Arumsari (2016), Shamsuddin (2014). This result is not in line with the research of Husni (2019), which examines the change in the role of auditors from hard control to soft control.

The Government Internal Control System (SPIP) affects fraud prevention

The Government Internal Control System (SPIP) coefficient on fraud prevention is 0.356 with a P-value of 0.001 less than 0.05, so the decision is to reject the null hypothesis (H_0). It means that the variable SPIP has a significant direct effect on fraud prevention. Increasing the SPIP by 1 unit will increase the fraud prevention variable by 0.356, assuming the other variables are constant. The result is in line with

the research of Firmansyah & Ahmad (2019), Taufik (2019), Said et al (2018), Agwor & Akani, (2017), Hamdani & Albar (2017). Drogalas (2017). This result is not in line with the research of Oduro, Isaac Marfo, Cromwell (2018), Sofia (2016).

The role of the internal auditor does not affect fraud prevention

The role of the internal auditor coefficient on fraud prevention is 0.152. The P-value is 0.133 greater than 0.05, so the decision is to accept the null hypothesis (H_0). This means that the variable role of the internal auditor directly has no significant effect on Fraud Prevention. The result is in line with Gmar & Djamhuri (2015) research and Nugraha & Susanto (2017). This result is not in line with Rustendi's (2017) research and Petra & Tieanu's (2014).

The quality of internal auditors affects fraud prevention

The quality of internal auditors' coefficient on fraud prevention is 0.343, and a P-value of 0.000 is smaller than 0.05. It means that the null hypothesis (H_0) is rejected, so it can be concluded that the quality of internal auditors has a significant direct effect on fraud prevention. An increase in the quality of internal auditors by 1 unit will increase the fraud prevention variable by 0.343, assuming the other variables are constant. The result is in line with the research of Yusof et al. (2019), Sari et al. (2019), Putu et al. (2017), Janse (2016). This result is not in line with the research of Mui (2018), Lyinomen & Nkechi (2016)

The Government Internal Control System (SPIP) affects fraud prevention through the quality of internal auditors

Based on the results of hypothesis testing, it shows that the original sample coefficient is 0.237. The P-value for the influence of the variable SPIP on fraud prevention with the mediation variable quality of internal auditors is 0.000, which is less than 0.05. Hence, the decision is to reject the null hypothesis (H_0). This means that the SPIP variable has a significant direct effect on fraud prevention through the quality of internal auditors. An increase in the SPIP variable by 1 unit will increase the fraud prevention by 0.237 through the quality of internal auditors (assuming other variables are constant.

The role of internal auditors affects fraud prevention through the quality of internal auditors

The hypothesis testing shows that the original sample coefficient is 0.069 and a P-value of 0.026 is smaller than 0.05, so the decision is to reject the null hypothesis (H_0). It means that the variable role of the internal auditor has a significant direct effect on fraud prevention through the quality of internal auditors. An increase in the role of the internal auditor by 1 unit will increase the fraud prevention variable by 0.069 through the quality of internal auditors variable assuming the other variables are constant.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Government Internal Control System (SPIP) and the role of internal auditors affects the quality of internal auditors. SPIP and quality of internasl auditors affects fraud prevention, but the role of internal auditors does not affect fraud prevention.

The SPIP has an affects on fraud prevention through the quality of internal auditors. It means that the variable quality of internal auditors known as mediation does

not play a full role (partial mediation). Even though there is no variable quality of internal auditors (mediation), the SPIP affects fraud prevention.

The role of internal auditors affects fraud prevention through the quality of internal auditors. It means that the quality of the internal auditor variable is referred to as full mediation. The role of the internal auditor does not directly affect fraud prevention but through the quality of the internal auditor variable (mediating variable).

Recommendations

Auditors are expected to improve their quality further because the quality of internal auditors can affect fraud prevention. Internal auditors must further improve the competence of auditors in both academic and professional education, increase independence so that fraud prevention can be carried out. Auditor competence can also be improved through regular training, planning, and development, and distribution to each auditor to receive appropriate training. Human resource (HR) development needs policies that are right on target.

Auditors are also expected to enhance their role as internal auditors further to play their role in fraud prevention. The role of auditors is not only as a watchdog but also to provide assurance that government functions are running well and must also be able to act proactively and preventively to prevent the same problem from recurring and prevent potential problems that may arise.

Further researchers may increase the variable indicator of the role of internal auditors according to Pickett (2010) because this study uses only 7 (seven) indicators.

REFERENCES

Agwor, T.C., & Akani, F.N. (2017). Internal Control System and Fraud Prevention in Public Service of Bayelsa State , Nigeria. *Novelty Journals*, *4*(3), 170–178.

Arens, Alvin. Randal J. Elder & Mark S. Beasley, M. S. (2014). *Auditing and Assurance Services*: An Integrated Approach. Boston: Pearson Education.

Arumsari. (2016). *The Role of Internal Auditor in Public sector*. Education in the 21th Century: Responding. Universitas Negeri Malang

D'Onza, G., & Sarens, G. (2018). Factors that enhance the quality of the relationships between internal auditors and auditees: Evidence from Italian companies. *International Journal of Auditing*, *22*(1), 1–12.

Drogalas, G., Pazarskis, M., Anagnostopoulou, E., & Papachristou, A. (2017). The effect of internal audit effectiveness, auditor responsibility and training in fraud detection. *Journal of Accounting and Management Information Systems*, *16*(4), 434–454.

Firmansyah, I., & Harahap, M.A.U. (2017). Pengaruh Kepemimpinan Dan Komitmen Organisasi Terhadap Sistem Pengendalian Intern Pemerintah Guna Tercapainya Good Government Governance Pada Badan Perencanaan, Penelitian Dan Pengembangan Daerah Kabupaten Bandung. *Politeknik Pos Indonesia*. *Jurnal Akuntansi*, 7(1)

Firmansyah, I. (2019). The Effect of Leadership, Realization of Budget, Reinventing Government and Internal Government Control on Operational Performance. *Malaysian Journal of Social Sciences and Humanities*, 4(3), 192–207.

Ghozali, I. & Latan, H. (2014). *Partial Least Squares Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS 3.0*. Semarang: Penerbit Universitas Diponegoro.

Hamdani, R., & Albar, A. R. (2016). Internal controls in fraud prevention effort: A Case Study. *Jurnal Akuntansi & Auditing Indonesia*, *20*(2), 127–135.

Husni, M. (2019). Soft Control Dan Hard Control Pada Temuan Auditor Internal Mohamad. *Jurnal Akuntansi: Kajian Ilmiah Akuntansi*, *6*(2), 202–214.

Inapty, M.A.F.BA., & Martiningsih, R.S.P. (2016). Pengaruh Penerapan Standar Akuntansi Pemerintah, Kompetensi Aparatur Dan Peran Audit Internal Terhadap Kualitas Informasi Laporan Keuangan Dengan Sistem Pengendalian Intern Sebagai Variabel Moderating (Studi Empiris pada SKPD di Pemprov NTB). *Akuntabilitas: Jurnal Ilmu Akuntansi*, *9*(1), 27–42.

Janse van Rensburg, J. O., & Coetzee, P. (2016). Internal audit public sector capability: A case study. *Journal of Public Affairs*, *16*(2), 181–191.

Lyinomen, O. D., & Nkechi, O.T. (2016). Effect of Internal Control on Fraud Prevention and Detection in the public Sector Nigeria. *Journal of Accounting and Financial Management*, *12*(2), 1–38.

Mui, G.Y. (2018). Defining Auditor Expertise in Fraud Detection. *Journal of Forensic and Investigative Accounting*, *10*(2), 168–186.

Nugraha, S., & Susanto, E. (2017). The Role of the Government Internal Auditor in Fraud Risk Management : *Advances in Economics, Business and Management Research (AEBMR)*, *43*, 200–203.

Oduro, Isaac Marfo & Cromwell, A.S. (2018). Internal Control and Fraud Prevention in the Ghanaian Local Government Service. *European Journal of Business and Management*, *10*(14), 46–58.

Pickett, K.S. (2010). *The Internal Auditing Handbook* (Third Edit). A John Wiley and Sons, Ltd, Publication.

Putu, B., Handajani, L., & Surati. (2017). Determinants Of Performance Impact On Quality Auditor And Internal Audit Capability Model. *STIE Mandala*, 2406–2431

Rahayu, S., Yudi, Y., & Rahayu, R. (2018). Strategi Penerapan Paradigma Baru dalam Peran Auditor Internal Organisasi Pemerintah. *Journal of Applied Managerial Accounting*, *2*(2), 126–132.

Rustendi, T. (2017). Peran Audit Internal Dalam Memerangi Korupsi (Upaya Meningkatkan Efektivitas Fungsi APIP). *Jurnal Akuntansi*, *12*(2), 111–126.

Sari, R. P., Hastuti, S., & Tannar, O. (2019). Audit Quality Based on Internal Audit Capability Model (IACM) and Gender as Mediating Variabel in the Public Sector. *Journal of Economics, Business, and Government Challenges*, *2*(1), 22–38.

Shamsuddin, A., & Manijegar, D.B., Kirupanangtan, K., Rahman, S., & Selvanathan, S. (2014). Factors That Determine The Effectiveness Of Internal Audit Functions In The Malaysian Public Sectors. *International Journal of Business, Economics and Law*, *5*(1), 9–17

Sofia, I. P. (2016). *The Impact Of Internal Control And Good Corporate Governance On Fraud Prevention*. Proceedings International Seminar On Accounting Society July, 251–257.

Srihadi. (2018). *Mengenal Profesi Auditor Internal*. Bandung: Universitas Padjadjaran.

Taufik, T. (2019). The effect of internal control system implementation in realizing good governance and its impact on fraud prevention. *International Journal of Scientific and Technology Research*, *8*(9), 2159–2165.

The Institute of Internal Auditor – The IIA. (2016). *International Standards for Professional Practice of Internal Auditing (Standards)*. The Institute of Internal Auditors. Standards and Guidance, Florida.World

Tuanakotta. (2007). *Akuntansi Forensik dan Audit Investigatif*. Jakarta: FE UI

Whittington. (2017). *Principles of Auditing and Other Assurance Services*. New York: McGraw Hill Higher Education.

Young, M. R. (2014). *financial fraud prevention and detection Governance and Effective Practices* Published by John Wiley & Sons, Inc., Hoboken, New Jersey. Canada

Yusof, N.A.Z.M, Haron, H., Ismail, I., & Chye, O.H. (2019). Independence of Internal Audit Unit Influence the Internal Audit Capability of Malaysian Public Sector Organizations. *Journal KnE Social Sciences*. 1230–1253.

Determinants of capital structure: Evidence from Sidama credit and saving microfinance institution

Alemayehu Taddese

Hawassa University, Ethiopia

** Correspondence author email: taddesea89@gmail.com*

DOI:	Received:	Revised:	Accepted:	Published:
10.22437/ppd.v9i3.12221	02.03.2021	22.08.2021	23.08.2021	31.08.2021

Abstract

Different industry-specific and macro-economic factors influence the capital structure of microfinance institutions (MFI). So, the objective of this study is to identify industry-specific determinants of capital structure with the selected branch of Sidama MFI, Sidama region, Ethiopia. To this end, the researcher employed a quantitative research approach with an explanatory research design where the effect caused by the independent variable on the dependent variable is observed through regression analysis. The secondary data were collected from Sidama MFIs consolidated and audited financial statements from 2009 to 2019 G.C. Then, both descriptive and inferential statistical analysis has been done. The researcher employed a regression analysis model to identify the effect of five explanatory variables on capital structure measured through debt to equity ratio. Thus, the result of regression analysis showed that out of five independent variables incorporated in the model, all five variables such as growth (negative), profitability (positive), firm size (positive), earning volatility (positive), and asset tangibility (positive) and statistically significant respectively. This study recommends that the microfinance institutions at all company levels improve debt capacity in proportion to asset tangibility more than the current status.

Keywords: *Capital structure, Credit, Microfinance institution*

JEL Classification: G21, G32

INTRODUCTION

Think globally, microfinance started in Bangladesh and parts of Latin America in the mid-1970s to provide credit to the poor, who were generally excluded from financial services (CGAP, 2006). The first organization to receive attention was the Green Bank, which was started in 1976 by Mohammad Yunus in Bangladesh.

The modern Microfinance revolution began in the 70s when Dr. Yunus, a Nobel Prize winner economist, created this innovative concept of lending. He studied poor individuals in a village named Jobra in Bangladesh. He discovered that the poor could not change their economic situation because they lacked access to capital due to exclusion from the financial system. In response to their need for capital, Grameen Bank was established with the vision to alleviate poverty and reach those regarded as "Nonbankable" (Desai, 2007; Jalal & Sahar., 2020; Mia, 2016).

In Africa, the Nigerian government reminded this popular thinking in 2005 when it initiated the Microfinance banking scheme. This was founded to provide finance to

the economically poor and excluded from financing by conventional banks, provide employment, stimulate rural development and reduce poverty.

In Ethiopia, Microfinance was started after issuing the proclamation of licensing and supervision of Microfinance institutions (Proclamation number 40/1996) E.C or 40/ 2004 G.C. After the issuance of this proclamation, 30 Microfinance institutions (MFIs) have been licensed by the National Bank of Ethiopia.

Poverty reduction strategy is set as the operational framework to translate the global MDGs targets into national action. Microfinance service intervention in Ethiopia has also been considered by government and non-government organizations (NGOs). They enable rural and urban poor people's increase output and productivity, induce technology adoption, improve input and productivity, induce technology adoption, improve input supply, increase income, reduce poverty and attain food security. The sustainability of MFIs that reach a large number of rural and urban poor who are not served by the conventional financial institutions, such as the commercial banks, has been a prime element of the new development strategy of Ethiopia (Wolday, 2000 as cited by Alemayehu, 2008).

The modern theory of capital structure started with the seminar paper of Modigliani & Miller (1958). MM theorem states that in the absence of transaction costs, corporate income taxations, or other market imperfections, the value of firms is independent of their financial structure. Real assets determine a firm's value and cannot be changed purely by financial transactions.

The capital structure of a firm is a mixture of debt and equity. In general, firms can choose among alternative capital structures. Firms can also issue dozens of distinct securities in countless combinations to maximize overall market value. (Biekpe, 2006).

The debate of optimal capital structure has been the focal point of the finance literature for previous decades. According to finance theory, the capital structure does affect the cost of capital and, consequently, financial performance. Cost of capital serves as the benchmark of the firm's capital budgeting decisions; therefore, the optimal mix of debt and equity is essential. The owner's wealth maximization concept also dictates that firms choose the optimal mix of debt and equity financing that best serves the ultimate objectives of the firm of all the aspects of capital investment decisions. Capital structure decision is vital since the performance of a firm is directly affected by such decision. Hence proper care and attention need to be given while making the capital structure decision. With an unplanned capital structure, companies may fail to economize the use of their funds.

Consequently, it is increasingly realized that a company should plan its capital structure to maximize the use of funds and to be able to adapt more easily to the changing conditions. An ultimate goal of a firm is the maximization of the wealth or value of that firm. Therefore, how a microfinance institution combines its debt and equity will define its performance, as noted by (Ross. et al.2009).

In Ethiopia, there are studies on determinants of capital structure and the effect of capital structure in the banking and Insurance sectors. The existing empirical studies have focused on the determinants of capital structure to explain how firms can finance business activities by using profitability and equity to maximize the benefits for shareholders based on their advantages. A natural extension from the Ethiopian finance sector perspective is to investigate the effects of financial structure on the financial performance of microfinance institutions. Previous studies have tended to be fairly limited.

According to the Association of Ethiopia Micro Finance Institution (AEMFI, 2018), there are currently 35 Micro Finance Institutions operating in different regional states of Ethiopia. Among them, five (5) MFIs were operating in South Nations Nationalities Peoples Regional states. They are: Sidamam Micro Finance, Omo Micro Finance, Agar Micro Finance, Vision Micro Finance, and Kendile Micro Finance.

Hence, this study focused on firm-specific determinants of capital structure regarding Sidama Micro Finance, one of 35 MFIs in Ethiopia. The researcher concentrates on five key variables and the following hypothesis.

H1: Firm growth has a statistically significant negative effect on the capital structure of Sidama MFI.

H2: Firm profitability has a statistically significant positive effect on the capital structure of Sidama MFI.

H3: Firm size has a statistically significant positive effect on the capital structure of Sidama MFI.

H4: Firm business risk (earnings volatility) has a statistically significant positive effect on the capital structure of Sidama MFI.

H5: Firm Asset tangibility has a statistically significant positive effect on the capital structure of Sidama MFI.

METHODS

Research design.

The researcher has used an explanatory type of research design. An explanatory type of research design is used for researches that study "a situation or a problem in order to explain the relationships between variables." (Saunders et al. 2007) since this study investigated the determinants of capital structure of the microfinance institution; Evidence from Sidama microfinance institution by evaluating the relationship among different variables.

Population and sampling technique

The population of this study was Sidama micro-finance institutions. The study has been select Sidama micro-finance institution consolidated financial statement report or audited financial statement report with related balance sheet and income statement report. Sidama MFIs were selected based on the availability of financial data necessary at the company level and select the sample based on the purposive method based on the age of the MFIs.

Data source and collection method

Financial statements like balance sheets and income statements submitted by Sidama MFIs were used as secondary data sources. The researcher used financial statement reports, specifically income statements and balance sheets of 11 years for 2009 – 2019.

Model specification of the study

Data analysis indicates computation of certain measures along with searching for a pattern of relationship among data groups. In addition, data analysis implies editing, coding, classification, and tabulation of collected data.

The collected data have been summarized and presented using different ratios like growth, profitability, firm size, earnings volatility, and asset tangibility. The data have been analyzed by using Eviews 9. Time series data. An average of 11 years of data for each variable as per Sidama MFIs has been computed. The multiple linear regression

analysis has been used to determine whether the group of variables together predicts the company's capital structure. The following model of the linear regression has been used.

$LEV= \beta_0+ \beta_1GRT+ \beta_2PRO+ \beta_3FS+ \beta_4ERV+ \beta_5AT+ \mu_t$

Where as
Y= Leverage of the company
X1= Growth of the company
X2=Profitability of the company
X3= Firms Size
X4= Earnings volatility
X5= Asset Tangibility of the company
μ = error term
β0= constant term.

In the model, β_0 = the constant term while the coefficient βi= 1….5 was used to measure the sensitivity of the dependent variable (Y) to a unit change in the predictor variables.μ was the error term which captured the unexplained variations in the model. The leverage of the firm is measured through the ratio of debt over equity. A regression would be run to determine the coefficients of the independent variables in relation to the dependent.

Finally, the study used multiplied linear regression model to test determinants of capital structure of Sidama MFI by applying the ordinary least square (OLS) regression method. The rationale behind using OLS is that it can minimize the error between the estimated point on the line and the observed points (Mujahid & Akhtar, 2014).

The variables and their measurement and expected effects among them are summarized in Table 1.

Table 1. Variable description

Proxy Factor	Measurement	Expected relationship
Leverage (LEV)	Total liability +debt/total shareholder equity	
Growth opportunity	Current asset –previous asset/previous asset	-
Profitability(PROF)	EBIT/TA	+
Firm Size	Natural logarithm of Total Asset	+
Earnings Volatility(EAV)	The standard deviation of the first annual earning/mean of earning	+
Tangibility (TANG	FA/TA	+

RESULT AND DISCUSSIONS

Descriptive statistics

This section presents the descriptive statistics of dependent and independent variables used in the study for the sampled MFIs Sidama MFI. The dependent variables used in this study were capital structure. In contrast, the independent variables were growth, profitability, size of the firm, earning volatility, and asset tangibility of Sidama MFIs. Table 2. demonstrates the mean, median, maximum and minimum values, and standard deviation.

Leverage is the ratio of debt financing to equity financing. The higher the ratio value, the more it suggests that the institutions are leveraged than financed through equity capital. The mean value of this variable is 3.71, which indicates, Sidama MFI is leveraged on average than financed through equity capital. On the other hand, the minimum and maximum leverage (equity debt) are 2.41 and 5.31, indicating Sidama MFI is more financed through debt financing than a proportional financing structure.

Table 2. Summary of descriptive statistics

	LEV	GR	PRO	FS	EV	AT
Mean	3.717109	0.435609	0.159364	2.319973	0.018936	0.068518
Median	3.608600	0.426600	0.089800	2.151200	0.017000	0.040400
Maximum	5.317700	0.894600	0.355000	3.320800	0.028000	0.167000
Minimum	2.410500	0.034300	0.038300	1.216200	0.012400	0.013000
Std. Dev.	0.938475	0.316142	0.133378	0.864468	0.005339	0.057604
Jarque-Bera	0.485095	0.736731	1.665953	0.981393	1.271188	1.498454
Probability	0.784627	0.691864	0.434753	0.612200	0.529621	0.472732
Observations	11	11	11	11	11	11

Another explanatory variable and size of selected Sidama MFIs played an important role in maintaining their market position. The mean value of this variable was 231.9 percent in its natural logarithms value. The maximum value of size was 332 percent, and the minimum value of 121 percent, with a standard deviation value of 86 percent.

Earnings volatility has a mean value of 1.89 percent. The mean value of earning volatility indicates that Sidama MFIs were average 0.0189 cents of one birr asset. The maximum value of earning volatility was 2.8 percent, and the minimum value of 1.2 percent, with a standard deviation of 0.05 percent.

Finally, asset tangibility has a mean value of 6.85 percent. The mean value indicates that Sidama MFIs were on average 0.0685 cents of one birr asset. Maximum values of asset tangibility were 16.7 percent and minimum values of 1.3 percent with a standard deviation of 5.76 percent.

Testing assumption of Classical Linear Regression Model (CLRM)

The linearity of the parameter is assumed since the model applies linear ordinary least squares (OLS). The model's objective is to predict the strength and direction of association among the dependent and independent variables. Thus, to maintain the validity and robustness of the regression result of the research in CLRM, it is better to satisfy the basic econometric assumption of CLRM. When these assumptions are satisfied, it is considered as all available information is used in the model. However, if these assumptions are violated, there will be data left out of the model (Brooks, 2008).

Before going further into time-series data econometric procedures, diagnostic tests were undertaken to ensure that the assumptions of the classical linear regression model were fulfilled or not, the coefficient estimators of both βo (constant term) and β (independent variables) that are determined by ordinary least square (OLS) have a number of desirable properties and usually known as Best Linear Unbiased Estimators (BLUE). Hence, the following sections discuss the results of the diagnostic tests that were conducted to ensure whether the data fits the basic assumptions of the classical linear regression model or not.

Test for an average value of the error term is zero (E (ut)= 0) assumption

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term (i.e., βo) was included in the regression equation, the average value of the error term in this study was expected to be zero.

Test for normality

The Classical Linear Regression Model (CLRM) assumes that the error term is normally distributed with zero error mean as a positive error will offset the negative error. According to (Brooks, 2008), to conduct single or joint hypothesis tests about the model parameter, the normality assumption (ut ~ N (0, σ2) (i.e., the errors are normally

distributed) must be fulfilled. In this study, the normality of the data was checked with the popular Jarque-Bera test statistic. If the residuals are normally distributed, the Jarque-Bera statistic would not be significant at a 5 percent significant level, meaning disturbance to be normally distributed around the mean. This means that the *p*-value given at the bottom of the normality test screens should be bigger than 0.05 to not reject the null hypothesis of normality at a 5 percent significant level.

Jarque-Bera also formalized this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are close to zero and three, respectively. The hypotheses for the normality test were formulated as follow:

H_O: Error term is normally distributed

H_a: Error term is not normally distributed

Decision Rule: Reject H_0 if P-value is less than significant level 0.05. Otherwise, do not reject.

Normality test for residuals of LEV model

The normality test result of the LEV model in Figure 1 shows that the histogram was bell-shaped. The Jarque -Bera statistic (0.264) and has a P-value of (0.876), implying that the p-value for the Jarque-Bera test for this model is greater than 0.05. So, the result indicates that the errors were normally distributed, and there was no problem of normality on the LEV model. The study failed to reject the null hypothesis of normality at the 5 percent significance level based on the statistical result.

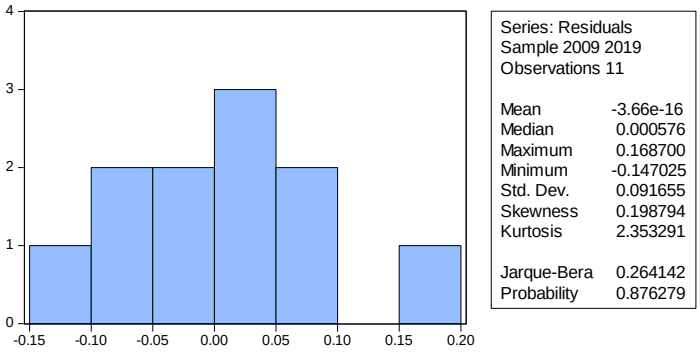


Figure 1. Normality test for residuals of LEV model

Test for heteroscedasticity; var(ut) = σ2<∞

Among the OLS assumptions, one of the diagnostic tests conducted in this study is the heteroscedasticity test. This is theoretically expressed as by Brooks (2008) 'var (ut)=σ2'; it has been assumed that the variance of the errors is constant,σ2. In the classical linear regression model, one of the basic assumptions is Homoscedasticity, which states that the probability distribution of the disturbance term remains the same for all observations. The variance of each disturbance term is the same for all values of the explanatory variable. However, if the disturbance terms do not have the same variance, this condition of non-constant variance or non-homogeneity of variance is known as heteroscedasticity. Accordingly, to detect the heteroscedasticity problems, the Breach-Pagan test was utilized in this study. This test states that if the p-value is significant at 95 confidence intervals, the data has a heteroscedasticity problem. If the value is insignificant (greater than 0.05), the data has no heteroscedasticity problem.

It is hypothesized that as follows;

Ho: There is no Heteroscedasticity problem

Ha: There is a Heteroscedasticity problem

Decision Rule: Reject Ho if P-value was less than significant level 0.05. Otherwise, do

not reject.

Table 3. Breusch –Pagan -Godfrey test Statistics

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.102715	Prob. F(5,5)	0.4586
Obs*R-squared	5.768667	Prob. Chi-Square(5)	0.3294
Scaled explained SS	0.806476	Prob. Chi-Square(5)	0.9766

Table 3. shows that both the F-statistic and Chi-square tests give the same conclusion that there was no significant evidence for the presence of heteroscedasticity in the LEV model. Since the p-values in all of the cases were above 0.05, the null hypothesis that there is no Heteroscedasticity problem is failed to reject at a 5 percent significant level.

Test for auto correlation; cov (ui,uj) = 0 for i = j

The third assumption made for the CLRM's disturbance terms is that the covariance between the error terms over time is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are correlated with one another, it would be stated that they are 'auto-correlated' or that they are 'serially correlated'. According to (Brooks 2008), when the error term for any observation is related to another observation, it indicates that autocorrelation problems exist in the model.

In the autocorrelation problem, the estimated parameters can remain unbiased and consistent, but they are inefficient. The result of the t-test, F-test, or the confidence interval will become invalid because the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis, testing may lead to misleading results on the significance of parameters in the model. Breach-Godfrey Serial Correlation LM Test was used in this study to detect the autocorrelation problem.

It is hypothesized that as follows;

Ho: no serial correlation

H1: the presence of serial correlation

Decision Rule: Reject H_0, if P-value less than significant level 0.05. Otherwise, do not reject

Table 4. Test for serial correlation of LEV model

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.888198	Prob. F(2,3)	0.1999
Obs*R-squared	7.239914	Prob. Chi-Square(2)	0. 268

As seen from Table 4. the P-value of both F-statistic and Chi-Square for the LEV model was (0.1999) and (0.268), respectively, greater than the significance level of 5 percent. Hence, the null hypothesis of no serial correlation is failed to reject at 5 percent of the significant level. The result supports the absence of serial correlation in this model. Therefore, it can be concluded that the covariance between residuals is zero, and the absence of serial correlation problem was found conclusively from the LM tests.

Test for multicollinearity

An implicit assumption that is made when using the time series least square estimation method is that the independent variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change. Suppose an independent variable is an exact linear combination of the other independent variables. In that case, says the model suffers from perfect Co linearity, and OLS cannot estimate it.

Correlation analysis among variables

As noted in (Brooks, 2008), if it is stated that Y and X are correlated, it means that Y and X are being treated in a completely symmetrical way. Thus, it is not implied that changes in X cause changes in Y, or indeed that changes in Y cause changes in X rather, it is simply stated that there is evidence for a linear relationship between the two variables and that movement in the two variables are on average related to an extent given by the correlation coefficient.

Table 5. show the result of correlation analysis to determine the relationship between a dependent variable (LEV) and explanatory variables (i.e., growth, profitability, Firm size, Earning volatility, and Asset Tangibility)

Table 5. Correlation matrix of LEV and explanatory variables

	LEV	GR	PRO	FS	EV	AT
LEV	1	0.749427	0.888353	-0.685752	0.320744	0.6155640
GR	-0.7494	1	-0.57322	0.632537	0.258968	-0.099176
PRO	0.8883	-0.5732	1	-0.78088	-0.358	0.4624483
FS	0.6857	0.6325	-0.78088	1	-0.15250	-0.269788
EV	0.3207	0.2589683	-0.35840	-0.15250	1	-0.032616
AT	0.6155640	0.099176	0.4624483	-0.26978	-0.03261	1

As shown in Table 5., profitability, firm size, earnings volatility, and asset tangibility were positively correlated with capital structure with a correlation coefficient of 0.8883539, 0.68575232, 0.32074298, and 0.615564, respectively. This correlation shows that profitability, firm size, earning volatility, asset tangibility, and capital structure also move in the same direction. Growth is negatively correlated with LEV with a correlation coefficient of (-0.749427268). It implies that, as the growth increases, and leverage ratio moves in the opposite direction.

Results for OLS regression

Ordinary least squares (OLS) is a method for estimating the unknown parameters in a linear regression model to minimize the sum of the squares of the difference between the observed responses (values of the variable being predicted) in a given dataset and those predicted by a linear function of a set of explanatory variables. Visually this is seen as the sum of the squared vertical distance between each data point in the set and the corresponding point on the regression line; the smaller the distances, the better the model fits the data (Kothari, 2008). Table 6. shows the effect of capital structures of Sidama MFIs in Sidama.

Table 6. OLS regression results on LEV model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR	-1.715597	0.201985	-8.493690	0.0004***
PRO	6.153785	0.995942	6.178859	0.0016***
FS	0.515662	0.155524	3.315641	0.021**
EV	39.41536	15.86197	2.484896	0.0555*
AT	4.712563	0.901921	5.225032	0.0034***
C	1.218149	0.712772	1.709029	0.1481
R-squared	0.990462	Mean dependent var		3.717109
Adjusted R-squared	0.980923	S.D. dependent var		0.938475
S.E. of regression	0.129620	Akaike info criterion		-0.945966
Sum squared resid	0.084007	Schwarz criterion		-0.728932
Log-likelihood	11.20281	Hannan-Quinn criterion.		-1.082775
F-statistic	103.8408	Durbin-Watson stat		2.806838
Prob(F-statistic)	0.000048			

The analysis was made based on 1(***), 5(**) & 10(*) percent significant levels.

Table 6 shows that the model's R-squared and adjusted-R squared statistics were 99 percent and 98 percent, respectively. This result indicates that the explanatory variables explain 98 percent of the variation in the dependent variable. That means the explanatory variables (growth, profitability, firm size, earnings volatility, and asset tangibility) jointly explain about 98 percent of the variation in the debt ratio.

Hypotheses testing

F- statistics (103.841) which is used to test the overall significance of the model, was presented. The null hypothesis can be rejected at a 1 percent level of significance, since the p-value was (0.00048), which was sufficiently low, indicates the reliability and validity of the model at a 1 percent level of significance.

The result of this study shows that support from growth with a coefficient of regression [β=-1.715597] has a negative and statistically significant at 1% level of significance since (p-value of 0.0004 < 0.01). Hence, hypothesis H1 is accepted. This finding is consistent with the idea that trade-off and agency theories predict a negative relation between leverage and growth. And the empirical finding of studies by (Buferna. et al. 2005; Eriotis. et al. 2007; Shah & Khan, 2007; Kila and Mahmood, 2008; Salawu and Agboola, 2008; Morri & Cristanziani, 2009; Ramlall, 2009) have reported a negative relationship between growth and capital structure of firms. This finding suggests that as growth options increase, asset substitution problems also become more severe. Growth opportunities are capital assets that add value to a firm but are not collateralized and do not generate current taxable income.

Secondly, the result of this study show profitability with a coefficient of regression [β=6.153785 and p-value (0.0016] has a positive and statistically significant at 1% level of significance since (p-value of 0.0016 < 0.01). Hence, hypothesis H2 is accepted. This finding is related to the empirical literature of Abor (2005); Jensen, Solberg & Zorn (1992). The idea of trade-off theory also supports this result. The trade-off theory suggests that more profitable firms are exposed to lower bankruptcy risks and more incentive to employ debt to exploit interest tax shields. That means there is a positive relationship between Oromiya credit and saving Share Company of OCSSC MFIs capital structure and profitability.

Thirdly, the result of this study concerning with size of the firm with a coefficient of regression [β=0.515662] has a positive and statistically significant effect on the capital structure at a 5% level of significance since (p-value of 0.0211 < 0.05). Hence, hypothesis H3 is accepted. This finding is consistent with the idea that the study is similar to previous research by Mary et al. (2011) and Ahmed et al. (2010). They found that an increase in firm size has a positive influence on capital structure. In addition, the trade-off theory supports the idea that the larger the firm's size, the more it employs the debt. This makes the firms faced with less risky. As a result, he concluded that an increase in the size of a firm has a positive influence on capital structure.

Fourthly the results of the study employ earning volatility with the coefficient of regression (β=39.41536) has a positive and statistically significant effect on the capital structure at 10% level of significance since (p-values 0.0555) which less than 0.1signifince level. Therefore hypothesis H4 is accepted. The result is supported by empirical evidence literature of (Cools 1993) and agency cost theory.

Finally, the study results employ asset tangibility with the coefficient of regression (β=4.712563) has positive and statistically significant effect on capital structure at1 % level of significance since (p-value of 0.0034) which less than 0.01 significant level. Hence, hypothesis H5 is accepted. The finding was supported by the

ideas of empirical evidence from (Fama and Jensen, 1983; Huang and Song, 2002; and Smith, 2010) and supported by the trade-off theory and agency cost theory.

Table 7. Summary of the expected and actual influence of explanatory variables on LEV

Relation with LEV	Hypothesis	Expected	Actual result	Decision
Growth	H1:	negative & significant	negative & significant	Accepted
Profitability	H2:	Positive & significant	positive & significant	Accepted
Firm size	H3:	Positive & significant	positive& significant	Accepted
Earning volatility	H4:	Positive & significant	positive & significant	Accepted
Asset tangibility	H5:	Positive & significant	positive & significant	Accepted

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The findings revealed from this study were that Sidama MFIs were averagely generating positive capital structure (leverage ratio). The growth of a company has a negative effect on capital structure, which means an increase in the value of this variable leads to a decrease in the firm's capital structure.

Profitability has a positive effect on capital structure. The trade-off theory suggests that more profitable firms are exposed to lower bankruptcy risks and more incentive to employ debt to exploit interest tax shields.

The increase in the size of a firm has a positive effect on the capital structure. The trade-off theory supports the idea that the larger the firm's size, the more it employs the debt. It makes the firms faced with less risky.

The earning volatility has a positive effect on the capital ratio. Finally, an increase in asset tangibility has a positive effect on the capital structure of Sidama MFIs in Sidama. It means that an increase in the value of this variable leads to an increase in capital structure.

Recommendations

The company growth has a negative effect on the leverage ratio. Therefore, the researcher recommended that the Sidama MFIs increase growth opportunities that add value to the firm's assets. The Sidama MFIs increase short-term debt to increase the growth tend to place a greater demand or internally generated funds.

There is a positive relationship between profitability and capital structure. Hence, the researcher forwarded possible recommendations for Sidama MFIs in Sidama, more internal sources of finance and external source of finance. That means the Sidama MFIs are advisable to use optimal financing of inside and outside sources. It was a combination of debt and equity.

There is a positive effect of firm size on the capital structure of Sidama MFIs. So the researcher recommended Sidama MFIs better to expand their branch or increases their firm size to employ more debt and less risk and diversified in nature.

The relationship between earning volatility and capital structure regarding leverage of Sidama MFIs shows positive. So the researcher recommended that Sidama MFIs decrease under the investment problem of firm volatile and increase returns.

An increase in asset tangibility has a positive relationship with the capital structure of Sidama MFIs in Sidama. Therefore, the researcher recommended that the Sidama MFIs increase debt capacity in proportion to tangible assets on the balance sheet because the tangible asset is used as collateral and provides security to the lender in the occurrence of financial distress.

REFERENCES

Alemayehu, T. (2008). *The performance of Micro Finance Institutions in Ethiopia: Acase of six Micro Finance Institutions*. [Master's thesis]. Addis Ababa University, Ethiopia.

Biekpe, A. J. (2006). An empirical test of the agency problems and capital structures of south quoted SMEs. *Journal of Accounting Research*, 20(1), 51-65.

Brooks, C. (2008). *Introductory Econometrics for finance: 2nd ed.* New York: Cambridge University Press.

Buferna, F., Bangassa, K. & Hodgkinson, L. (2005). *Determinants of Capital Structure Evidence From Libya.* Research Paper Series No. 2005/08. The University of Liverpool.

Desai, S. (2007). *Post-conflict microfinance: assessment and policy notes for Iraq*. Jena Economic Research Papers, No. 2007,060, Friedrich Schiller University Jena and Max Planck Institute of Economics, Jena

Eriotis., N., Vasiliou, D. & Ventoura-Neokosmid, Z. (2007). How Firms Characteristics Affects capital structure: an empirical study. *Managerial Finance*, 33(5), 321-331.

Fama, E.F. & Jensen, M.C (1983). Agency problem and residual claims. Journal of Law and Economics. *Journal of Law and Economics*, 26(2), 327-349

Jalal, R.N. & Sahar, N.U. (2020). Asian emerging market perspective of macroeconomic factors, stock return, and volatility. *International Journal of Management, 11(8),* 1456-1475

Kila, S.M. & Mahmood, W.M.W. (2008). *Capital Structure and Firm Characteristics: Some Evidence from Malaysian Companies*. MPRA Paper 14616, University Library of Munich, Germany.

Kothari, C.R. (2008). *Research Methodology: Method and Technique*. New Delhi: New Age International Publishers.

Mary, A., El-Sayeda, M. & Mohamed, S. (2011). The determinants of capital structure in Egyptian. *Journal of Middle Eastern Finance and Economics*, 9, 84-99

Mia, M.A. (2016). Microfinance institutions and legal status. *The Journal of Asian Finance, Economics, and Business*, 3(2), 21–31.

Modigliani, F. & Miller, M.H (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review*, 48(3), 261-97.

Morris, G. & Cristanziani, F. (2009). What determines the capital structure of real estate companies?- An analysis of the EPRA/NAREIT Europe Index. *Journal of Property Investment & Finance*, 27(4), 318-372

Mujahid, M. & Akhtar, K.. (2014). Impact of Capital Structure on Firms Financial performance and shareholders wealth: Textile sector of Pakistan. *International Journal of learning and Development*, 4(2), 27-33.

Ramlall, I. (2009). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in Taiwanese Banking System: Under Panel Data Estimation. *International Research Journal of Finance and Economics*, 34, 160-167.

Salawu, R.O. & Agboola, A.A. (2008). The Determinants of Capital Structure of Large Non- Financial Listed Firms In Nigeria. *The International Journal of Business and Finance Research*, 2(2), 75-84

Shah, A. & Khan, S. (2007). Determinants of Capital Structure: Evidence from Pakistani Panel Data. *International Review of Business Research Papers*, 3(4), 265-282.

Saundres, M.N.K., Lewid, P. & Thornhill, A. (2007). *Research Methods for business students.* United Kingdom: Pitman publishing.

Smith, P.G. (2010). What are the Capital Structure Determinants for Tax-Exempt Organizations? *Financial Review*, 45(3), 845-872

Huang, G. & Song, F.M. (2002). The determinants of capital structure: Evidence from China. *China Economic Review*, 17(1), 14-36.

Ahmed, N., Ahmed, Z. & Ahmed, I. (2010). Determinants of capital structure: A case of life insurance sector of Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, 24, 7-12.

Author Guidelines

1. Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is published six times a year.
2. The manuscript is the original work that has not been published or is considered in other publications.
3. The manuscript may result from research, literature/theoretical study, methodological review, original critical ideas, hot issues/development issues, hot issues/development issues, reviews of seminars, or book reviews.
4. The manuscripts are arranged in English, accompanied by abstracts in English and Indonesian (if any). For more detailed information and journal, templates can be accessed at https://online-journal.unja.ac.id/index.php/JES/author-guidelines
5. The manuscript should be submitted through our online submission system at https://online-journal.unja.ac.id/JES. Registration and login are required to submit items online and to check the status of current submissions.

Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is indexed and abstracted in the following databases/resources:

- Google-Scholar
- DOAJ-Directory of Open Access Journals
- EBSCO Open Science Directory
- Crossref
- IPI-Indonesian Publication Index
- Mendeley
- Microsoft Academic Search
- OpenAire
- MIAR
- OAJI-Open Academic Journal Index
- Moraref
- Princeton University Library
- Universiteit Leiden
- University of Oxford
- Harvard Library
- The University of Sheffield
- University of Saskatchewan-University Library
- Capilano University Library
- State Library New South Wales
- Vrije Universiteir Brussel (VUB)
- UNSW Australia Library
- Merchyhurst University
- University of Illinois at Chicago (UIC) Library
- Universitat Kasse
- State Library of Victoria
- Simon Fraser University Library Electronic Journals
- BJMU
- Library & Learning Center
- Aberystwyth University
- City University of London
- University of Edinburgh
- University of Glasgow
- University of Hull
- Imperial College London
- University of Manchester
- Open University
- University of York
- London's Global University
- Trinity College
- University of Alberta
- University Library
- BASE (Bielefeld Academic Search Engine
- CiteFactor
- Open Access Library (OALIB)
- Scholarsteer
- JournalTocs
- Worldcat
- CORE
- Research Bible
- Academickeys
- Citeulike
- JOURLIB
- Global Impact Factor
- Jifactor
- General Impact Factor
- e-Journal Portal BKS PTN Wilayah Barat
- Cosmos Impact Factor
- OneSearch
- International Innovative Journal Impact Factor (IIJIF)
- Journal Factor
- Directory of Research Journal Index
- Eurasian Scientific Journal Index (ESJI)
- National Library of Australia