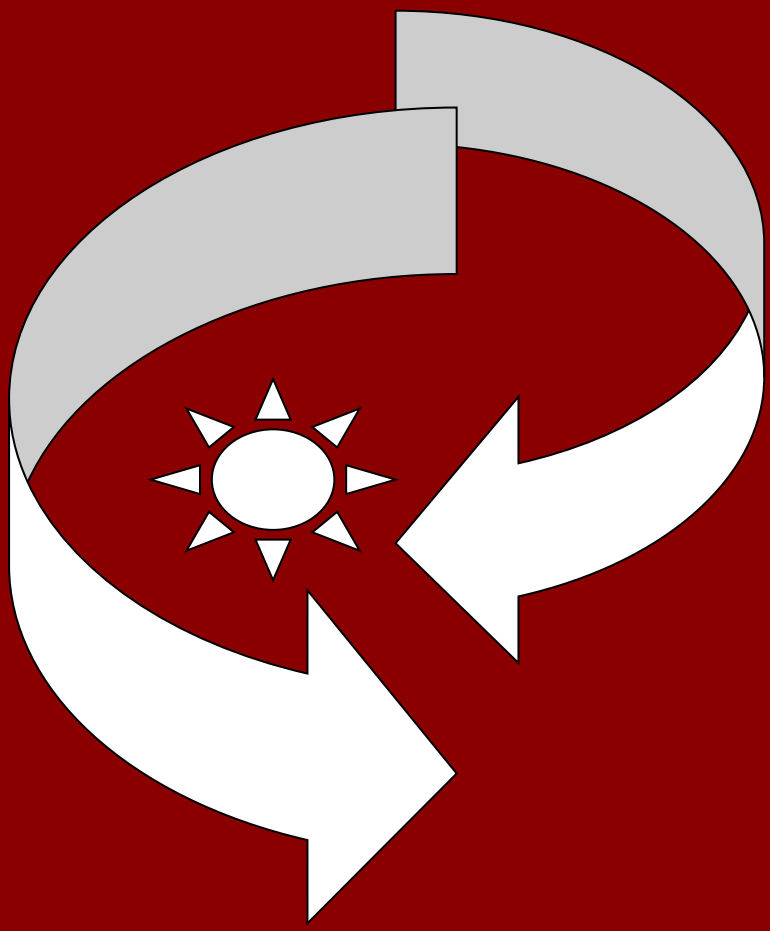
Vol. 7 No. 4 , January - February 2020
International peer-reviewed journal
SSN: 2338-4603 (print)
2355-8520 (online)

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

Accreditation Decree (SINTA S2), valid from Vol. 6 No. 2 (September – October 2018) based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019

Published by Master Program in Economics, Graduate Program of Jambi University

Editor Address: Jurnal Perspektif Pembiayaan dan Pembangunan Daerah. Program Magister Ilmu Ekonomi, Pascasarjana, Universitas Jambi, Kampus Telanaipura Jambi, Indonesia

Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is reffered to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting from Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at http://online-journal.unja.ac.id/JES

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

Table of Contents

Editor's Note

Since Volume 6, Issues 2 (September – October 2018), the Journal of Perspectives on Financing and Regional Development has been nationally accredited with SINTA (Science and Technology Index) score of S2, based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019 concerning the Ranking of Scientific Journal.

In Volume 7 Issue 4, 2020 is presented seven articles that come from Universitas Jambi (Indonesia), Universitas Andalas (Indonesia), Gulu University (Uganda), IPB University (Indonesia), Universitas Singaperbangsa (Indonesia), Yusuf Maitama Sule University (Nigeria), Lagos State University (Nigeria), Muaro Jambi Regency's Office of Tourism, Youth and Sports (Indonesia), Universitas Trunojoyo (Indonesia).

Hopefully in the next issue can be presented articles with issues and from more diverse circles.

Happy joy reading

Editorial

Phenomenon and determinant characteristics of NEET (Not in Employment, Education or Training) youth in matrilineal province

Chintia Anggraini[1]*; Werry Darta Taifur[2]; Zulkifli N.[3]

[1), 2), 3)] Faculty of Economics, Universitas Andalas, Indonesia

**To whom correspondence should be addressed. Email: chintia@bps.go.id*

Abstract

Economic development positions human as an important factor of production. Therefore quality human resources are needed for sustainable development. Indonesia as a country with a large population potential is expected to take advantage of the opportunity through demographic bonuses that will occur in 2020-2030. However, the emergence of NEET (not in employment, education or training) has become a new problem that threatens the success of development. NEET is a measure that includes young people in the age range of 15-24 years old, who are not in employment, education or training. NEET is considered more comprehensive than unemployment because it can see the dynamics and activeness of youth in the labor market. The presence of NEET is inseparable from the determinant characteristics the chances of someone becoming a NEET youth. This study uses Sakernas data for 2017 and 2018 to see the phenomenon and determinant characteristics of NEET status. The result showed NEET youth in West Sumatera was dominated by economically inactive youth. And by using logistic regression analysis, obtained several characteristic that significantly influence the chance of youth's vulnerability to become a NEET. Youth who live in rural areas have a greater opportunity to become NEET youth, while youth with high level education are even more vulnerable to becoming NEET. Gender does not have a significant effect on determinants of NEET status in areas that adhere to this matrilineal kinship system. Based on the result of this study, the government as the holder of authority is expected to implement policies to reduce the proportion of NEET youth.

Keyword: *Education, NEET, Training, Unemployment, Youth*

JEL Classification: I25, J13, J64, O15

INTRODUCTION

Human resources are the most important part in the development of a country. Abundant natural wealth and capital will not provide the maximum contribution as long as it is not supported by adequate human resources. Siregar (2017) states that the acceleration of the economic development level can be obtained by utilizing superior human resources. In addition, according to Lee (2018), effort to improve the quality of human resources are important of sustainable growth, because it provides opportunity for middle-income economies to move to high-income economies. This confirms that improving the quality of human resources has the opportunity to increase people's income, so that in general it will have a positive influence on improving the economy of a region.

Quality human resources cannot be obtained easily. Improving the quality of human resources is a long-term investment activity because the quality of human resources in the future is inseparable from investment made at this time. According to Schultz (1961) education and training is a form of human resource investment activities. Education is one of the pulleys in increasing future income. Furthermore, Schultz (1961) states that investment made in education will affect the increase in income. In addition, Mincer (1974) shows that besides the work experience, the length of education also determines the income received by workers. Not only education, job training is also one form of effort to increase productivity. Job training can be done by someone at the time before looking for work or already in a job. Becker (1994) states that training conducted at work is an important form of investment because it will affect income. Increased productivity gained through training will have an impact on future income increases, although at the same time of training the will be an increase in spending to finance job training.

Indonesia as a country with large population is expected to make improvements continuously related to the quality of human resources. Based on data from the National Bureau of Statistics (2019) the population of Indonesia in 2018 reached 265.015 million with 131.005 million workforce, of which 20,830 million (15.90 percent) were young people (15-24 years old). This is a fantastic amount that can be basic capital in the implementation of development in Indonesia. Besides that, the demographic transition in the last few decades, Indonesia is expected to enjoy a demographic bonus in the period 2020-2030 (Maryati, 2015). Demographic bonus is a condition where the productive population exceeds the nonproductive population. Specifically for the province of West Sumatera, according to BPS (2012) the phenomenon of demographic bonus is expected to occur in 2025, where the dependency burden figure which illustrates the ratio of nonproductive population to productive population is at the lowest value of 50.07 percent.

The emergence issues related to NEET youth in various countries in the world becomes a new challenge in preparing reliable resources for the future. NEET (not in employment, education or training) is a measure that includes young people in the age range of 15 to 24 years old, who are not in employment, not in the education system and not in job training (BPS, 2017). Given the understanding of NEET, the existence of NEET is feared to be threat to demographic bonuses in Indonesia. NEET youth who are supposed to get education or training (15-24 years old) or get a job (19-24 years old), are actually in a state that is contrary to their ideal condition. NEET is relatively new and more comprehensive indicator for analyzing the difficulties of labor market and dropping out of school in youth and measuring the level of youth activity (Crismaru, Gagauz, & Buciuceanu-Vrabie, 2017). Moreover, the NEET concept can be used to capture the dynamics of labor market and provide a complete circumstance of the quality and productivity of work (International Labour Organization, 2017). Additionally according to Furlong (2006) the reason for placing NEET as an important concept in policy making is related to the effectiveness of NEET in predicting the NEET youth future vulnerability to become unemployed in the future.

The presence of NEET youth will have an impact on economic and social life of the community. NEET youth will be a burden on those who work and become a burden in the economy in general. This in line with report of Understanding Children's Work (2013) which states that NEET youths are productive age population who are not used so that they will become obstacles to the economy of a country at the macro level. Furthermore NEET also has an impact on increasing poverty (Bălan, 2016). Poverty

caused not only results in an increase poverty of NEET youth family, but also contributes to an increase poverty in an area. Another negative impact that can be caused is that NEET youth will be more vulnerable to depression and exclusion in social life (Statistics Canada, 2018). In addition, there are as many 30-35 percent of young criminal who are NEET youth, with a higher proportion of male youth involvement than female (Young Women's Trust, 2014).

The NEET phenomenon in various countries has made it an issue that needs serious attention. Drakaki, Papadakis, Kyridis, & Papargyris (2014) related to their research stated that the emergence of NEET youth in Greece was the impact of the economic downturn in the country. Meanwhile, Byoung-hoon & Jong-sung (2012) found the emergence of NEET youth triggered by macro and micro factors. Macro dimension of labor demand is the main factor influencing the emergence of inactive youth. While unemployment is more influenced by more complex factors, namely economic growth, population structure, education system, and labor market conditions. While the micro factors that influence the emergence of NEET youth include gender, education and family income.

Susanli (2016) found that age, gender, marital status, residential area and number of family members influence the presence of NEET in Turkey. And it was found the proportion of NEET youth in this country reached 27 percent at 2013. Alfieri, Sironi, Marta, Rosina& Marzana (2015) stated that the education level of parents influences the emergence of NEET youth in Italy. Meanwhile Inui, Sano, & Hiratsuka (2015) found that youth in the transition period had a greater risk of entering NEET status. So, the tendency of youth become NEET is influenced by age, gender, educational background, region and family background.

Indonesia became the country with the highest NEET proportion in Southeast Asia in 2016, with a proportion reaching 23.3 percent (International Labour Organization, 2017). This relatively high number is a challenge for the government and the community to be able working together in dealing the problems that arise due to the presence of NEET youth. And also continue trying to reduce the number and proportion of NEET youth. As stated in the Sustainable Development Goals (SDGs) on the 8th goal, which is to substantially reduce the proportion of young people who are unemployment, without education or training (NEET) (BPS, 2016).

West Sumatera is the only province in Indonesia that adopts a matrilineal kinship system. Matrilineal kinship is arranged according to maternal lineage which places women in special and respectable positions. According to Hakimi (1976) the privileges of Minangkabau women are descendants based on maternal lineage, women as home owner, economic resources or prioritized for women, economic result are kept by women and women also have the right in consultation. Women in West Sumatera are given the freedom to be able to take part in the public sphere without leaving obligation in the household. Regarding NEET youth issues, young women in West Sumatera are required to play their roles as women in matrilineal kinship positions and women's position in the labor market. The proportion of NEET youth in West Sumatera province in 2017 reached 18.27 percent and experienced an increase in 2018 to 20.28 percent (BPS, 2019). This increase implies the need for more serious handling by the government and the community, so that the proportion and number of NEET youth can be reduced for the following years.

Based on the increasing proportion of NEET youth in West Sumatera province and the lack of research and literature related to NEET youth in this region, this study is intended to examine the phenomenon and characteristics that determine the opportunity

of a youth entering into NEET status in a province that adheres to this matrilineal kinship system.

METHODS

This study uses raw data from the National Labor Force Survey (Sakernas) in August 2017 and 2018 from the National Bureau of Statistics (BPS) of West Sumatera province. The research unit is individual aged 15-24 years old, spread across 19 regencies/ municipalities in West Sumatera province. There were 4,133 respondents in 2017 and 3,686 respondents in 2018.

The data analysis method used is logistic regression analysis. This analysis aims to determine the opportunities of youth categorized into NEET based on the characteristics used. Youth status in the form of categorical data becomes dependent variable Y, while the defining characteristic referred are independent variable X.

Logistic regression model

The model used refers to the logistic regression model according to Hosmer & Lemeshow (1989). The basic regression logistic model used to estimated the determinant characteristic of youth opportunities to become NEET in West Sumatera province can be written as:

$$Y = ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 Reg + \beta_2 Gend + \beta_3 Mar + \beta_4 Edu + \beta_5 Mar\_HH + \beta_6 Edu\_HH + \varepsilon \quad \text{.....(1)}$$

Where $\left(\frac{p}{1-p}\right)$ is the probability of youth (15-24 years old) categorized as NEET,β_0 is a constant, $\beta_1 - \beta_6$ are regression coefficients, Reg is a the regional classifications of youth residential areas, $Gend$ is the gender of youth, Mar is the marital status of youth, Edu is the education level of youth, Mar_HH is the marital status of household head, and Edu_HH is the education level of household head. Model (1) is said to be the basic model because later the other model obtained must go through several types of tests, so that a regression model that can contain all the characteristics is a model that is less feasible to use.

Odds ratio

The odds ratio illustrates the interpretation of the logistic regression coefficient to see the extent of the real effect of the independent variable. The odds ratio is obtained by comparing the odds value of one of the variable values with the odds value of the variable being the reference. If there are two categories used for example 0 and 1, 0 as a reference, then the odds ratio value for category 1 is expressed as follows:

$$\varphi = \left[\frac{p(X_j=1)/(1-p(X_j=1))}{p(X_j=0)/(1-p(X_j=0))}\right] = exp(\beta_j) \quad \text{.....(2)}$$

The result of $exp(\beta_j)$ is the value of odds ratio for each independent variable.

There are several stages of testing the logistic regression model. According to Hosmer & Lemeshow (1989) the stages of testing in logistic regression are as follows:

Testing the significance of the model overall (overall fit test)

This test is intended to check whether the independent variables together have a real effect in the model. The test statistic used in the G-test can be written as:

$$G = -2\ ln\left[\frac{Likeli\square oodwit\square outindependentvariabel}{Likeli\square oodwit\square independentvariables}\right] \quad \text{.....(3)}$$

The hypothesis in this test is:
$H_0 : \beta_1 = \beta_2 = \cdots = \beta_k = 0$; there is no effect of all independent variables on the dependent variable
$H_1 :$ there is $\beta_j \neq 0$; $j = 1,2, \ldots, k$; there is effect of independent variable at least one independent variable on the dependent variable
Test criteria: H_0 is rejected if the value of $G > \chi^2_{\alpha,k}$ or the significance value $<\alpha$.

Partial test of parameters significance (partial test)

This test used to see the real effect of parameters on model separately. The test statistic used is the Wald-test, which can be write as:

$$W_j = \left(\frac{\beta_j}{SE(\beta_j)}\right)^2 ; \ \mathrm{j} = 0,1,2, \ldots, \mathrm{k} \quad \ldots(4)$$

Where $SE(\beta_j)$ is standard error of β_j.
The hypothesis used is:
$H_0 : \beta_j = 0$; the independent variable does not significantly affect the dependent variable
$H_1 : \beta_j \neq 0$; $j = 1,2 \ldots, k$; the independent variable significantly affect the dependent variable
Test criteria: H_0 is rejected if the value of $W > \chi^2_{\alpha,1}$ or the significance value $<\alpha$.

Model compatibility test (goodness of fit)

Model compatibility test (Goodness of Fit) is performed to see the suitability of the model with the data used. The test statistic used is the Hosmer-Lemeshow test, namely:

$$\hat{C} = \sum_{i=1}^{g} \frac{(O_i - N_i\bar{\pi}_i)^2}{N_i\bar{\pi}_i(1-\bar{\pi}_i)} \quad \ldots(5)$$

Where N_i is the total observation frequency of the ith group, O_i is the observation frequency of the ith group and $\bar{\pi}_i$ is the average estimated opportunity of the ith group.
The hypothesis used is:
H_0 : the model is quite capable of explaining data
H_1 : the model is not enough to explain the data
Test criteria: H_0 is rejected if the value of $\hat{C} > \chi^2_{\alpha,g-2}$ or the significance value $<\alpha$.

RESULTS AND DISCUSSION

Proportion of NEET youth by regency and municipality

Figure 1 shows the proportion of NEET youth in regency and municipality in West Sumatera province based on the sample used. There are 12 regencies and 7 municipalities in West Sumatera. In the two years in a row, Bukittinggi municipality became the region with the lowest proportion of NEET youth, while Pasaman district was the region with the highest proportion. The proportion of NEET youth in Bukittinggi municipality is 11.17 percent in 2017 and 11.32 percent in 2018. Meanwhile, the proportion of NEET youth in Pasaman district is 28.04 percent in 2017 and has increased to 30.60 percent in 2018.

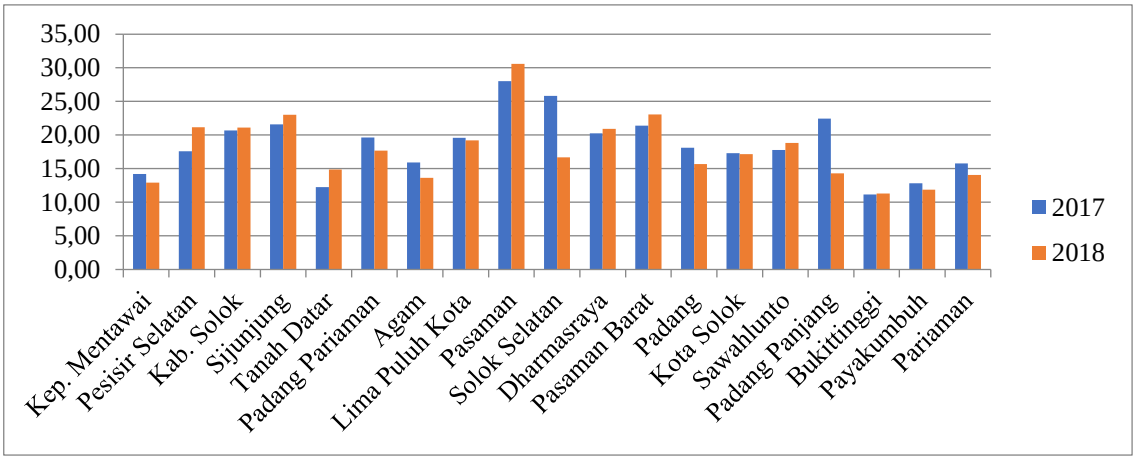


Figure 1. Proportion of NEET youth by regency/ municipality in West Sumatera Province in 2017 and 2018

The magnitude of NEET youth proportion provides quite varied values between regencies and municipalities in West Sumatera (for more clearly see Appendix). In the regency area, the proportion of NEET youth in 2017 ranged from 12.25 percent in Tanah Datar district to 28.04 percent in Pasaman district, and was in range of 12.90 percent in Mentawai Islands district to 30.60 percent in Pasaman district in 2018. There are has been an increase the proportion of NEET youth in the regency area in the last two years. As for the municipality area, in 2017 the proportion of NEET youth is in the range of 11.17 percent in Bukittinggi municipality to 22.45 percent at Padang Panjang municipality. And in 2018 it is in range of 11.32 percent in Bukittinggi municipality to 18.84 percent in Sawahlunto municipality.

The value of NEET youth proportion shows that the proportion of NEET youth in the regency area is relatively higher compared to the municipality area. This relates to the classification of rural and urban areas. In the regency area there are more areas with rural classification. Susanli (2016) states that youth who lives in rural areas tend to be easier becoming NEET status compared to youth who live in urban areas. So, it is not surprising that the proportion of NEET youth is higher in the regency area compared to the municipality area in West Sumatera province.

NEET youth activity levels

The level of NEET youth activeness illustrated youth activity in finding work. There are two categories of NEET youth activity levels, namely active and not actively seeking work. Actively looking for work is defined as unemployment whereas those who are not actively looking for work are called economy inactive (Elder, 2015).

Based on Figure 2, it is obtained that NEET youth in 2017 and 2018 are dominated by inactive youth. In 2017 there were 66.19 percent of NEET youth who were not actively looking for work and 33.81 percent of unemployed youth or actively looking for work. Similar conditions occur in 2018. In 2018 there were 69.29 percent of NEET youth who were not actively looking for work and as many as 30.71 percent of NEET youth were actively looking for work. This is in line with Susanli (2016) who conducted research using 2004-2013 data and found that NEET youth in Turkey are dominated by economically inactive youth. And Byoung-hoon & Jong-sung (2012) found an inactive youth population was much higher compared to youth unemployment in Korea in 1990-2010. NEET youth inactivity in the labor market can be caused by the youth's desperation to get a job. Despair is seen as a result of difficulty on getting a job. This fact implies a mismatch of supply and demand in the labor market.

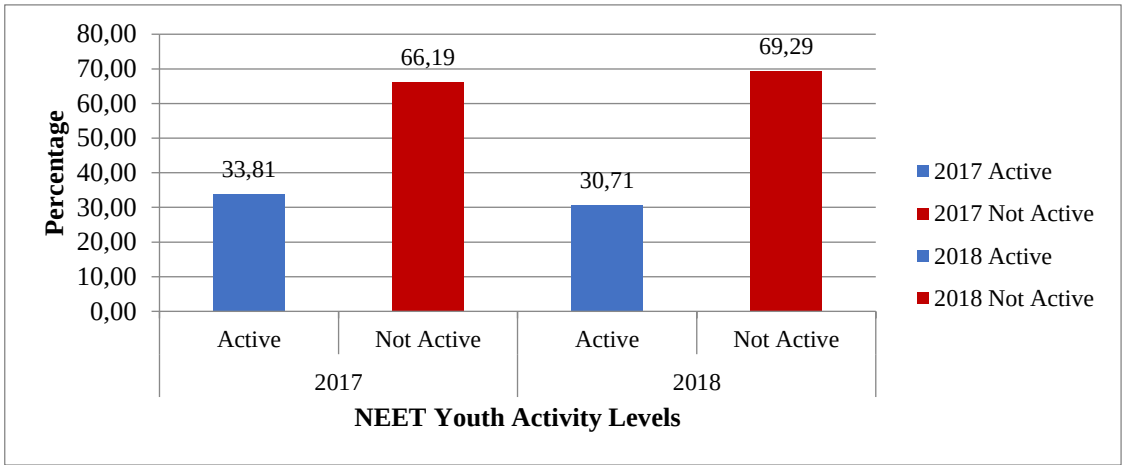


Figure 2.NEET youth activity levels in West Sumatera Province in 2017 and 2018

Determinant characteristics of youth opportunities to become NEET

The NEET youth characteristic discussed in this study consist of regional classification, youth gender, youth marital status, youth education level, marital status of household head and education level of household head. Figure 3 shows the proportion of NEET youth samples according to their characteristics.

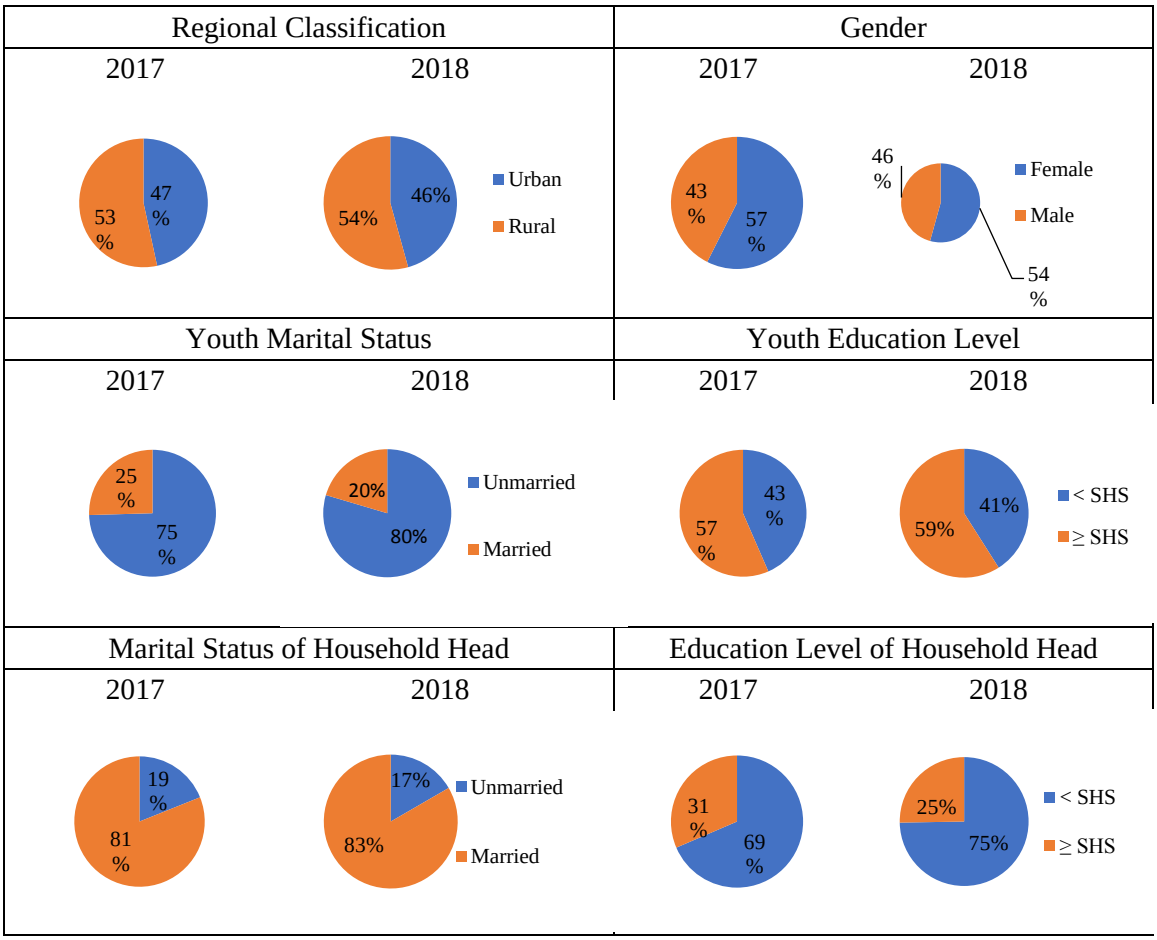


Figure 3. NEET youth characteristics in West Sumatera Province in 2017 and 2018

NEET youth spread almost evenly in rural and urban areas. However, the proportion of NEET youth living in rural areas is more than NEET youth living in urban areas. Meanwhile, NEET youth in the West Sumatera are more dominated by young women, this is similar to the report of Understanding Children's Work (2013) which states that the NEET youth in Indonesia and Brazil are dominated by young women. Based on marital status, the majority of NEET youths are single. In addition, it was found that the most NEET youths had a minimum of high school education. Viewed from background of the household head, NEET youth is dominated by parents who are married and have a relatively low education.

By using logistic regression analysis, there are two models of research result for 2017 and 2018. Namely the logistic regression model with all independent variables (model 1) and the logistic regression model by put out gender variable (model 2). Based on Table 1, model 1 in 2017 and 2018 do not fulfill all the eligibility requirements of the model in the test that applies in logistic regression. In the Goodness of Fit test, the significance values of Hosmer-Lemeshow test are 0.006 and 0.007 for 2017 and 2018 respectively. These values are smaller than α, either at 1% or 5% level. So the test result gives the conclusion that the models with all independent variables are not enough to be able to explain the data. Whereas the models that do not contain gender variable already fulfill all the tests in logistic regression. The significance value of G-test show that the models feasible and show that there are effect of the independent variables on the dependent variable. Meanwhile Wald-test result obtained several independent variables that have significant effect on the models. And finally, the result of the Hosmer-Lemeshow test give result that the 2017 model is able to explain data at 1% real level and the 2018 model is able to explain data at 5% real level.

Table 1. Logistic regression results

Variables	2017		2018	
	Odds Ratio Model 1	*Odds Ratio* Model 2	*Odds Ratio* Model 1	*Odds Ratio* Model 2
Constant	0.112***	0.102***	0.110***	0.101***
Reg	1.149	1.150	1.244**	1.243**
	(0.019)	(0.019)	(0.028)	(0.028)
Gend	0.849	-	0.861	-
	(-0.022)		(-0.020)	
Mar	4.776***	5.020***	3.918***	4.099***
	(0.300)	(0.313)	(0.250)	(0.260)
Edu	2.760***	2.813***	3.424***	3.463***
	(0.151)	(0.155)	(0.181)	(0.183)
Mar_HH	1.200	1.197	1.155	1.154
	(0.024)	(0.024)	(0.018)	(0.018)
Edu_HH	0.739***	0.737***	0.557***	0.556***
	(-0.040)	(-0.041)	(-0.072)	(-0.072)
G-Test	0.000	0.000	0.000	0.000
Hosmer-Lemeshow Test	0.006	0.012	0.007	0.059
Classification Table Value	81.3	81.3	81.7	81.8
Pseudo R-Square	0.138	0.137	0.146	0.145

Source : 2017 and 2018 Sakernas Data (Processed)
Note : Marginal effect in parentheses
***;** significant at 1%;5%

The suitability of the model in predicting a youth's opportunity of being NEET can be seen through classification table value. The classification table values in 2017 and 2018 are above 80 percent. This means, the model has a fairly good ability to

predict the conditions that occur. Meanwhile, the Pseudo R-Square value is at 13.7 percent in 2017 and 14.5 percent in 2018. This value indicates the ability of independent variable to explain the dependent variable in the model while the rest is explained by other factors outside the model. Table 1 presents the odds ratio and marginal effect of each independent variable in the NEET youth logistic regression models in 2017 and 2018. For the coefficient (β) and standard error (SE) values can be seen in Appendix.

The regional classification only has significant effect on the NEET youth model in 2018. The odds ratio shows the tendency of a youth living in a rural area to be NEET of 1.243 times compared to a youth living in an urban area. This means that youth who live in rural areas have greater opportunities to become NEET youth. These findings confirm Susanli (2016) who states that youth who live in rural areas are more liable to NEET. But contrary to result of research by Elfindri, Soebiakto, Harizal, & Rezki (2015) who found that youth who live in urban areas actually have greater chance of becoming unemployed or inactive youth. These different findings can be caused by different regional and population conditions. In West Sumatera, the economy and education facilities in rural areas tend to be lower than urban areas, so that young people will have difficulty getting work or continuing education. In the end it will open up opportunities to NEET.

Gender does not influence the determination of NEET youth status. So by excluding the sex factor, model 2 is obtained which is more feasible and fulfills all test in logistic regression. However, based on models 1 of 2017 and 2018, there is tendency for male youth to reduce their chances of becoming NEET youth. This finding shows similarities with the results of Drakaki, Papadakis, Kyridis, & Papargyris (2014), Elfindri Soebiakto, Harizal, & Rezki (2015), Susanli (2016) and Alimkhanova (2018) studies that mention young women as being more vulnerable to entering NEET status. This happens because women especially for married women tend to be more easily involved in activities that are not in the labor market such as household activities. Specifically for the West Sumatera province, the matrilineal system puts women in charge of economic resources within their tribes, making it possible for women to just wait at home without playing an active role in the labor market. This happens because they feel secure in the economy.

Marital status is one of the significant factors affect a youth's chances of becoming NEET. Young people who are married have a greater chance of holding NEET status. In 2017 the number of NEET youth will increase by 31.3 percent for every 1 percent increase in young people with married status. Meanwhile in 2018 the number of NEET youths will increase by 26 percent for every 1 percent increase in married status. Although the findings in the study are not in line with the research of Drakaki, Papadakis, Kyridis, & Papargyris (2014) who found that most of the NEET youth consisted of youth with unmarried status. However, this finding confirms Susanli (2016) study which found that married youth had a greater chance of becoming NEET, especially among young women.

Previous research by Drakaki, Papadakis, Kyridis, & Papargyris (2014), Inui, Sano, & Hiratsuka (2015) and Susanli (2016) found that the higher the youth education level, the less likely to become NEET. The results of this study actually show the opposite of previous studies were someone with a high education level has a greater chance of falling into NEET status. In 2017 it was found that the opportunity for someone with a high school education an above was 2.813 times compared to youth who had a level of education bellow high school to enter the NEET group. Likewise for 2018, the opportunity increased to 3.463 times for youth with tertiary education to become NEET youth. This fact shows that difficulty for highly educated youth to find work that suits their educational background. In other words, there is a mismatch

between the types of labor demand and supply in labor market. This is in line with the research of Byoung-hoon & Jong-sung (2012) who discovered the phenomenon that young people who do not work in Korea mostly have a high educational background, they tend to be less active in looking for work and prefer to take part in job training because of difficulties in finding work.

The marital status of household head does not have significant effect on the opportunity of a youth becoming NEET. However, the findings show the tendency of youth who have a household head with married status will have a greater chance of becoming NEET. This finding is different from the result of research by Inui, Sano, & Hiratsuka (2015) who found that a family background such as divorce from parents would encourage the child or youth fall into NEET status.

The education level of household head gives a significant and negative effect on NEET youth opportunities. By 2018, the number of NEET youth in West Sumatera will tend to decrease by 7.2 percent with every 1 percent increase in the number of youth who have household heads with senior secondary education or above. In other words, the proportion of a youth to be NEET will be smaller if he has a household heads with an increasingly high education level. This findings confirm several previous studies namely Byoung-hoon & Jong-sung (2012) and Alfieri, Sironi, Marta, Rosina& Marzana (2015) which show that the higher the education of parents, will reduce the risk of the child to enter into NEET status. This is possible because high parental education will be related to economic status and parental education awareness. So they can provide support in order to their children get good education and employment.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The proportion of NEET youth in West Sumatera province in 2017 ranged from 11.17 percent to 28.04 percent, and increased in 2018 from 11.32 percent to 30.60 percent. There is variation in the proportion of NEET youth between districts and municipalities. In general the proportion of NEET youth in the district is higher than in the municipality area. This can occur because of the economic level, the availability of infrastructure and educational facilities are still limited in the regency. Thus resulting in the difficulty of youth to get a job or continue education.

NEET youth was dominated by youth who were not active in the economy. Only one third of NEET youth are actively looking for work. Then, youth who live in rural areas have a greater chance of becoming NEET compared to youth who live in urban areas. Meanwhile, young people who are married will easily enter NEET status. This relates to young women who prioritize household activities when they are married. The findings differ from most studies precisely on the characteristics of education level. It was found that the higher the youth education level then the chances of youth to be NEET will be higher too. This confirms the phenomenon of higher educated unemployment in recent years. Next, youth who have a household head with higher education will have a smaller opportunity to become NEET youth.

Gender characteristics do not have a significant influence on the determinants of youth status in areas that adhere to this matrilineal kinship system. Nevertheless, the result of the study indicated a tendency for young women to have a greater chance of becoming NEET youth. Women who get the privilege as holder of inheritance actually fall asleep with the comfort they get. With this convenience, women in Minangkabau prefer to play their roles as mother and women in the household rather than enter the labor market. However, the matrilineal kinship system also recognizes women’s rights to enter the public sphere.

Recommendations

Government effort to reduce the proportion of NEET youth as contained in Sustainable Development Goals (SDGs) must be supported by relevant parties an element of society. In an effort to reduce the proportion of NEET youth in West Sumatera based on the result of this research, the government shall implement policies related to equitable development between urban and rural areas. Equity is considered necessary because with the increase in the economy and public facilities in rural areas then job opportunities, education and the standard of living of the people will also increase.

The result of the research show that the higher the education level, the chance for a young person to become NEET will increase. This means that there is a relatively large proportion of educated inactivity and unemployment. This phenomenon can occur due to the mismatch of background knowledge and skills of youth with available jobs and individual youth factors in the form of laziness and despair. For this reason, the government can take policy to improve the education system by incorporating skills and practices in tertiary education, so that after graduating youth will not feel strange to entering working world. Besides that, the government could create training and skills programs for young people especially young people who are married and not doing economic activities. The purpose of the training is to increase creativity and teach young people skills such as workshop, sewing skills, food industry and so on. Thus fostering the interest and motivation of youth to carry out productive activities and support the family economy.

Regarding methodology, this research uses relatively limited data related to variable coverage. And this relates to availability of data. We suggest that further research on NEET youth could be expended by adding income factors and health indicator as determinant of NEET status. Addition of these two factors will make the result of research more varied with broader scope. Moreover to these factors, we also suggest using personal information from NEET youth related to mental, emotional and psychological of NEET youth. Data like this are usually not available in large-scale surveys, but through direct interviews. Research conducted by direct interviews and using different method will provide other interesting results that are different from this study.

REFERENCES

Alfieri, S., Sironi, E., Marta, E., Rosina, A., & Marzana, D. (2015). Young Italian NEETs (Not in Employment , Education , or Training) and the Influence of Their Family Background. *Europe's Journal of Psychology*, *11*(2), 311–322. https://doi.org/10.5964/ejop.v11i2.901

Alimkhanova, D. (2018). Understanding the Rising NEET Phenomenon in Southern Khazakhstan. *Central Asia Program Fellows Paper*, *206*, 1–18.

BPS. (2016). *Potret Awal Tujuan Pembangunan Berkelanjutan (Sustainable Development Goals) di Indonesia*. Jakarta: BPS

BPS. (2012). *Analisis Statistik Sosial Bonus Demografi dan Pertumbuhan Ekonomi*. Jakarta: BPS

BPS. (2017). *Pedoman Pencacah Sakernas Februari 2017*. Jakarta: BPS

BPS. (2019). *Statistik Indonesia 2019*. Jakarta: BPS

Bălan, M. (2016). Economic and Social Consequences Triggered By The Neet Youth. *Knowledge Horizons-Economics*, *8*(2), 80–87.

Becker, G. S. (1994). *Human Capital: A Theoritical and Empirical Analysis with Special Reference to Education (Third Edition)*. Chicago: The University of Chicago Press

Byoung-hoon, L., & Jong-sung, K. (2012). A Causal Analysis of Youth Inactiveness in the Korean Labor Market. *Korea Jurnal*, *52*(4), 139–165. https://doi.org/10.25024/kj.2012.52.4.139

Crismaru, M., Gagauz, O., & Buciuceanu-Vrabie, M. (2017). *Inclusion of YouthNot In Employment, Education or Training (NEET Youth)*. Report of UNDP in the Republic of Moldova. Chisinau.

Drakaki, M., Papadakis, N., Kyridis, A., & Papargyris, A. (2014). Who ' s The Greek Neet ? Neets ' Profile in Greece : Parameters , Trends and Common Characteristics of a Heterogeneous Group. *International Journal of Humanities and Social Science*, *4*(6), 240–254.

Elder, S. (2015). *What does NEETs Mean and Why is The concept So Easily Misinterpreted ?*. Geneva: ILO

Elfindri, Soebiakto, B., Harizal, & Rezki, J. F. (2015). Youth idleness in Indonesia. *Asian Social Science*, *11*(13), 251–259. https://doi.org/10.5539/ass.v11n13p251

Furlong, A. (2006). Not a Very NEET Solution: Representing Problematic Labour Market Transitions Among Early School-Leavers. *Work, Employmeny and Society*, *20*(3), 553–569. https://doi.org/10.1177/0950017006067001

Hakimi, I. D. R P. (1976). *Pegangan Bundo Kanduang di Minangkabau*. Bandung: CV. Rosda

Hosmer, D.W. & Lemeshow, S. (1989). *Applied Logistic Regression*. USA: A Wiley-Interscience Publication

International Labour Organization. (2017). *Laporan Ketenagakerjaan Indonesia 2017 Memanfaatkan Teknologi untuk Pertumbuhan dan Penciptaan Lapangan Kerja*. Kantor Jakarta: ILO

Inui, A., Sano, M., & Hiratsuka, M. (2015). Precarious Youth and Its Social/Political Discourse : Freeters, NEETs, and Unemployed Youth in Japan. *(Comparative Studies on NEET, Freeter, and Unemployed Youth in Japan and the UK)*, 73–100.

Lee, J. (2018). Human Capital Development for Sustained and Innovative Growth - The Korean Experience and its Implication for Late-comers. *The 8th International Forum on Economic Development*. Bali-Indonesia.

Maryati, S. (2015). Dinamika Pengangguran Terdidik: Tantangan Menuju Bonus Demografi di Indonesia. *Journal of Economic and Economic Education*, *3*(2), 124–136.

Mincer, J. A. (1974). *Schooling, Experience and Earnings*. New York: National Bureau of Economic Research

Schultz, T. W. (1961). Investment In Human Capital. *The American Economic Review*, *51*(1), 1–17.

Siregar, R. (2017). Sumber Daya Manusia Dalam Pembangunan Nasional. *Prosiding Seminar Nasional Tahunan Ilmu Sosial Universitas Negeri Medan*, (2), 378–381.

Statistics Canada. (2018). *The Transition From School to Work - the NEET (not in employment , education or training) Indicator for 15 to 19 Year Olds in Canada*. Catallogue no. 81-559-X-No.12. Canada: Statistics Canada

Susanli, Z. B. (2016). Understanding The Neet in Turkey. *Eurasian Journal of Economics and Finance*, *4*(2), 42–57. https://doi.org/10.15604/ejef.2016.04.02.004

Understanding Children's Work. (2013). *NEET Youth Dynamics in Indonesia and Brazil: A Cohort Analysis*. Understanding Children's Work (UCW) Programme Working Paper Series. Rome:UCW

Young Women's Trust. (2014). *Literature Review Neets and Gender*. London: Young Women's Trust

APPENDIX

Table 2. Logistic regression variables

Variables	Categories
Youth Aged 15-24 Years Old (Y)	1 : NEET Youth
	0 : Not a NEET Youth
Regional Classification (X_1)	1 : Rural
	0 : Urban
Youth Gender (X_2)	1 : Male
	0 : Female
Youth Marital Status (X_3)	1 : Married
	0 : Unmarried
Youth Education Level (X_4)	1 : ≥ Senior High School (SHS)
	0 : <Senior High School (SHS)
Marital Status of Household Head (X_5)	1 : Married
	0 : Unmarried
Education Level of Household Head (X_6)	1 : ≥ Senior High School (SHS)
	0 : <Senior High School (SHS)

Table 3. The proportion of NEET youth samples by regency or municipality in West Sumatera in 2017 and 2018

No	Name of Regency or Municipality	The proportion of NEET Youth (%)	
		2017	2018
Regency			
1	Kep. Mentawai	14.19	12.90
2	Pesisir Selatan	17.58	21.14
3	Solok	20.70	21.13
4	Sijunjung	21.60	23.03
5	Tanah Datar	12.25	14.89
6	Padang Pariaman	19.64	17.67
7	Agam	15.93	13.66
8	Lima Puluh Kota	19.58	19.21
9	Pasaman	28.04	30.60
10	Solok Selatan	25.84	16.67
11	Dharmasraya	20.28	20.94
12	Pasaman Barat	21.40	23.08
Municipality			
1	Padang	18.10	15.70
2	Solok	17.32	17.16
3	Sawahlunto	17.76	18.84
4	Padang Panjang	22.45	14.29
5	Bukittinggi	11.17	11.32
6	Payakumbuh	12.82	11.86
7	Pariaman	15.76	14.04
	West Sumatera	18.27	20.28

Source : 2017 and 2018 Sakernas Data (Processed)

Table 4. The constant and coefficients (β) and standard error (SE) values of logistic regression result in 2017 and 2018

Variables	2017				2018			
	Model 1		Model 2		Model 1		Model 2	
	B	SE	β	SE	B	SE	β	SE
Constant	-2.187***	0.128	-2.280***	0.118	-2.207***	0.147	-2.292***	0.138
Reg	0.139	0.087	0.140	0.087	0.218**	0.094	0.217**	0.094
Gend	-0.163	0.087	-	-	-0.150	0.093	-	-
Mar	1.564***	0.116	1.613***	0.113	1.366***	0.135	1.411***	0.132
Edu	1.015***	0.086	1.034***	0.086	1.231***	0.093	1.242***	0.093
Mar_HH	0.182	0.107	0.180	0.107	0.144	0.121	0.143	0.121
Edu_HH	-0.303***	0.093	-0.306***	0.093	-0.585***	0.105	-0.586***	0.105

Source : 2017 and 2018 Sakernas Data (Processed)

Note : Marginal effect in parentheses

***;** significant at 1%;5%

Fiscal illusion as an incentive for local government public expenditure efficiency: The influence of community sensitization

Paul Onyango-Delewa

Department of Accounting and Finance, Faculty of Business and Development Studies, Gulu University, Gulu, Uganda

Correspondence author email: ponydel2005@gmail.com; ponydel@gu.ac.ug.

Abstract

Although the effect of public expenditure efficiency on local government fiscal performance is widely-documented, what precisely explains expenditure efficiency remains largely unclear. Nevertheless, past research holds fiscal illusion as the most likely predictor and community sensitization very critical for fiscal illusion-expenditure efficiency formation. We employed fiscal illusion theory to investigate possible fiscal illusion-community sensitization-expenditure efficiency mediation in 16 districts, 6 municipalities, and 160 sub-counties of Uganda's northern region. Over the years, Uganda; an East African country, is applauded for its fiscal federalism proficiency. But presently, its northern region is grappling a 20-year post-conflict trauma likely to compromise entity spending efficiency. Structural equation modeling results suggest that all the four fiscal illusion constructs: fiscal imbalances, political divide, tax payment bias, and fiscal sabotage, predict changes in expenditure efficiency. However, community sensitization does not mediate the fiscal illusion-expenditure efficiency linkages. Implications for these findings and possible direction for future research are discussed.

Keywords: *Community sensitization, Expenditure efficiency, Fiscal illusion, Local government*

JEL Classification: H31, H71, H72

INTRODUCTION

Sub-national entities particularly local governments are meant to provide public services of different kinds to their citizens. In developing countries such as those of Sub-Saharan Africa, common public services at local level include: education, health, road networks, water and sanitation, and cultural and communal support (Afonso & Fernandes, 2008; Gupta & Marijn, 2001). The fiscal federalism mandate also requires that the services must be of sustainable, high quality, and cost-effective nature (Gupta & Marijn, 2001). However, attaining that obligation effectively necessitates pre-determined, properly-managed, and constantly-monitored spending. Mutually, this is what is termed public expenditure efficiency by public administration-related theory, research and practice (Clemens & Miran, 2012; Gupta & Marijn, 2001).

As noted by Blair (2000) and most recently Clemens & Miran (2012), few entities in either the developed or developing world have ever attained acceptable levels of public expenditure efficiency. Hence, it is not clearly understood what precisely explains that problem. Much as resource-constraint, corruption, bureaucracy, tribal differences, and

partisan politics are frequently cited by related studies (e.g. Afonso & Fernandes, 2008; Gupta & Marijn, 2001) as predictors of public expenditure efficiency especially in Africa, the position is not decisive enough.

Guided by fiscal illusion theory (Oates, 1991; Wagner, 1976), several scholars (notably Dollery & Worthington, 1996; Devas, Delay & Hubbard, 2001; Dell'Anno & Mourao, 2012), assert that public expenditure inefficiency is largely a function of fiscal illusion practices. However, other researchers such as Ferrari & Manzi (2014) and Francis & Robert (2003) maintain that much as fiscal illusion possibly predicts changes in public expenditure efficiency, that prediction cannot be sustainable without community sensitization.

This study investigates fiscal illusion-public expenditure efficiency connections in selected local governments of Uganda, East Africa. It also examines whether community sensitization actually mediates the fiscal illusion-public expenditure efficiency relationship. For quite a long time, Uganda has been considered a proficient fiscal federalism player in Sub-Saharan Africa (Clemens & Miran, 2012). Its decentralization system rests on seven political and administrative regions that play host to one city (Kampala), 100 municipalities, 168 districts, and about 1,800 sub-counties. While the regions include: western, south-western, central, north-western, northern, north-eastern, and eastern, the district is the principle local entity in the country (Clemens & Miran, 2012; Ferrari & Manzi, 2014).

This paper makes three remarkable contributions to local government public expenditure efficiency literature. First, we introduce; apparently for the first time, a fiscal illusion-community sensitization-public expenditure efficiency model. This empirical innovation opens up opportunity for future scholars to carry out in-depth analysis of the otherwise chronic public expenditure efficiency problem. In practice, this will not only benefit African and other developing nations-based local entities, but also those in the developed world. Specifically, the model emphasizes the likely influence of community sensitization; a factor largely overlooked by past studies (e.g. Gemmell, Morrissey & Pinar, 2002; Mourao, 2006), in providing a sustainable solution to the expenditure efficiency dilemma.

Second, much as the current research focuses on the operations of local governments in only one country; Uganda, its motives are in no way parochial or narrow-minded. Rather it is a survey founded on a strong theoretical set-up (Oates, 1991; Wagner, 1976) and guided by equally a wide literature framework (e.g. Blair, 2000; Congleton, 2001; Ferrari & Manzi, 2014). In other words, the study's empirical set-up covers a broad range of global fiscal federalism experiences. Such experiences are likely to significantly benefit imminent works. This is in the reality that local entities are not confined to promoting the well-being of local communities alone, but constitute a critical factor in the national macroeconomic-development agenda (Gupta & Marijn, 2001).

Third, the study also targets entity administrators, employees, political representatives and the local communities. The idea is to draw their attention to the way public funds are expected to be spent and accordingly accounted for especially amidst resource scarcity and budgetary requirement realities. Consistent with evidence in the work of Gemmell, Morrissey and Pinar (2002), stakeholder appreciation and understandability of resource sourcing-expenditure linkages will greatly enhance expenditure efficiency.

THEORY, LITERATURE AND HYPOTHESES STRUCTURE

Public expenditure efficiency

Public expenditure is considered efficient when; given the amount spent, that amount is capable of generating the largest benefit possible for a country's population. However, decentralization policy broadly acknowledges that attaining expenditure efficiency especially at national level is not an easy task (Blair, 2000; Gupta & Marijn, 2001). This is basically because measuring both costs and benefits associated with public outlay is quite a complex undertaking.

Consistent with the fiscal illusion theory (Oates, 1991; Wagner, 1976), this generally arises from either entity failure to appreciate the implication of government expenditure or local community failure to accurately perceive expenditure outcome. Further, Wagner (1976) relates fiscal illusion to lack of transparency in revenue collection leading to public expenditure misinterpretation and eventually inefficiency.

On that basis, various countries in both the developed and developing world have gone fiscal federalism ideally to achieve public expenditure efficiency (Devas, Delay & Hubbard, 2001). Under fiscal federalism jurisdiction, expenditure efficiency is considered fairly practical on the grounds of presumed related accountability, responsiveness, governance, and quality service delivery operational dimensions (Afonso & Fernandes, 2008; Devas, Delay & Hubbard, 2001).

Essentially, as noted by Clemens and Miran (2012), public expenditure efficiency is feasible even in resource-constrained sub-national entities of developing countries as long as adequate technical commitment abounds. In congruence, related research (e.g. Afonso & Fernandes, 2008; Blair, 2000) indicates that while technical commitment is pivotal, there must be regulatory compliance in respect to all executed expenditure. Moreover, completion of public service-related projects which signify cost-benefit uniformity is also indicative of public expenditure efficiency especially at local government level (Gupta & Marijn, 2001).

Technical commitment

Local entity decision-makers and citizens play a critical role in paving the way public funds are supposed to be expended. This is especially so from public financial resource shortages and budgetary restrictions contexts typical of majority developing economies. As observed by Blair (2000) and Devas, Delay & Hubbard (2001), in such jurisdictions, public resources must be spent according to sustainability, efficiency, efficacy and economy principles. Supported by published fiscal data (e.g. Gupta & Marijn, 2001), these principles enhance local community information accessibility relevant for effective monitoring and control of entity administrators activities.

However, attaining that outlay standard requires reliable technical skills, commitment and transparency (Clemens & Miran, 2012). In Sub-Saharan Africa, local governments are persistently plagued with substantial service delivery and backlog challenges, corruption, and poor budgetary and financial management. This is largely due to administrator-employee technical skills incapacitation (Afonso & Fernandes, 2008; Clemens & Miran, 2012).

In Ugandan-based districts, notable administrators include: resident district commissioner (RDC), chief administrative officer (CAO), local council 5 (LC5) chairperson, chief finance officer (CFO), heads of department, and community representatives. The district constitutes the principle and foundational local entity in the country's decentralization structure (Blair, 2000; Gupta & Marijn, 2001).

The RDC is directly appointed by the president to coordinate public services, advice the LC5 chairperson on national political and economic matters, and execute any other matters assigned by the president or prescribed by parliament. Practice and research (e.g. Afonso & Fernandes, 2008; Clemens & Miran, 2012) have shown that majority RDCs in the country are appointed on political grounds and generally lack public finance technical knowledge and skills.

The CAO; appointed by public service commission at national level, would be technical but their capacity is often compromised by tribalism and partisan politics. Heads of department, employees and community representatives are appointed by the district service commission largely on sectarian, tribal and political considerations (Blair, 2000; Clemens & Miran, 2012).

Amidst the foregoing personnel appointment inconsistencies and lack of operational autonomy, it explains why various past studies (e.g. Blair, 2000; Congleton, 2001; Dollery & Worthington, 1996; Mourao, 2006), persistently advocate for local entity autonomy in order to secure community services. Furthermore, and perhaps most terrifyingly, this situation also expounds why some scholars (Afonso & Fernandes, 2008; Clemens & Miran, 2012; Dell'Anno & Mourao, 2012) have for long envisioned reversal towards centralization as the only panacea to the expenditure efficiency problem in Africa.

Regulatory compliance

When local governments act within the parameters of budgetary and financial management law, they regulate and manage public expenditure under their control effectively. Fiscal illusion theory (Oates, 1991; Wagner, 1976), research (e.g. Blair, 2000; Clemens & Miran, 2012; Congleton, 2001), and fiscal federalism policy posit that public spending responsibility be preferably executed by authorities closest to the communities.

Given their technical competencies, these entity administrators will execute their expenditure mandates within the law. Besides, Clemens & Miran (2012) suggest that in resource-strained and corruption-ridden entities such as those of Africa, central governments intervention be limited. For instance, higher authorities should only come in when local spending coordination and discharge is persistently inefficient.

Uganda, Kenya, Nigeria, Ethiopia, and South Africa; to name but a few Sub-Saharan Africa countries, operate tightly-regulated public expenditure mechanisms (Afonso & Fernandes, 2008; Dell'Anno & Mourao, 2012). However, what undermines judicial systems in these countries; notably that of Uganda, is lack of independence in handling particularly fiscal corruption and accountability incidences (Dell'Anno & Mourao, 2012).

Projects completion

Globally, public service projects require huge amounts of fiscal and other resources in order to be set-up. Key projects include: education and health facilities, road networks, and water and sanitation amenities. In Africa, the largely rural-based projects are mainly financed by inter-governmental fiscal transfers (grants) and donor aid. Over the years, empirical evidence (Blair, 2000; Ferrari & Manzi, 2014; Gupta & Marijn, 2001; Mourao, 2006) highlights community-based projects completion as the most crucial public expenditure efficiency challenge faced by majority local entities in the region.

Although funded by central government-highly monitored conditional grants and donor aid, few projects are satisfactorily completed. Inter alia, the works of Ferrari and Manzi (2014) and Mourao (2006) identify budgetary inconsistency and technical incapacitation as the most salient factors responsible for projects completion

complications in Sub-Saharan Africa. Moreover, in the case of Ugandan-based projects, Gupta & Marijn (2001) claim that lack of entity fiscal autonomy and corruption betray completion efforts at local levels.

Fiscal illusion

For quite a long time, past research (e.g. Dollery & Worthington, 1996; Devas, Delay & Hubbard, 2001; Dell'Anno & Mourao, 2012), has attributed local government failure to attain public expenditure efficiency to fiscal illusion. However, over the years, little significant effort has been taken to carry out an effective empirical investigation of the fiscal illusion-public expenditure efficiency linkages particularly in Africa-based local entities. According to Dollery & Worthington (1996) and more recently Dell'Anno & Mourao (2012), fiscal illusion is the prospect that entity costs and benefits may consistently be misconstrued by the local community.

Notably, Dell'Anno & Mourao (2012) highlight five economics-founded fiscal illusion generic attributes: revenue complexity, revenue elasticity, flypaper effect, renter illusion, and debt illusion. Accordingly, it is the flypaper effect and renter-illusion dimensions that explain the fiscal illusion prediction of public expenditure efficiency in local government (Devas, Delay & Hubbard, 2001; Dell'Anno & Mourao, 2012).

The flypaper concept holds that there is often a hypothesized tendency for central government grants; meant to finance local entity programs, to increase public expenditure by more than an equivalent increment in other forms of local revenue (Dell'Anno & Mourao, 2012; Guziejewska, 2016). Consequently, local administrators and community misperception that grants are gifts leads to expenditure mismanagement and inefficiency. It also makes the local taxpayers underestimate the reality that their tax liability increases correspondingly with those at national level (Dollery & Worthington, 1996; Guziejewska, 2016).

According to Devas, Delay & Hubbard (2001), renter-illusion rests on the reality that various local governments in majority fiscal federalism jurisdictions largely rely on property tax. The underlying assumption is that those communities that own property and are thus directly levied, will always correctly estimate public goods and services tax prices (Dollery & Worthington, 1996; Devas, Delay & Hubbard, 2001).

However, given the high illiteracy rate and lack of technical capacity among the local populace especially in Sub-Saharan Africa, tax price estimates are rarely accurate. This misconception leads local entity administrators to often mismanage expenditure and breed unnecessary spending inefficiency (Devas, Delay & Hubbard, 2001; Guziejewska, 2016).

Beneath the fiscal illusion-flypaper effect-renter illusion triangulation, resides four critical factors that recent studies (e.g. Congleton, 2001; Dell'Anno & Mourao, 2012; Gemmell, Morrissey & Pinar, 2002; Guziejewska, 2016; Mourao, 2006) claim predict changes in public expenditure efficiency especially in African local entities. These are: fiscal imbalances, political divide, tax payment bias, and fiscal sabotage.

Fiscal imbalances

At the heart of the fiscal federalism policy lies intergovernmental grants. Grants are meant to finance political, administrative, and economic activities at sub-national level otherwise executed by central government. Fiscal federalism advocates (e.g. Devas, Delay & Hubbard, 2001; Gemmell, Morrissey & Pinar, 2002; Mourao, 2006) argue that these fiscal transfers create multi-tiered governmental fiscal equity and equilibrium necessary for generating balanced macroeconomic stability and development.

However, in more recent empirical work, some scholars; notably Dell'Anno & Mourao (2012), and Guziejewska (2016) remain highly skeptical about the traditionally and often acclaimed role grants play in particularly local government fiscal machinery. The researchers identified a strikingly similar pattern in decentralized countries of both the developed and developing world: both vertical and horizontal fiscal imbalances created by intergovernmental grants breed free-spending tendencies in majority sub-national entities of most countries (Dell'Anno & Mourao, 2012).

Free-spending; a strong indicator of public expenditure inefficiency, eventually culminates into unsustainable fiscal deficits. Shortly thereafter, the perpetrator local entity calls upon central government to provide special bail-out transfers (supplementary budgets) or otherwise assume the liability (Dell'Anno & Mourao, 2012).

Accordingly, this implies that fiscal federalism indirectly extends mandate to some local entities to spend unnecessarily but transfer the cost burden to others. Moreover, the unfair fiscal mandate does not only hamper inter-entity competition; but as noted Guziejewska (2016), intergovernmental grants-generated fiscal imbalances significantly distort local revenue-grants linkages.

Consistent with the fiscal illusion theory (Oates, 1991; Wagner, 1976), in weak fiscal federalism jurisdictions such as those of Sub-Saharan Africa, entity administrators take advantage of uncoordinated local revenue-grants setups and related fiscal illusion misperception to overspend. Additionally, it has also been empirically demonstrated (Devas, Delay & Hubbard, 2001; Mourao, 2006) from the flypaper effect context, that even if grant amounts are increased, they cannot lead to local tax reduction.

In Ethiopia, Nigeria, South Africa, and specifically Uganda, frequent increments in grants levels have instead stimulated more public spending in local governments. Unfortunately, given the country's local entity questionable technical capacities, rampant corruption and rent-seeking practices, public expenditure inefficiency has been the norm (Devas, Delay & Hubbard, 2001; Guziejewska, 2016; Mourao, 2006). From the foregoing seemingly-endless fiscal imbalances-public expenditure efficiency deliberation, the following hypothesis is therefore proposed:

Hypothesis 1*: Fiscal imbalances are positively related to public expenditure efficiency.*

Political divide

Decentralizing political, administrative, and fiscal powers from central government to sub-national entities is basically a political initiative (Mourao, 2006). In fiscal matters, the politics further determines who should play which role in the sub-national budgetary and financial management systems. Furthermore, politics also sets the judicial structure under which various fiscal matters are governed (Devas, Delay & Hubbard, 2001; Mourao, 2006).

As notes Congleton (2001), local entity leadership often measured by the percentage of council seats held by the ruling political party, has substantial influence on expenditure efficiency. This is particularly the case in autocratic democracies where opposition party views are often sidelined. Besides, some scholars (e.g. Dell'Anno & Mourao, 2012; Gemmell, Morrissey & Pinar, 2002; Guziejewska, 2016) posit that the dictatorial approach employed in fiscal spending, heavily distorts the local revenue-grants structure and stimulates fiscal illusion misperception.

In Ugandan and South African-based local jurisdictions; for instance, often compromised democratic checks and balances arising from political divide, continually engender poor service delivery (Devas, Delay & Hubbard, 2001; Guziejewska, 2016). The preceding insight leads to this hypothesis:

Hypothesis 2*: Political divide and public expenditure efficiency are positively related.*

Tax payment bias

Both Oates (1991) and Wagner (1976); in their fiscal illusion theory propositions, commend decentralization and particularly fiscal federalism as the most ideal instrument of managing differences in local services tastes. Besides, it is a realistic tool that voters can employ to control entity administrators and political representatives' performance effectively (Wagner, 1976). To this end, Oates (1991) relates the performance dimension to a balanced, autonomous, and reliable local tax system. Such a tax performing system is capable of administering various types of taxes, fees, licenses, and charges simultaneously and in the most effective manner.

In practice, however, majority local tax authorities especially in resource-constrained economies of Sub-Saharan Africa, operate generally-balanced local tax systems but prone to perpetual tax payment bias. Empirical evidence (Congleton, 2001; Devas, Delay & Hubbard, 2001; Dollery & Worthington, 1996; Gemmell, Morrissey & Pinar, 2002) indicates that various local tax authorities in Ethiopia, Ghana, Kenya, Nigeria, Uganda, and South Africa; to name but a few, tend to emphasize property tax administration.

In Uganda, for instance, local governments generate their local revenue from property tax, local service tax, market dues, licenses, and various types of fees, but property tax is most underscored (Dollery & Worthington, 1996; Gemmell, Morrissey & Pinar, 2002).

The related policy stand is that that property tax is the only reliable and most effective form of taxation given its administration convenience. Additionally, it is the only form of tax with capacity of providing proper local entity incentives that can easily generate quality services. The services do not only raise community property value but ultimately empower revenue collection capacity (Congleton, 2001; Gemmell, Morrissey & Pinar, 2002).

However, recent research (e.g. Clemens & Miran, 2012; Dell'Anno & Mourao, 2012; Guziejewska, 2016) cautions that reliance on a single tax source breeds taxpayer bias and eventually tax evasion. Tax evasion has traditionally been associated with poor revenue collection, exacerbation of corruption and rent-seeking practices, fiscal transfers over-dependence, budget incrementalism, and inevitably fiscal illusion misperception (Clemens & Miran, 2012 Guziejewska, 2016). However autonomous a local entity may be, when it operates in such as a fiscal environment, its public expenditure efficiency endeavors must be restrained (Guziejewska, 2016). In sum, the Dell'Anno & Mourao (2012) perspective that local entities compromise their own public expenditure efficiency drive, may be substantive. We therefore propose that:

Hypothesis 3*: Tax payment bias and public expenditure efficiency have a positive relationship.*

Fiscal sabotage

In Sub-Saharan Africa, like other regions of both the developed and developing world, several countries operate fairly properly-decentralized governance and administrative structures (Afonso & Fernandes, 2008; Gupta & Marijn, 2001). Indeed countries like Ethiopia, Nigeria, South Africa, and Uganda, have over the years been acclaimed for particularly well-organized fiscal decentralization systems. These systems are largely funded by intergovernmental fiscal transfers and often supported by donor aid (Afonso & Fernandes, 2008; Clemens & Miran, 2012).

Some scholars (e.g. Dell'Anno & Mourao, 2012; Dollery & Worthington, 1996; Guziejewska, 2016) claim that the fiscal transfers-local revenue bases setup is not only associated with fiscal imbalances, but most importantly, generates fiscal illusion and

associated expenditure inefficiency. Accordingly, government administrators and political representatives in several local jurisdictions across Africa, consider the fiscal imbalances-fiscal illusion-inevitable expenditure inefficiency triangulation some form of fiscal sabotage (Dell'Anno & Mourao, 2012; Guziejewska, 2016).

In Uganda, for instance, this fiscal sabotage act has been perceived a deliberate political move designed to frustrate existing local authority fiscal mandates and get opportunity to create more districts (Clemens & Miran, 2012; Dollery & Worthington, 1996; Guziejewska, 2016). From less than 40 districts when the country adopted decentralization system in the early 1990s, today Uganda boasts of beyond 140 districts (Guziejewska, 2016).

Consistent with fiscal illusion theory (Oates, 1991; Wagner, 1976), current fiscal federalism research (e.g. Congleton, 2001; Gemmell, Morrissey & Pinar, 2002; Mourao, 2006) cautions that grantors who take advantage of fiscal illusion misperceptions to destabilize local entity operations, equally undermine their long-term macroeconomic growth-development objective. Moreover, creating unnecessarily large numbers of districts and other local entities can neither promote fiscal federalism, achieve public expenditure efficiency, nor gain local community service popularity.

It simply constitutes political backwardness and lack of fiscal foresight (Clemens & Miran, 2012; Guziejewska, 2016). Accordingly, the ensuing hypothesis abounds:
Hypothesis 4*: Fiscal sabotage and public expenditure efficiency should be positively related.*

Community sensitization

As noted in the introductory remarks of the current research, sub-national entities particularly local governments are meant to provide various kinds of public services to their citizens, the community. Afonso & Fernandes (2008), but earlier Gupta & Marijn (2001), identified services such as education, health, road networks, water and sanitation, and cultural and communal support as the most prevalent. This implies that communities must; firstly, be fully aware of the kind of services they require for development purposes, and secondly, the monetary and fiscal cost implications of these services. In cost terms, society must then properly appreciate how that cost is funded (Gupta & Marijn, 2001; Guziejewska, 2016).

From their community sensitization empirical stand, Ferrari & Manzi (2014) & Francis & Robert (2003) emphasize that local communities in modern fiscal federalism nations; including those of Africa, are expected to understand the four basic local revenue sources. These are local tax, fiscal transfers, donor aid, and loans. Or else, it is the duty of relevant authorities to timely sensitize society on this matter. Furthermore, the community must also be fully-conversant with the public expenditure-service benefit equation (Ferrari & Manzi, 2014).

Fiscal illusion has for long been empirically identified with public expenditure-benefits community misperception. Given that citizens of majority communities in the developing world particularly those of Africa are largely illiterate, politicians often take advantage of this fiscal knowledge gap to mislead the population (Ferrari & Manzi, 2014; Mourao, 2006). Moreover, entity administrators working in collaboration with the rent-seeking politicians, deliberately mismanage the available fiscal resources since the accountability mechanism is simply too weak (Mourao, 2006).

Some studies (e.g. Dell'Anno & Mourao, 2012; Gemmell, Morrissey & Pinar, 2002; Guziejewska, 2016) have also identified Ethiopian, South African, and Ugandan partisan politics and their more or less non-independent judicial systems with community sensitization deficiencies. For instance, Dell'Anno & Mourao (2012) claim that politics

and judicial impunity in these countries, significantly betray community sensitization on public expenditure concerns.

Consequently, public expenditure efficiency endeavors in majority of their local entities only exist in theory but practically, they largely remain a fiscal dream (Dell'Anno & Mourao, 2012).

Therefore, in order to establish the precise position of community sensitization-fiscal illusion-public expenditure efficiency linkages in local government, the following hypothesis was tested:

Hypothesis 5*: Community sensitization mediates the relationship between fiscal illusion and public expenditure efficiency.*

METHODS

Fiscal illusion and the local government public expenditure efficiency problem especially in Africa are generally considered extremely complex dimensions (Clemens & Miran, 2012; Dell'Anno & Mourao, 2012; Ferrari & Manzi, 2014). Thus, an investigation that involves establishing fiscal illusion-community sensitization-public expenditure efficiency linkages in such a resource-strained setting requires an equally effective research design (Cheung & Lau, 2008).

As recommended by various past studies (e.g. Hooper, Coughlan & Mullen, 2008; Ketchen, Boyd & Bergh, 2008), this research therefore engaged cross-sectional design given its capacity to generate rich and reliable data. The district, municipality, and sub-county were the study units of analysis while their administrators, employees, and community political representatives were its units of inquiry.

Sample

Hypotheses proposed in this study were tested using 255 questionnaires administered in 16 districts, 6 municipalities, and 160 sub-counties located in the northern-post conflict region of Uganda. The country's northern region; comprising of both Acholi and Lango sub-regions and a host to a series of public infrastructural projects, was purposively targeted given its perpetual public expenditure efficiency complications (Clemens & Miran, 2012; Ferrari & Manzi, 2014).

Sample participants included: 17% administrators (chief administrative officers, resident district commissioners, town clerks and local council 5 chairpersons), 19% chief finance officers, 24% heads of department, 30% finance operations-related employees, and 10% community representatives. By means of a stratified sampling method (Cheung & Lau, 2008; Ketchen, Boyd & Bergh, 2008), the participants were chosen randomly and purposively based on: position held (from all levels and job classification), period served (well-established and newer staff), and their stations in various localities.

However, due to sampling attrition (Ketchen, Boyd & Bergh, 2008), only 246 questionnaires (response rate 96%) were statistically analyzed. The response rate meets the empirical minimum of 65% for such studies (Dollery & Worthington, 1996; Hooper, Coughlan & Mullen, 2008). Participant biographical assessment revealed that 63% of them are male and the rest female but with mean age bracket of 40 years (SD=1.804).

Notably too, 64% of the respondents were married and 20% of them single. Majority of them (62%), are first degree-and-above certificate holders, while 21% hold diplomas. In terms of period served in various entity capacities, most respondents (61%) have occupied their positions for a period between 6 and 10 years.

Consistent with past research related to other parts of Africa (e.g. Gemmell, Morrissey & Pinar, 2002; Gupta & Marijn, 2001), the present study suggests that the surveyed local governments engage fairly well-educated personnel. Moreover, they

operate with a gender-balance focus, targeting manpower of middle age, with family responsibility, and potential to serve for a long time in future (Gemmell, Morrissey & Pinar, 2002).

Analytical procedures

In line with previous research (e.g. Cheung & Lau, 2008; Ketchen, Boyd & Bergh, 2008), the present study's descriptive and inferential statistics were generated using the Statistical Package for Social Sciences (SPSS) package. Accordingly, its instrument reliability and validity, and variable means, standard deviations, multicollinearity, correlation and prediction (regression) status were established. Cheung & Lau (2008) and Ketchen, Boyd & Bergh (2008) suggest that such preliminary statistics are critical for subsequent reliable hypothesis test results.

Proposed hypotheses were tested for both direct and indirect (mediation) effects by means of structural equation analysis (SEM) methodology rooted in the globally-acclaimed (Edwards & Lambert, 2007; Hooper, Coughlan & Mullen, 2008; Ketchen, Boyd & Bergh, 2008) Analysis of Moments Structures (AMOS) software.

In order to effectively verify the direct and mediation properties anticipated in the study hypothetical model, SEM was engaged on the recommended (Hooper, Coughlan & Mullen, 2008; Ketchen, Boyd & Bergh, 2008) two-step approach. According to Hooper, Coughlan & Mullen (2008), the bi-step tactic that engenders a measurement model and a structural model, significantly facilitates study variable-original data consistency verification. While the measurement model supports generation of goodness-of-fit indices required for general hypothesis effects testing, the structural model specially highlights mediation estimation statistics (Cheung & Lau, 2008; Edwards & Lambert, 2007).

Measures

In order to measure the various variable constructs of the study, previous research scales were adopted but modified accordingly. Devas, Delay & Hubbard (2001) and Edwards & Lambert (2007) applaud this approach for its effectiveness in measuring social science-related constructs. Thus:

Technical commitment

The construct technical commitment was assessed by 13 items ($\alpha = 0.827$) developed along the lines in validated scales employed by Blair (2000) and Gupta & Marijn (2001). Sample item: "This entity employs manpower with relevant technical capacity."

Regulatory compliance

On the basis of 12 items ($\alpha = 0.813$) closely related to those in the modified scale of Afonso & Fernandes (2008) research, the attribute regulatory compliance was measured. One of such items included the following: "Current expenditure efficiency regulations favor entity environment."

Projects completion

The 15 items ($\alpha = 0.791$); sample: "Most infrastructure-related projects in this local government have never been fully completed since initiation", developed along the tailored Clemens & Miran (2012) scales, was adopted in verifying the concept projects completion.

Fiscal imbalances

The scales in the empirical work of Congleton (2001) and Mourao (2006) were systematically adjusted to help support the 15 items ($\alpha = 0.854$) that were used in verifying the construct fiscal imbalances of this study. One of such items ran as follows: "This entity is relatively competitive because of fiscal imbalances."

Political divide

A modified scale drawn from previous research (Dollery & Worthington, 1996) was employed by the current study to investigate the attribute political divide. The item: "[…] fiscal expenditure issues are handled along political lines" was one of the 12 items (α = 0.799) that constituted the tailored scale.

Tax payment bias

The construct; tax payment bias, was tested using 14 items (α = 0.863). The items were structured on statistical scales employed by Devas, Delay & Hubbard (2001) and Mourao (2006) and one of such items read as follows: "The tax collection system employed by this entity is very fair."

Fiscal sabotage

Fiscal sabotage as a predictor of public expenditure efficiency in local government was measured by an (α = 0.824)-based 14 item scale. The Dell'Anno & Mourao (2012) adapted scale facilitated the items including: "[…] expenditure sabotage is openly apparent."

Community sensitization

As indicated earlier, community sensitization was a factor hypothesized to mediate the fiscal illusion-public expenditure efficiency relationship in local entities. Accordingly, a 15-item (α = 0.881) modified scale adopted from related empirical works (Ferrari & Manzi, 2014; Francis & Robert, 2003), was employed to measure it.

One such item was: "The local community surrounding this entity fully appreciates its expenditure activities." In sum, the foregoing construct assessment identities largely suggest that their respective individual study variables hold internal consistence (reliability) levels ($0.65 < \alpha < 0.95$) generally embraced by majority statistical circles (Cheung & Lau, 2008; Gemmell, Morrissey & Pinar, 2002; Hooper, Coughlan & Mullen, 2008).

Control variables

According to past research (e.g. Cheung & Lau, 2008; Clemens & Miran, 2012; Ketchen, Boyd & Bergh, 2008), participant biographic attributes potentially impair hypothesis test results. The effect can be minimized if they are controlled for (Clemens & Miran, 2012; Ketchen, Boyd & Bergh, 2008). Thus, in the current study, biographic characteristics: gender, age, marital status, educational level, position held, and tenure, were controlled for as follows: [Gender: (0=female, n=91; 1=male, n=155)]; [Age in years: (1=20-30, n=37; 2=31-40, n=161; 3=41+, n=48)]; [Marital status: (1=single, n=49; 2=married, n=157; 3=others n=40)]; [Educational level: (1=certificate, n=41; 2=diploma, n=52; 3=bachelor's degree+, n=153)]; [Job tenure in years: (1=1-3, n=69; 2=6-10, n=150; 3=7+, n=27)].

Moreover, we also controlled for a latent factor formally adopted to augment the study instrument validity testing. Empirical convention (Edwards & Lambert, 2007; Hooper, Coughlan & Mullen, 2008) requires that such factors be subjected to a confirmatory factor analysis-based Harman's One Factor verification if validity is to be meaningfully established. However, given the factor's potential influence on hypothesis test results, it has to be controlled for accordingly (Hooper, Coughlan & Mullen, 2008).

RESULTS AND DISCUSSION

Results

The correlations alongside means (M) and standard deviations (SD) for the model variable and construct ratings are presented in Table 1. Generally, the ratings evidence moderate to strong positive inter-correlations. For instance: public expenditure efficiency has a positive and a moderate relationship with fiscal illusion ($r = .38$, $p < .05$) but relates more strongly with community sensitization ($r = .45$, $p < .01$).

Table 1. Variable means (M), standard deviations (SD), reliability (α), and correlations

#	Item	M	SD	α	1	2	3	4	5	6	7	8	9	10
1	FI	3.29	1.53	.81	1									
2	PD	2.99	1.54	.79	.34**									
3	TPB	3.11	1.51	.88	-.19*	.23**								
4	FS	3.00	1.56	.83	.16*	.34	.45**							
5	**FIL**	2.77	1.63	.76	.23**	.41**	-.31	.44**						
6	**CS**	3.15	1.46	.82	.37*	-.22	.18	.13*	.49*					
7	TC	3.04	1.59	.73	-.42*	.35*	-.26	-.31	-.27**	.53**				
8	RC	2.97	1.61	.78	-.34	.19	-.25	.33**	.46	-.10	.28**			
9	PC	2.98	1.57	.84	.42	-.28*	.51	.21	.36**	.15*	.12	.40**		
10	**PEE**	2.86	1.52	.86	.27*	.35**	.14**	.26*	.38*	.45**	.32	.18**	.38**	1

Notes: n=246; FI=Fiscal Imbalances; PD=Political Divide; TPB=Tax Payment Bias; FS=Fiscal Sabotage; FIL=Fiscal Illusion; CS=Community Sensitization; TC=Technical Commitment; RC=Regulatory Compliance; PC=Projects Completion; PEE=Public Expenditure Efficiency; **Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed); Study variables are in bold.

Besides, community sensitization relates with fiscal illusion to the extent of ($r = .49$, $p < .01$). Such results are practically and empirically expected (see Afonso & Fernandes, 2008; Mourao, 2006) given the misperception fiscal illusion creates to local communities in regard to entity spending mandates. This is confirmed by the technical commitment-fiscal illusion negative and significant association ($r = -.27$, $p < .01$) suggesting how the fiscal illusion-rooted misperception impairs technical commitment (Gemmell, Morrissey & Pinar, 2002).

A combination of hierarchical regression and structural equation modelling (path) analyses (Cheung & Lau, 2008) was employed to test proposed hypotheses direct and mediation effects. Moreover, bootstrapping confidence interval (CI)-based analysis was engaged to reaffirm the SEM-generated mediation results (Cheung & Lau, 2008; Hooper, Coughlan & Mullen, 2008). All the said results are presented in Table 2.

As indicated earlier, Harman's One Factor analysis was performed to test the study instrument's construct and discriminate validity status. The collective validity stand obtains when Harman's indices compare badly with those of the measurement model (Edwards & Lambert, 2007; Hooper, Coughlan & Mullen, 2008). Indices for Harman's model were as follows: ($\chi2 = 7.805$; $df = 11$; $\chi2/df = 0.710$; IFI = 0.665; TLI = 0.741; CFI = 0.893; RMSEA = 0.217; L.046, H.134).

Those of the adopted five-factor measurement model were: ($\chi2 = 15.856$; $df = 8$; $\chi2/df = 1.982$; IFI = 0.974; TLI = 0.991; CFI = 0.982; RMSEA = 0.028; L.000, H.104). Since the Harman model results compared badly to those of the measurement model, the situation implies strong instrument validity (Hooper, Coughlan & Mullen, 2008).

The structural model indices required in verifying hypotheses direct and mediation effects were as follows: direct effect [Chi-Square (χ^2_{df})=.171; df=1; p=.679; ($\chi2/df$)=.171; GFI=.991; NFI=.999; RFI=.988; IFI=1.004; TLI=1.064; CFI=1.000; RMSEA=.026(L.127; H.760) at 90]; indirect effect [Chi-Square (χ^2_{df})=.012; df=1;

p=.912; (χ2/df)=.012; GFI=.989; NFI=.991; RFI=.999; IFI=1.014; TLI=1.044; CFI=.998; RMSEA=.051(L.000; H.068) at 90].

Previous simulation research (e.g. Congleton, 2001; Gupta & Marijn, 2001; Ketchen, Boyd & Bergh, 2008) also commends such results as evidence of a robust structural model whose analysis has the potential of begetting reliable hypothesis test results.

As displayed in Table 2, a positve and significant predictive relationship ($\beta = 0.954$, $p < .05$) exists between fiscal imbalances and public expenditure efficiency. These results suggest data support to Hypothesis 1.

Similarly, the results for Hypothesis 2 ($\beta = 0.621$, $p < .01$) indicate a positive and significant projective association between political divide and public expenditure efficiency. It had also been proposed as Hypothesis 3 that tax payment bias in surveyed local entities, predicts changes in public expenditure efficiency. The Table 2 results ($\beta = 0.734$, $p < .05$), also indicate data support for this empirical proposition. The last hypothesis direct effect proposal; Hypothesis 4, was that fiscal sabotage explains public expenditure efficiency in such jurisdictions. Statistical findings ($\beta = 0.848$, $p < .05$), signify a positive and significant fiscal sabotage-expenditure efficiency linkage suggesting related data backing.

Table 2. Hypotheses analysis

Dependent Variable: Public Expenditure Efficiency					
Particulars	β	SE	t	TV	VIF
Direct Effects					
Fiscal Imbalances → Public Expenditure Efficiency	.954*	.36	2.64	.62	1.64
Political Divide → Public Expenditure Efficiency	.621**	.29	1.89	.68	3.48
Tax Payment Bias → Public Expenditure Efficeincy	.734*	.81	1.53	.45	2.31
Fiscal Sabotage → Public Expenditure Efficiency	.848*	.53	2.17	.53	4.03
Indirect Effect					
Fiscal Illusion →Community Sensitization → Public Exp. Efficiency	-.538	.47	2.24	.37	3.06
Adjusted R^2 [.718]					
Bootstrapping Results: Indirect Effect (CI) [-0.093 ↔ 0.035]					

Notes: n = 246; SE = Standard Error; TV = Tolerance Value; VIF =Variable Inflation Factor; Public Exp. Efficiency = Public Expenditure Efficiency; Standardized Beta Coefficents Reported; *p < .05; **p < .01; Bootstrap Sample Size = 2000; CI = Confidence Interval.

Most critically, however, it had been projected as Hypothesis 5, that community sensitization mediates the fiscal illusion-public expenditure efficiency relationship in local government. The convetional structural equation modeling (Edwards & Lambert, 2007; Hooper, Coughlan & Mullen, 2008); Table 2 hypothesis indirect effect analysis results ($\beta = -0.538$, ns), suggest a negative and non-significant community sensitization mediation effect to that relationship. This implies that data from surveyed Ugandan-based entities could not support that hypothesis. Conversely, some scholars; notably Cheung and Lau (2008), hold reservations on the authenticity of regular SEM-based hypothesized indirect effect outcome. The two researchers argue that much as SEM is admittedly a robust simulation test technique, its mediation results are often compromised by structural model defects.

Accordingly, the current study's community sensitization factor was therefore subjected to further mediation verification: bootstrap testing (Cheung & Lau, 2008). Also rooted in the AMOS-SEM package, bootstrapping is globally perceived a more in-depth indirect effect testing technique by several statistical analysts (Cheung & Lau, 2008; Clemens & Miran, 2012).

On the basis of 2000 micro-samples, the 95% bias-corrected bootstrap employed in this study, produced a zero-content confidence interval (CI) of [-0.093 ↔ 0.035]. According to Cheung & Lau (2008), the moment a bootstrap CI or range holds a zero value within it; it is a full confirmation that a mediation influence does not exist.

The current study's statistical results: correlation, regression, structural equation modeling, and bootstrapping, are deemed quite reliable given its robust data structure. Notably, the dataset's common methods variance and multi-collinearity threats are very minimal. As shown in previous research (e.g. Blair, 2000; Edwards & Lambert, 2007; Ketchen, Boyd & Bergh, 2008; Mourao, 2006), data with tolerance values (TV) (≤ 1.00) and variable inflation factors (VIF) (≤ 10.00) are considered generally safe from the multi-collinearity threat. The study TV and VIF values presented in Table 2 meet these standards.

Discussion

The ensuing discussion of the present study's findings is undertaken variously from the context of contemporary theoretical, empirical, and practice environments. It is also important to note that; much as majority findings corroborate previous literature, several of them introduce quite innovative ideas to the local government expenditure efficiency knowledge body.

For instance, it had been proposed as Hypothesis 1 that fiscal imbalances relate positively with public expenditure efficiency in local government. Data generated from surveyed entities in northern Uganda supported that hypothesis. Moreover, this finding is in congruence with earlier empirical evidence in the work of Dollery & Worthington (1996). Recently Dell'Anno & Mourao (2012) also assert that fiscal imbalances explain changes in expenditure efficiency in such localities.

Consistent with the fiscal illusion theory (Oates, 1991; Wagner, 1976), local entities should institute measures that can mitigate fiscal illusion-related misperception often responsible for spending inefficiency. Dell'Anno & Mourao (2012) suggest independent judicial systems, partisan politics maturity, and fiscal transparency as notable measures for Sub-Saharan Africa localities.

In Hypothesis 2, it had been anticipated political divide and public expenditure efficiency also have positive linkages. Oates (1991) posits in the fiscal illusion theory that the moment local jurisdictions operate in divided political environments; their expenditure efficiency measures will always be compromised.

This enforces the Wagner (1976) and recent research (e.g. Dell'Anno & Mourao, 2012; Gemmell, Morrissey & Pinar, 2002; Guziejewska, 2016) observation that it is politics that determines local spending mandates especially in resource-strained economies of the developing world.

Thus, any flaws in the political machinery seriously undermine expenditure goals (Gemmell, Morrissey & Pinar, 2002; Guziejewska, 2016). Ugandan-based local governments are a living example as victims of the foregoing political divide-public expenditure efficiency triangulation (Dell'Anno & Mourao, 2012; Gemmell, Morrissey & Pinar, 2002). Past studies; notably (Congleton, 2001; Devas, Delay & Hubbard, 2001; Dollery & Worthington, 1996; Gemmell, Morrissey & Pinar, 2002), provide empirical evidence that: tax payment bias significantly affects public expenditure efficiency in local government.

Moreover, according to Oates (1991)'s fiscal illusion theoretical perspective, local spending proficiency is a function of balanced tax payment systems. This research had predicted particularly in its Hypothesis 3, that tax payment bias has a positive bearing to public expenditure efficiency in local entities.

Thus, the practical implication for local authorities in Africa; Uganda's entities inclusive, is that realistic and stable tax systems are inevitable for expenditure efficiency.

Conventional logic, theory, and empirical evidence (e.g. Clemens & Miran, 2012; Dollery & Worthington, 1996; Guziejewska, 2016) categorically indicate that fiscal sabotage must be responsible for public expenditure inefficiency in local jurisdictions. As stated in the present study's Hypothesis 4, fiscal sabotage indeed associates positively with public expenditure efficiency.

Both Oates (1991) and Wagner (1976) cautioned public entities on the potential risks fiscal sabotage pose to spending endeavors and as confirmed practically, several Sub-Saharan African entities have fallen victims. Ethiopia, Ghana, Nigeria, South Africa, and Uganda; to name but a few African countries, frequently acknowledge political-related fiscal sabotage. The practice has tremendously undermined their fiscal federalism systems but especially local spending efficiency (Dollery & Worthington, 1996; Guziejewska, 2016).

Finally, it had been postulated in Hypothesis 5 of this research that in local entities, community sensitization mediates the relationship between fiscal illusion and public expenditure efficiency. Contrary to past empirical stand, notably: Ferrari & Manzi (2014), and Francis & Robert (2003), data did not render support to the hypothesis test results. Such findings may arise in post-conflict traumatized societies such as that of northern Uganda in which this study was conducted. Driven by fiscal illusion misperception (Clemens & Miran, 2012; Guziejewska, 2016; Oates, 1991) typical of resource-constrained African entities, traumatized communities may find it a challenge to appreciate public spending efficiency sensitization benefits.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Possibly, this study is one of the very first efforts to address the issue of local entity public expenditure efficiency from a fiscal illusion theoretical perspective and particularly in a post-conflict environment of Sub-Saharan Africa. Previous research (e.g. Blair, 2000; Clemens & Miran, 2012; Dollery & Worthington, 1996), has largely neglected the matter especially when it obtains in a post-war setting. Its findings are therefore considered a significant contribution to the existant literature.

Moreover, when theorizing expenditure efficiency in such entities, past scholars (Afonso & Fernandes, 2008; Dell'Anno & Mourao, 2012) often highlight the importance of fiscal illusion-related misperceptions. The apparent influence of community sensitization on fiscal illusion-expenditure efficiency linkages is always downplayed except in few studies (Ferrari & Manzi, 2014; Francis & Robert, 2003).

Thus, this research impacts theory by critically examining how fiscal illusion theoretical underpinnings relate to fiscal illusion-community sensitization-expenditure efficiency relationships. Besides, it evaluates that theoretical influence in a post-conflict environment of resource-strapped economies of the developing world.

In terms of implication to practice, this study suggests that local government authorities must always be conversant with the role fiscal illusion plays in the expenditure

efficiency equation. As rightly observed by Gemmell, Morrissey & Pinar (2002), Gupta & Marijn (2001), and Mourao (2006), understanding the fiscal illusion dynamics is a key task for entity administrators, employees, and political representatives in executing spending mandates effectively.

Furthermore, entity leadership whether in conflict-ridden environs or not, should never ignore the relevancy of community sensitization in attaining expenditure efficiency. The sensitization factor is often sidelined due to associated trauma contrary to previous empirical evidence (e.g. Ferrari & Manzi, 2014).

In conclusion, this research takes a step in creating understandability of the fiscal illusion-community sensitization-public expenditure efficiency connections in local government. While the situation may be different in the developed world, local entity expenditure efficiency in poor and developing nations such as those of Sub-Saharan Africa seems to be a big challenge. In Uganda's post-conflict northern region, attaining acclaimed expenditure efficiency standards is yet to be seen.

Recommendations

Generally the study findings highlight the expected causal linkage in the fiscal illusion-community sensitization-public expenditure efficiency framework predicted by the fiscal illusion theory. However, we did not investigate the reigning inter-variable causality in its fullness. As indicated in related studies (Clemens & Miran, 2012; Congleton, 2001; Devas, Delay & Hubbard, 2001), three alternative research designs are proposed to strengthen causality evidence.

First, a longitudinal research design capable of capturing pre-conflict data. This can; for instance, facilitate more effective investigation of community sensitization as an actual mediator factor. However, identifying proper units of analysis prior to conflict may be a challenge due to forecast unpredictability (Congleton, 2001; Devas, Delay & Hubbard, 2001).

Second, an experimental design could potentially isolate all causal effects. But as noted Clemens & Miran (2012), conducting experimental research in natural and largely rural-based locality settings of Africa, may be very problematic. Besides, such a research design is likely to suffer common methods variance, multicollinearity, and validity setbacks (Ketchen, Boyd & Bergh, 2008).

Third, a systematic research agenda is also proposed. According to Congleton (2001), the approach involves collecting both respondent observational data on a longitudinal basis and back-up documentary evidence. However, such a strategy may be compromised by post-conflict trauma conditions if executed in a setting like that of northern Uganda.

The present study presents a number of findings in regard to local entity fiscal illusion-community sensitization-public expenditure efficiency triangulation. However, several of the findings require further research. One potential explanation for attaining meaningful expenditure efficiency was that fiscal illusion be addressed at local level. If this position is maintained, then the role of central government would be overlooked.

On the basis of fiscal illusion theory (Oates, 1991; Wagner, 1976) and any other related theory, it is therefore important for upcoming research to equally consider the central authority influence in the expenditure efficiency endeavors of its local governments. Additionally, future research should investigate community sensitization mediation in the fiscal illusion-public expenditure efficiency relationship in regular and

non-post-conflict entity settings. Comparative findings (Clemens & Miran, 2012; Ferrari & Manzi, 2014; Gupta & Marijn, 2001) will significantly enrich the local expenditure efficiency knowledge body and enhance the broad fiscal federalism stream.

REFERENCES

Afonso, A. & Fernandes, S. 2008. Assessing and explaining the relative efficiency of local government. *Journal of Social Economics*, 37, 1946-1979.

Blair, H. 2000. Participation and accountability at the periphery: Democratic local governance in six countries. *World Development*, 28(1), 21-39.

Cheung, G.W. & Lau, R.S. 2008. Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods*, 11, 296-325.

Clemens, J. & Miran, S. 2012. Fiscal policy multipliers on sub-national government spending. *American Economic Journal: Economic Policy 4*(2), 46–68.

Congleton, R. D. 2001. Rational ignorance, rational voter expectations, and public policy: A discrete informational foundation for fiscal illusion. *Public Choice*, 107(1), 35-64.

Dell'Anno, R. & Mourao, P. 2012. Fiscal illusion around the world: An analysis using structural equation modeling approach. *Public Finance Review*, 40(2), 270-299.

Devas, N., Delay, S. & Hubbard, M. 2001. Revenue authorities: Are they the right vehicle for improved tax administration? *Public Administration and Development*, 21, 211-222.

Dollery, B. & Worthington, A. 1996. The empirical analysis of fiscal illusion. *Journal of Economic Surveys*, 10, 261-297.

Edwards, J. R. & Lambert, L. S. 2007. Methods for integrating moderation an mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, 12(1), 1-22.

Ferrari, P. A. & Manzi, G. 2014. Citizens evaluate public services: A critical overview of statistical methods for analyzing user satisfaction. *Journal of Economic Policy Reform*, 17, 236-252.

Francis, P. & Robert, J. 2003. Balancing rural poverty reduction and citizen participation: The contradictions of Uganda's decentralization program. *World Development*, 31(2), 325-337.

Gemmell, N., Morrissey, O. & Pinar, A. 2002. Fiscal illusion and political accountability: Theory and evidence from two local tax regimes in Britain. *Public Choice*, 110(3-4), 199-224.

Gupta, S. & Marijn, V. 2001. The efficiency of government expenditure: Experiences from Africa. *Journal of Policy Modeling*, 23, 433-467.

Guziejewska, B. (2016). Theoretical dimensions of fiscal illusions in local government finance. Journal of Economics, Business and Management, 4(3), 215-219.

Hooper, D., Coughlan, J. & Mullen, M. 2008. Structural equation modeling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6, 1, 53-60.

Ketchen, D. J., Boyd, B. K. & Bergh, D. D. 2008. Research methodology in strategic Management: Past accomplishments and future challenges. *Organizational Research Methods*, 11, 643-658.

Mourao, P. 2006. The economics of illusion: A discussion based on fiscal illusion. *Journal of Public Finance and Public Choice,* 25(1), 96- 115.

Oates, W. 1991. *On the nature and measurement of fiscal illusion: A survey*. In Oates, W. Ed. Studies in Fiscal Federalism, Brookfield, VT, Edward Elgar.

Wagner, R. 1976. Revenue structure, fiscal illusion, and budgetary Choice. *Public Choice*, 25, 45-61.

Coastal rehabilitation through the implementation of government policy: Case study in Karawang Regency, West Java, Indonesia

Medi Nopiana[1,3*]; Fredinan Yulianda[2]; Sulistiono[2]; Achmad Fahrudin[2,4]

[1)] Study Program for Coastal and Marine Resources Management, Graduated Program, IPB University, Indonesia
[2)] Department of Aquatic Resources Management, IPB University, Indonesia
[3)] Faculty of Economics and Business, University of Singaperbangsa Karawang, Indonesia
[4)] Center for Coastal and Marine Resources Studies, IPB University, Indonesia

[*]*To whom correspondence should be addressed. E-mail: medinopiana@yahoo.co.id*

Abstract
Damage on the coastal area of Karawang Regency requires improvement efforts through the implementation of several government policies. However, modification of the policy developed to manage natural resources in the sea was one of the causes of non-optimal role of the government in rehabilitating coastal areas. This study aims to analyze the effectiveness of implemented regency government policies in achieving successful coastal rehabilitation. The data obtained were analyzed using descriptive analysis with a quantitative approach. The results shows the capacity of the Karawang Regency Government was still low in supporting the successful implementation of coastal rehabilitation policies. The Karawang Regency Government needs to collaborate with other stakeholders, redistribute employees, and encourage increase on education and training for staff.

Keywords: *Coastal rehabilitation, Karawang Regency, Local government capacity*

JEL Clasification: H11, H12, Q58, R11

INTRODUCTION

Damage due to erosion in the coastal region of Karawang regency has been at a very alarming level in recent times and has become of the most important issues in the management of the coastal areas which led to the introduction of the Regional Long-Term Development Plan (RPJPD) of Karawang Regency in 2005-2025 (Pemkab. Karawang, 2010). The erosion has been causing huge losses to the coastal communities and these include loss of pond land (± 352 ha), mangrove (± 82 ha), settlements (± 12 ha), and others (Komarudin, 2013).

There have been several efforts towards controlling the erosion through coastal rehabilitation (DPUPR Kab. Karawang, 2016; DLHK Kab. Karawang, 2018), community adaptation through resettlement (DPRKP Kab. Karawang, 2018), and preparation of Detailed Engineering Design (DED) to plan coastal protection structure construction along coastal areas (Fauzie, 2017). The aspect of coastal rehabilitation includes the application of hard or soft structures and a combination of both methods. In general, the hard structure was in the form of revetment, breakwater, and beach belt construction using

Elongated Geotextile Sack (KGM) technology while the soft ones include the planting of coastal vegetation like mangroves.

These rehabilitation efforts have been discovered not to be optimal due to the continuous occurrence of erosion in the areas. The efforts were later constrained through the enactment of Law Number 23 of 2014 on Regional Government which transferred the authority to manage matters related to maritime from the regency to the provincial government (Dapu, 2016; Djelantik, Sumerthayasa & Suharta, 2016; Bachtiar & Hans, 2016). This regulation provides the provincial government the authority to manage resources in the sea area as far as 12 nautical miles measured from the baseline towards the open sea and/or towards archipelagic waters (Adhayanto & Adiputra, 2017). Therefore, the Karawang regency government no longer has full authority to implement coastal rehabilitation policies, meanwhile, based on the principle of accountability, it has the responsibility to administer its powers depending on its proximity to the range of impacts caused by environmental damage, including coastal erosion.

This has led to confusion in the implementation of the policies developed by the regency government because it requires simultaneous execution both in the coastal areas of land and sea for effectiveness but this has been restricted due to the fact the management of these two areas is under the control of two different levels of government. Moreover, it often led to varying perceptions and understandings of the laws and regulations which subsequently caused difficulties in synchronizing and coordinating the policies between the two levels of government.

Dunn (2003) stated that a policy system includes a reciprocal relationship between three elements, public policy, actors, and the environment. The role of the actors is very important in relation to the capacity possessed such as expertise, level of creativity, commitment, access and others (Febriani, 2012). Therefore, there was the need to research on the capacity of the Karawang Regency Government as one of the actors in the formulation and implementation of coastal rehabilitation policies.

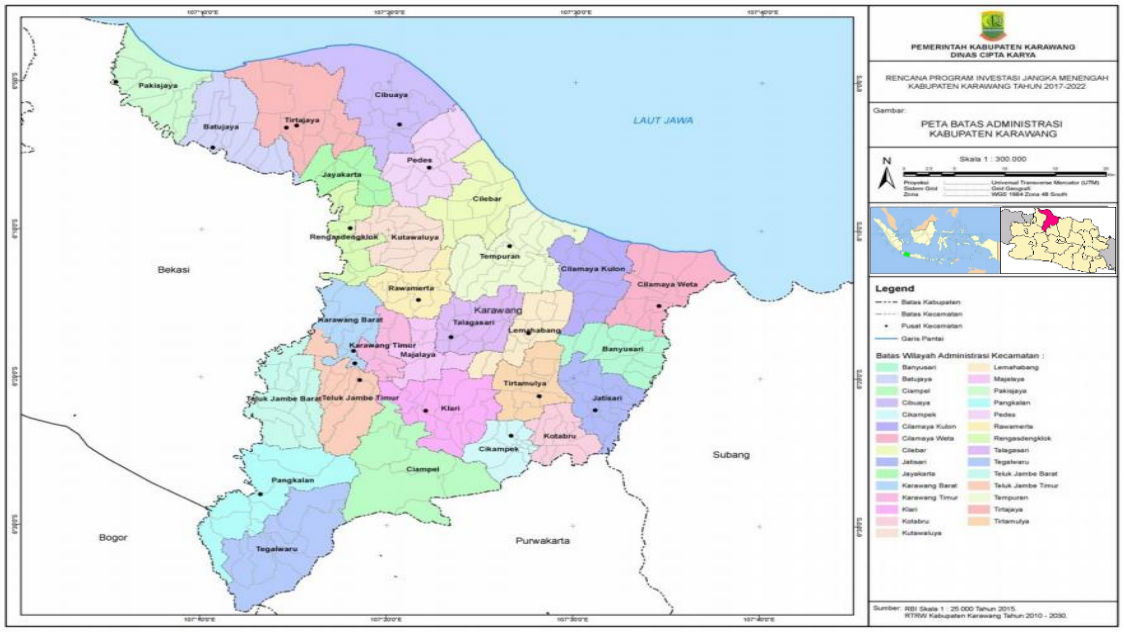
Several works of research have been conducted on local government capacity in the implementation of public policies but none has been found on coastal rehabilitation policies. For example, Hidayat & Asrida (2014) discussed the efforts towards overcoming coastal erosion without any attention on the capacity of the local governments while several other studies discussed the capacity that is not related to coastal rehabilitation policies such as those involving the management of conflicts over water resources (Rusmilyansari, Rosadi & Apriansyah, 2014), mineral resources (Satria & Anwar, 2018), urban development (Widyahantari & Rudiarto, 2018), climate change impacts (Mukhlis, 2016), international relations (Mutia, Roisah & Supriadhie, 2016; Fauzi, 2016), bureaucratic reform (Trisnantoro, 2011; Dewanti, Sarwono & Makmur, 2013; Marliawati, 2013; Ningtyas, Ribawanto & Hadi, 2014; Sari, Noor & Prasetyo, 2014; Damayanti, 2016; Sahadia, Komba & Basri, 2019), as well as regional economics, accounting, and finance (Sihombing, 2010; Iskandar, Bukit & Yahya, 2013; Triastuti, 2013). The research purposed to analyze the capacity of the Karawang Regency Government for supporting the implementation of coastal rehabilitation policies.

METHODS

Research time and location

The research was conducted in November 2019 in several Regional Apparatus Organizations (OPD) of the Karawang Regency Government, West Java. Karawang Regency is in the northern part of West Java Province, geographically located between 5º56’ and 6º34’ southern latitude (S) and 107º02’ and 107º40’ in eastern longitude (E)

(Figure 1). The total area of this regency is 1,753.27 km^2 or 3.73 percent of the total area of West Java Province.



Source: DCK Kab. Karawang (2017)

Figure 1. Map of Karawang Regency administrative boundaries

Data collection

The research used primary and secondary data. Primary data obtained through collected from respondents through the use of questionnaires. Moreover, a probability sampling was used by combining cluster, multistage, and judgment sampling techniques while the number of samples was based on the procedure stated by Gay, Mills & Airasian (2009) that the minimum for descriptive research should be 10 percent of the population (Alwi, 2012).

The sampling process was conducted in two stages and these involved determining the OPD sample with cluster and multistage techniques while the respondents were selected using judgment technique. There were 74 existing OPDs based on the data from the Karawang Regency Government in 2019 and the ones related to coastal erosion control policies totaled 23 while the ones related to coastal rehabilitation policies were 4 and they include the Offices of Environment and Hygiene, Fisheries, Public Works and Spatial Planning, and the Regional Development Planning Agency.

The data from the Regional Personnel and Human Resources Development Agency in 2019 showed the number of employees working in the fourth scope of the OPD was 255 with 101 as structural and functional officials related to the formulation of coastal rehabilitation policies and only 10 of these were selected as respondents. Moreover, some other information was collected through in-depth interviews with selected stakeholders in the Karawang Regency Government. Secondary data used in the research was obtained from the Central Bureau of Statistics, Regional Personnel and Human Resources Development Agency, and other OPDs and they include employee data by position and work unit, population, and others.

Analysis

The data were analyzed using descriptive analysis with a quantitative approach and systems thinking. Conceptually, this is a simple method mostly used to describe data

collected (Nasution & Usman, 2008) and the type used in this study was in the form of a survey which is also defined as an investigation conducted to obtain facts on existing symptoms (Nazir, 2014). Descriptive analysis with a quantitative approach calculated the average value of respondents' answers to various questions posed as applied Cahyadinata, Fahrudin, Sulistiono & Kurnia (2019). Respondents' answers used a Likert Scale with three rating points (Table 1), namely: never/low/small/political (weight 1), rare/moderate/sufficient/economic (weight 2), and often/high/large/ecological (weight 3). The interval for each class is measured by the following criteria:

Table 1. Assessment criteria based on a Likert Scale

Class to	Score	Category
1	1,00 - 1,67	Never/low/small/political
2	1,68 - 2,33	rare/moderate/sufficient/economic
3	2,34 - 3,00	often/high/large/ecological

Systems thinking approach applied in this research is the causal loop diagram. The qualitative modeling illustrates the interrelationship between elements in a system (Setianto, 2016). The use of this approach aims to describe the causal link in the successful implementation of coastal rehabilitation policies. One of the main variables determining success is the capacity of the Karawang Regency Government. The factors of influence the capacity of the Karawang Regency Government in implementing coastal rehabilitation policies interact and depend on each other. Furthermore, it impacts on the effectiveness of overall coastal erosion control and the welfare of coastal communities.

RESULTS AND DISCUSSION

Availability of human resources

The majority of respondents represented by 80 percent reported the human resources available, in terms of quantity and quality, were inadequate to support coastal rehabilitation policies as shown in Figure 2.

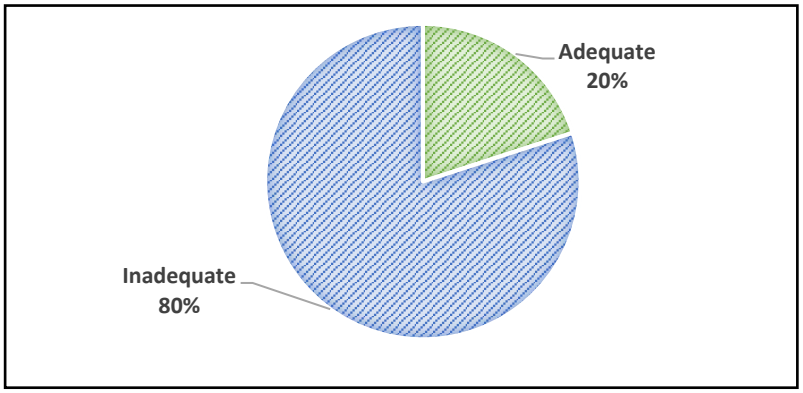


Figure 2. Availability of human resources Karawang Regency Government to support coastal rehabilitation policies

This was observed to be prominent among technical staff tasked with the responsibility of monitoring the condition of the coastline in coastal areas along 84.23 km as well as the lack of specific fields or sections focusing on the implementation of coastal rehabilitation policies but rather conducted only as part of the main duties and functions of several OPDs as shown in Table 2.

Another problem observed is the absence of officials with a background in oceanography despite its importance in understanding the physical and dynamic processes of seawater. The capabilities are also required to support coastal rehabilitation

policies through research as well as the development and application of marine engineering and technology. Furthermore, it was discovered the Karawang regency government provides low support to the ideas proposed by the staff to achieve comprehensive coastal erosion control.

Table 2. Section names and number of personnel in various OPDs related

OPDs Related	Section/Subdivision Name	Number of personnel
Environment and Hygiene Office	Section of Environmental Conservation	1 person
Fisheries Office	Section of Fisherman Institutional	1 person
Public Works and Spatial Planning Office	Section of Water Resources Development and Enhancement	1 person
Regional Development Planning Agency	- Subdivision of Spatial Planning, Settlement and Environment	1 person
	- Subdivision of Regional Infrastructure, Transportation and Water Resources	1 person
	- Subdivision of Regional Development Financing	1 person
Total		6 persons

Network and inter-institutional cooperation

It is not possible for an institution to single-handedly complete development activities, therefore, a multi-functional, interdisciplinary and cross-sectoral inter-institutional work relationship is required. The results showed the involvement of other OPDs and the legislature in supporting coastal rehabilitation policies was in the rare category according to a score range of 1.43 - 2.71 and an average of 1.87 while their support for the policy was found to be in the moderate category based on a score range of 1.71 - 2.57 and an average of 2.00.

This means even though other OPDs and legislature were rarely involved, they were quite instrumental in supporting coastal rehabilitation policies as observed in Table 3. This is due to the limitations in the main duties and functions of these OPDs, especially regarding the technical level of coastal rehabilitation implementation, which further leads to the low perception of their importance in achieving the objectives. For example, the Agriculture Office had never been involved and was found to have a small role in these policies despite the fact it is one of the sectors mostly affected by coastal erosion.

From the legislative perspective, the low perception of the district House of Representatives regarding the importance of their involvement in coastal rehabilitation policies was related to some political factors. It was based on the idea the policies are limited to small coastal communities with less electoral value as observed from the data provided by the Central Bureau of Statistics which showed the population of these areas in 2018 was 577,231 or only 24.71 percent of the total population of Karawang Regency which was 2,336,009.

The regency government was also discovered not to be focused and serious in supporting coastal rehabilitation policies as observed from the lack of institutions and working groups created specifically to handle its implementation and which are required to increase productivity and work effectiveness. However, other concerns include the contradiction between the working groups formed and others in different programs which subsequently led to ineffectiveness due to the use of the same personnel to achieve different objectives.

Table 3. The Involvement and role of the Karawang Regency Government internal line for supporting the coastal rehabilitation policy

No.	Other OPDs	Involvement (%)			Role (%)		
		Often	Rare	Never	Large	Sufficient	Small
1.	Public Housing and Settlement Area Office	40	60	0	40	50	10
2.	Agriculture Office	20	0	80	0	10	90
3.	Social Affairs Office	10	20	70	20	50	30
4.	Regional Secretariat	30	70	0	50	50	0
5.	Regional Disaster Relief Office	20	80	0	40	60	0
6.	Regional Financial and Asset Management Agency	30	0	70	30	50	20
7.	Regency Regional Representative Council	20	40	40	10	50	40

The coordination support to implement these policies within the regency government was found to be relatively low as observed with the score range of 1.00 - 1.50 and an average of 1.40. This was discovered to be due to the lack of specific discussions related to the problem during meetings as well as specific budget allocations as shown in Table 4. Moreover, even though the coordination effort of regional heads was in the moderate category, their role as champions in the implementation of the policies was not optimal.

Table 4. Coordination support from internal regency

No.	Support about	Support intensity (%)		
		High	Moderate	Low
1.	Coordination support from the regional head	0	80	20
2.	Budget allocation support for coordination	0	0	100

Coordination problems between OPDs in supporting coastal rehabilitation policies also occurred in the Bengkalis District Government (Hidayat & Asrida, 2014). The coordination effort had not run smoothly because communication between the OPDs had not established properly. Improved coordination between institutions was also one of the policy priorities for handling coastal erosion and abrasion in Cirebon and Ciamis Regency (Fitri, 2007).

The coordination capability of the regency government with external institutions was also in the moderate category as observed from the score range of 1.20 - 2.50 and an average of 1.77. This was associated with the relatively rare coordination intensity between the two stakeholders. However, Hogwood & Gunn (1986) have reported disorganization as one of the causes of the failure to implement a public policy according to plan.

The Karawang Regency Government sought to coordinate by building networks and cooperation with the central government through the Coordinating Ministry of Maritime Affairs, the Ministry of Environment and Forestry, the Ministry of Maritime Affairs and Fisheries, and the Ministry of Public Works and Public Housing. This was observed in the support provided in accelerating the mangrove rehabilitation and coastal belt construction programs as well as the research on coastal protection models using floating breakwaters.

The intensity of cooperation with the provincial government in the context of coastal rehabilitation policies was found to be relatively rare as shown in Table 5. This means the government of the province has not proactively conducted initiatives to implement policies to rehabilitate the coastal areas despite its constitutional authority in

the marine sector. Nevertheless, a coordination effort was observed with the West Java Provincial Government through the Ministry of Maritime Affairs and Fisheries in the form of facilitation and coordination of the mangrove rehabilitation program as well as the supervision and control of marine and fisheries resources.

Table 5. The intensity of coordination with external institutions

No.	External institutions	Intensity of coordination (%)		
		Often	Rare	Never
1.	Ministry of Marine Affairs and Fisheries	20	50	30
2.	Ministry of Public Works and Housing	0	70	30
3.	Ministry of Environment and Forestry	10	50	40
4.	Other ministries and institutions at the central government level	10	80	10
5.	Provincial government	20	50	30
6.	Private sector	20	50	30
7.	Colleges	20	50	30
8.	Research institutions	0	50	50
9.	Non-governmental organization	50	10	40
10.	Foreign institution	0	10	90

The networks and cooperation conducted by each OPD in relation to the central and provincial governments were often sectoral and less connected to other related offices partly due to the lack of discussion on these policies during meetings at the regional level. This has led to the absence of awareness by these related OPDs to inform each other about the problems faced and the follow-up results.

It was also discovered that the regional government cooperated with the private sector, universities, and non-governmental organizations to support the mangrove rehabilitation program through the use of Corporate Social Responsibility funds as observed with P.T. Toyota Motor Manufacturing Indonesia and P.T. Pertamina Hulu Energi Offshore North West Java. Besides, universities were also involved in research and community service activities as observed with the University of Singaperbangsa Karawang, Marine and Fisheries Polytechnic, and others while 15 non-governmental organizations with a total membership of 280 people participated in the mangrove rehabilitation program. It is also important to state that Nature Creative Group also helped in the management of the educational tourism of the Mangrove Restoration and Learning Center.

In line with these coordination capabilities, external institutional support for coastal rehabilitation policies was observed to be in the moderate category based on a score range of 1.00 - 2.33 with an average of 1.75. This means there is a need for more support from all stakeholders, particularly the provincial government based on the low participation reported in Table 6. This finding further reinforced the results of the intensity of coordination with the provincial government shown in Table 5.

Table 6. External institution support

No.	External institution	Support intensity (%)		
		High	Moderate	Low
1.	Ministry of Marine Affairs and Fisheries	40	30	30
2.	Ministry of Public Works and Housing	0	40	60
3.	Other ministries and institutions at the central government level	0	60	40
4.	Provincial government	0	40	60
5.	Private sector	30	40	30
6.	Non-governmental organizations	30	40	30

Knowledge of coastal environmental conditions

Social sensitivity is defined as the condition where an individual is encouraged to easily feel the changes in small things and this means someone with high social sensitivity would show a high sense of concern for others with ease (Mu'in, 2011). This was observed among the government officials with high knowledge of coastal environmental conditions based on the score range of 1.75 - 3.00 with an average of 2.45. This indicates the government is well aware of the need to implement the policies as shown in Table 7 and this is in agreement with the findings of previous research that a policy environment greatly influences the successful implementation of public policies (Ekowati, 2009).

Table 7. Respondents' knowledge of the ecological and social conditions of coastal communities

No.	Knowledge about	Knowledge level (%)		
		High	Moderate	Low
1.	Potential of coastal resources	60	20	20
2.	Impact of coastal erosion on:			
	- Ecological conditions	80	20	0
	- Social conditions of the community	40	20	40
3.	Frequency of visits to areas affected by coastal erosion	60	20	20

Knowledge of relevant laws and regulations

The regency government's understanding of the apparatus regarding the laws and regulations relating to coastal rehabilitation policies has the ability to encourage efforts to unify perceptions and build joint commitment among OPDs. However, the results showed this knowledge is in a low category based on a score range of 1.33 - 2.00 with an average of 1.66 as shown in Table 8. This means there is no effective integration of the laws and regulations required to implement the policies among related OPDs, for example, some of the respondents just learned there are rules on the rehabilitation as well as zoning plans for coastal areas and small islands in the province. This means the regency government's policymaking apparatus has not been able to fully understand the problems of the policy to be implemented and this has led to a lack of coordination, especially with the central and provincial governments, thereby making synchronization very difficult.

Table 8. Knowledge of relevant laws and regulations

No.	Related laws and regulations	Knowledge level (%)		
		High	Moderate	Low
1.	Law No. 32 of 2009 concerning Environmental Protection and Management	0	50	50
2.	Law No. 1 of 2014 concerning Management of Coastal Areas and Small Islands	20	40	40
3.	Law No. 23 of 2014 concerning Regional Government	20	80	0
4.	Law No. 24 of 2007 concerning Disaster Management	0	20	80
5.	Law No. 26 of 2007 concerning Spatial Planning	20	70	10
6.	Presidential Regulation No. 121 of 2012 concerning the Rehabilitation of Coastal Areas and Small Islands	0	20	80
7.	Presidential Regulation No.51 of 2016 concerning Coastal Boundary	0	30	70
8.	Regional Regulation No. 5 of 2019 concerning Zoning Plans for Coastal Areas and Small Islands of West Java Province 2019-2039	0	30	70
9.	Regional Regulation No. 2 of 2013 concerning Karawang Regency Spatial Planning 2011-2031	30	70	0

Coastal development orientation

Development strategies based on economic growth without any reference to natural resources and environmental conditions are not sustainable. Therefore, it is necessary to integrate environmental aspects into development programs (Salim, 2010). It was, however, discovered that the efforts to develop the coastal region of Karawang Regency were oriented towards the economic aspect as observed from the score range of 1.00 - 3.00 with an average of 2.25 shown in Table 9. This means less attention is paid to the sustainable management of natural resources and environment and this has led to degradation, both in terms of quality and quantity, and also aids disasters. Moreover, the conversion of mangrove forests in the coastal area into fishponds and settlements is one of the causes of erosion considering the ecological role of these forests as a coastline stabilizer (Rezende, Kahn, Passareli & Vásquez, 2015). As a response to the prevailing disaster in the area, the government initiated a beach rehabilitation policy through the strategic plan of the related Regional Apparatus Organizations for the 2016-2021 period. It included a superior program to handle coastal and estuary erosion through the Public Works and Spatial Planning Office in addition to the management and rehabilitation of coastal and marine ecosystems as well as the protection and conservation of natural resources and living environment by the Environment and Hygiene Office.

Table 9. Coastal area development orientation

No.	Orientation	Orientation aspect (%)		
		Ecology	Economy	Political
1.	Orientation in the development of coastal areas generally	40	50	10
2.	Coastal rehabilitation policy orientation	30	60	10

It was also found that there are rare discussions on coastal rehabilitation policies during environmental management coordination meetings of the regency government. This was allegedly due to the non-centrality of the coastal erosion in comparison to other environmental damaging issues such as the impact of oil pollution in the coastal environment and waste pollution in the Citarum Watershed.

Immediate rescue actions were provided for oil pollution because it covers a wider area and its negative impact affects the livelihoods of coastal communities and natural sustainability by decreasing the quantity of fishes, causing crop failure in aquaculture, cessation of tourism activities, and damaging the marine ecosystems, beaches, and mangroves. Moreover, the Citarum River ecosystem is currently being intensively improved by the provincial government through the Citarum Harum program, which is strongly supported by the central government based on the enactment of Presidential Regulation No. 15 of 2018 on Acceleration of Pollution and Damage Control in the Citarum Watershed, which was subsequently followed up by Governor Regulation No. 28 of 2019 on the Action Plan for the Acceleration of Pollution and Damage Control in the Citarum Watershed. However, the results obtained from interviews showed the development of the coastal areas, generally in rural settings, is not a priority due to the focus of the government on urban areas with great potential to improve economic growth. The orientation of the development of coastal areas prioritizes economic aspects also occurred in Natuna Regency (Efina, 2018). The Natuna Regency Government had not yet regulated the activity of mining sand beaches and rocks on Midai Island.

Alignments to coastal rehabilitation policies

The partiality of the Karawang Regency Government in implementing the coastal rehabilitation policy was found to be in the medium category based on a score of 1.50 -

3.00 with an average of 2.23. This is also attached to the low government's desire to understand the problem of coastal erosion and its impact on the community and environment as shown in Table 10. In agreement with these findings, Hogwood & Gunn (1986) reported non-implementation due to the inability of the parties involved to fully master the problems to be one of the major challenges of public policy implementation apart from the lack of coordination.

Table 10. Alignment with coastal rehabilitation policies

No.	Alignment about	Level of alignments (%)		
		High	Moderate	Low
1.	The urgency of implementing coastal rehabilitation policies	100	0	0
2.	The desire of the regency government to implement a coastal rehabilitation policy	40	50	10
3.	The desire of the regency government to understand the problems of coastal erosion and their impact on society and the environment	30	10	60
4.	Understanding the objectives of coastal rehabilitation policies to improve the welfare of coastal communities	20	50	30

The concern of the majority of Bengkalis Regency Government OPDs in implementing coastal rehabilitation policies was also still lacking (Hidayat & Asrida, 2014). The Maritime Affairs and Fisheries Office and the Environment Agency had initiated the formation of a Regional Mangrove Working Group (KKMD). However, the initiation did not get an adequate response from other OPDs.

Ability to solve problems

The ability of the Karawang Regency Government to solve problems regarding coastal rehabilitation policies was generally indicated by the facilitation and supervision efforts in accordance with Febriani (2012) and this was found to be at a low level based on the score range of 1.20 - 2.80 with an average of 1.64. This was observed to be due to the limited budget.

For example, the government does not have the capability to compile scientific studies and manage human resources in the field of oceanography because the financial burden required exceeds its budget. This was further exacerbated by the inhibition of ideas related to coastal erosion control from the staff in different related OPDs. Moreover, even though the government has succeeded in compiling a DED research to plan the construction of coastal protection structures, this effort is not enough. Therefore, there is a need for research-based policies for effective disaster management through the contributions of experts and adequate interaction among stakeholders.

Table 11. The intensity of problem solving activities for supporting coastal rehabilitation policies

No.	Activities	Activity intensity (%)		
		Often	Rare	Never
1.	Preparation of scientific studies	10	20	70
2.	Innovation development	30	50	20
3.	Comparative study activities	0	30	70
4.	Consultation with experts	10	0	90
5.	Law enforcement	30	60	10

It was discovered that there has never been any activity towards the preparation or conduct of scientific studies based on the concept of research-based policy by consulting experts related to coastal rehabilitation policies as shown in Table 11. This was, however, associated with budget constraints as well as a lack of coordination and interaction among stakeholders in the Karawang Regency Government.

In general, the capacity of the Karawang Regency Government was still low in supporting the successful implementation of coastal rehabilitation policies. It indicated that the low capacity of the Karawang Regency Government causes the low effectiveness of the implementation of coastal rehabilitation policies (Figure 3). This condition results in the low effectiveness of coastal erosion control as a whole, which was characterized by ongoing coastal erosion until today and was a long-standing problem. Ineffective coastal erosion control is one of the factors driving the decline in community welfare in the coastal area of Karawang Regency.

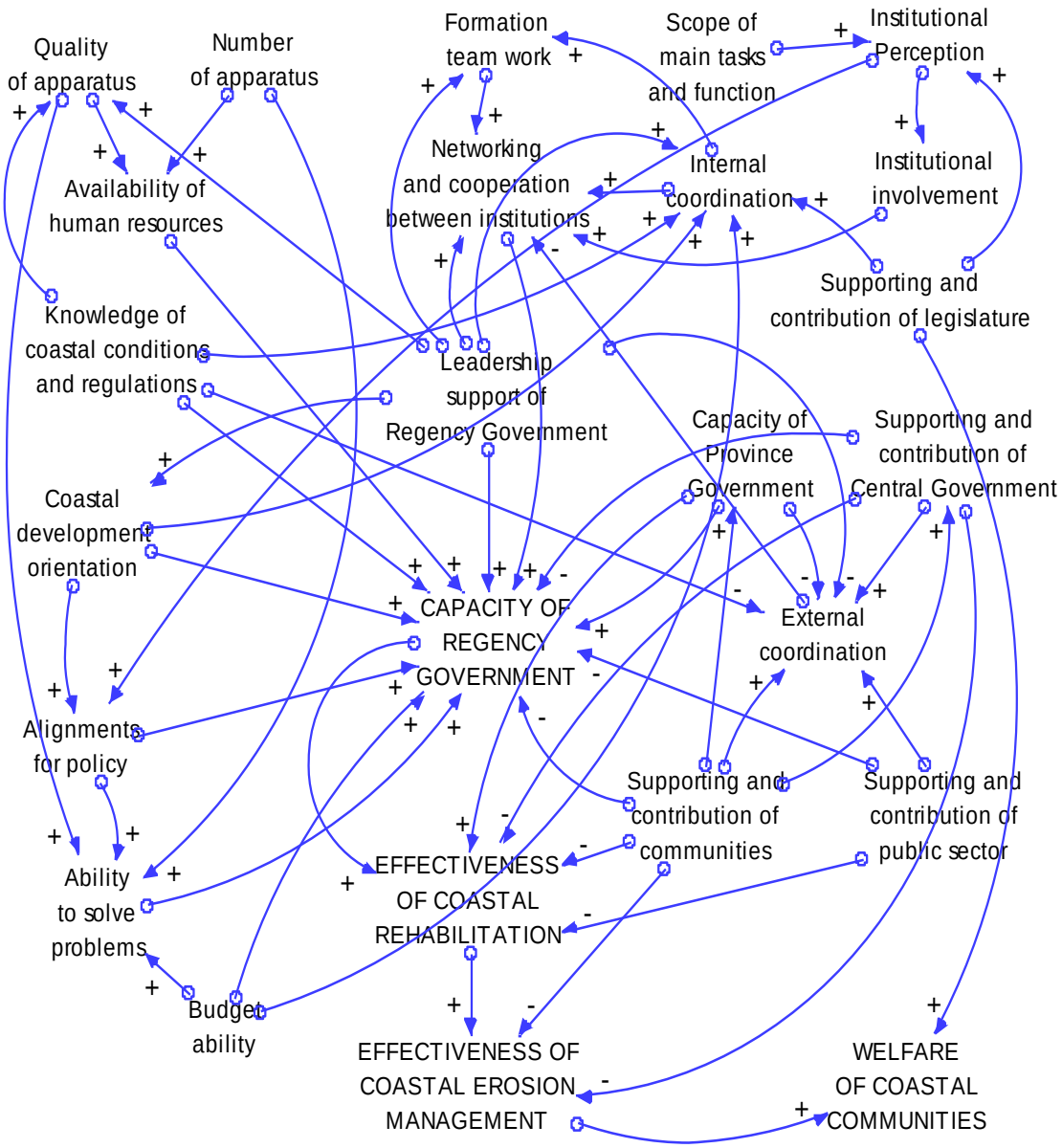


Figure 3. Causal loop diagram of coastal rehabilitation implementation in the coastal region of Karawang Regency

CONCLUSION AND RECOMMENDATION

Conclusion

The capacity of the Karawang Regency Government was still low in supporting the successful implementation of coastal rehabilitation policies. It was indicated various reasons. The availability of human resources to support rehabilitation policies in the Karawang Regency Government was inadequate, both in terms of quantity and quality while the involvement of other Regional Apparatus Organizations and legislature was rare and relatively moderate. Moreover, the regency government's internal coordination support was relatively low while external institutional support was in the moderate category.

The knowledge of the coastal environment condition was in the high category while the respondents' disposition to the laws and regulations related to coastal rehabilitation policies was low. Furthermore, the development of the coastal region was found to be oriented towards the economic aspect while the partiality of the government towards policy implementation was in the moderate category. The ability to solve problems in support of the policies was also found to be low.

Recommendation

The Karawang Regency Government needs to collaborate with other stakeholders such as universities and several research institutions, at central and regional levels, through the use of different funding schemes to improve the ability to solve problems. Moreover, legislations related to coastal rehabilitation policies should be enhanced by the Legal Section of the Regional Secretariat to establish partnerships with universities in community service activities. The legislature should also support the implementation of these policies through budget alignments while redistribution of employees should be adopted to solve the problem of limited human resources. Furthermore, it is necessary to encourage increased education and training for staff with backgrounds in marine science, oceanography, and other related sciences, through the facilitation of scholarship programs and others.

REFERENCES

Adhayanto, O., & Adiputra, Y.S. (2017). Dampak Undang-undang Nomor 23 Tahun 2014 terhadap Peraturan Daerah di Kabupaten Bintan Tahun 2015: Studi Peralihan Kewenangan di Bidang Kelautan dan Pertambangan. *Jurnal Selat*, 2 (2), 296-314.

Alwi, I. (2012). Kriteria Empirik dalam Menentukan Ukuran Sampel pada Pengujian Hipotesis Statistika dan Analisis Butir. *Jurnal Formatif*, 2(2), 140-148.

Bachtiar, B., & Hans, A. (2016). Kewenangan Pemerintah Daerah dalam Urusan Kelautan dan Perikanan: Content Analysis terhadap Undang-undang Nomor 23 Tahun 2014 dan Perpu Nomor 2 Tahun 2014. *Jurnal Analisis Kebijakan dan Pelayanan Publik*, 2(2), 98-110.

Cahyadinata, I., Fahrudin, A., Sulistiono, & Kurnia, R. (2019). Perception and Participation of Fishermen in The Sustainable Management of Mud Crabs on The

Outermost Small Island (Case Study: Enggano Island, Bengkulu Province, Indonesia). *International Journal on Advanced Science Engineering Information Technology*, 9(4), 1330-1336.

Damayanti, R.S. (2016). Pelaksanaan Pengembangan Kapasitas melalui Kerja Sama Pemerintah Provinsi Jawa Timur dan Korea International Cooperation Agency sebagai Upaya Reformasi Birokrasi: Studi pada Lingkup Pemerintah Provinsi Jawa Timur. *Jurnal Administrasi Publik*, 4(3).

Dapu, Y.M. (2016). Implikasi Undang-undang Nomor 23 Tahun 2014 terhadap Kewenangan Urusan Pemerintahan Daerah di Bidang Kelautan dan Perikanan. *Lex et Societatis*, 4(8), 68-75.

Dewanti, M.A.M., Sarwono, & Makmur, M. (2013). Kapasitas Pemerintah Kota Batu dalam Program Pelayanan Kesehatan bagi Masyarakat Miskin. *Jurnal Administrasi Publik*, 1(5), 900-909.

[DCK Kab. Karawang] Dinas Cipta Karya Kabupaten Karawang. (2017). *Rencana Program Investasi Jangka Menengah (RPIJM) Kabupaten Karawang Tahun 2017-2022*. Available at: http://sippa.ciptakarya.pu.go.id/sippa_online/ws_file/dokumen/rpi2jm/DOCRPIJM_8aed426f2a_BAB%20IIBab%202%20Profil%20Kabupaten%20Karawang.pdf.

Djelantik, A.A.G.M.S.W, Sumerthayasa, P.G.A, & Suharta, N. (2016). Implikasi Yuridis dengan Diundangkannya Undang-undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah terhadap Kewenangan Pengelolaan Laut, Pesisir, dan Pulau-Pulau Kecil. *Kertha Negara*, (4)1, 1-5.

[DLHK Kab. Karawang] Dinas Lingkungan Hidup dan Kebersihan Kabupaten Karawang. (2018). *Laporan Akuntabilitas Kinerja Instansi Pemerintah Dinas Lingkungan Hidup dan Kebersihan Kabupaten Karawang Tahun 2018*. Available at: https://karawangkab.go.id/dokumen/laporan-akuntabilitas-kinerja-instanssi-pemerintah-lakip-tahun-2018-dlhk.

[DPRKP Kab. Karawang] Dinas Perumahan Rakyat dan Kawasan Pemukiman Kabupaten Karawang. (2018). *Laporan Akuntabilitas Kinerja Instansi Pemerintah Dinas Perumahan Rakyat dan Kawasan Pemukiman Kabupaten Karawang Tahun 2018*. Available at: https://karawangkab.go.id/dokumen/laporan-akuntabilitas-kinerja-lakip-tahun-2018-dprkp.

[DPUPR Kab. Karawang] Dinas Pekerjaan Umum dan Penataan Ruang Kabupaten Karawang. (2016). *Program/Kegiatan Unggulan Rencana Strategis Dinas Bina Marga dan Pengairan Kabupaten Karawang Tahun 2016-2020*. Available at: https://karawangkab.go.id/dokumen/program-unggulan-dinas-pekerjaan-umum-dan-penataan-ruang.

Dunn, W.N. (2003). *Public Policy Analysis: An Introduction*. New Jersey (US): Prentice-Hall Inc.

Efina, K. (2018). *Kebijakan Pemerintah Kabupaten Natuna terhadap pencegahan abrasi pantai di Pulau Midai tahun 2017*. Available at: http://repository.umrah.ac.id/1204/1/Kurnia%20Efina-100565201026-FISIP-2018.pdf.

Ekowati, M.R.L. (2009). *Perencanaan, Implementasi dan Evaluasi Kebijakan atau Program: Suatu Kajian Teoritis dan Praktis.* Jakarta (ID): Pustaka Cakra.

Febriani, D. (2012). *Evaluasi Proses Implementasi Kebijakan Hutan Tanaman Rakyat di Kabupaten Sarolangun, Jambi* [Doctoral Dissertation, Graduated Program, Institut Pertanian Bogor]. Graduated Program, Insitut Pertanian Bogor. Available at: https://repository.ipb.ac.id/jspui/bitstream/123456789/61111/1/2012dfe.pdf

Fauzi, L.M. (2016). Peningkatan Kapasitas Pemerintahan Daerah dalam Proses Masyarakat Ekonomi ASEAN. *Jurnal Ilmu Politik dan Komunikasi*, 6(2), 63-70.

Fauzie, A.K. (2017). Analysis of Short and Medium Term Coastal Abrasion and Accretion Rates using GIS in Karawang, West Java. *Creative Research Journal*. 3(2), 91-104.

Fitria. (2007). *Pengaruh Abrasi di Pantai Grogol Kecamatan Cirebon Utara Kabupaten Cirebon dan Pantai Bojongsalawe Kecamatan Parigi Kabupaten Ciamis terhadap Komponen-komponen Sistem Pembangunan Wilayah Pesisir dan Laut* [Master's thesis, Sekolah Arsitektur, Perencanaan dan Pengembangan Kebijakan, Institut Teknologi Bandung]. Sekolah Arsitektur, Perencanaan dan Pengembangan Kebijakan (SAPPK) Institut Teknologi Bandung.

Gay, L.R., Mills, G.E., & Airasian, P. (2009). *Educational Research, Competencies for Analysis and Application*. New Jersey (US): Pearson Education, Inc.

Hidayat, R., & Asrida, W. (2014). Upaya Pemerintah Kabupaten Bengkalis dalam Penanggulangan Abrasi: Studi pada Pesisir Pantai Kabupaten Bengkalis Tahun 2010-2012. *JOM FISIP*, 1(2), 1-16.

Hogwood, B.W., & Gunn, L.A. (1986). *Policy Analysis for The Real World*. New York (US): Oxford University Press.

Iskandar, D., Bukit, R., & Yahya, I. (2013). Pengaruh Kapasitas Sumber Daya Manusia, Perencanaan Anggaran dan Politik Penganggaran, dengan Transparansi Publik sebagai Variabel Moderating terhadap Sinkronisasi Dokumen APBD dengan Dokumen KUA-PPAS pada Pemerintah Kabupaten Aceh Tenggara. *Jurnal Telaah dan Riset Akuntansi*, 6(1), 93-108.

Komarudin, R.A. (2013). *Model Perubahan Penggunaan Lahan Pesisir untuk Mendukung Rencana Tata Ruang Wilayah Kabupaten Karawang* [Master's thesis, Graduated Program, IPB University]. Graduated Program, IPB University. Available at: https://repository.ipb.ac.id/handle/123456789/63511

Marliawati, D. (2013). Pelaksanaan Pengembangan Kapasitas Kelembagaan Pemerintahan Daerah: Studi di Bagian Organisasi Sekretariat Daerah Pemerintah Kabupaten Malang. *Jurnal Administrasi Publik*, 1(7).

Mu'in, F. (2011). *Pendidikan Karakter Konstruksi Teoretik dan Praktik*. Yogyakarta (ID): Ar-Ruzz Media.

Mukhlis, M. (2016). Tata Kelola Pemerintahan dalam Peningkatan Kapasitas Adaptif/ketahanan Kota Bandar Lampung terhadap Dampak Perubahan Iklim. *Jurnal Ilmu Politik dan Komunikasi*, 6(2), 1-16.

Mutia, K., Roisah, K., & Supriadhie, K. (2016). Kapasitas Pemerintah Daerah dalam Melakukan Hubungan Luar Negeri menurut Hukum Internasional: Studi Kasus Tindakan Pemerintah Daerah Istimewa Aceh Mengambil Alih Baitul Asyi di Arab Saudi tanpa melalui Hubungan Konsuler RI. *Diponegoro Law Review*, 5(3), 1-18.

Nasution, M.E., & Usman, H. (2008). *Proses Penelitian Kuantitatif*. Jakarta (ID): Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Nazir, M. 2014. *Metode Penelitian*. Bogor (ID): Ghalia Indonesia.

Ningtyas, M.R.J., Ribawanto, H., & Hadi, M. (2014). Upaya Pemerintah Daerah dalam Meningkatkan Kapasitas Kelembagaan: Studi Kasus pada Bagian Organisasi dan Tata Laksana Pemerintah Kota Blitar. *Jurnal Administrasi Publik*, 2(4), 687-693.

[Pemkab. Karawang] Pemerintah Kabupaten Karawang. (2010). *Peraturan Daerah Kabupaten Karawang No. 2 Tahun 2010 tentang Rencana Pembangunan Jangka Panjang Daerah (RPJPD) Kabupaten Karawang Tahun 2005-2025*. Available at: http://www.karawangkab.go.id/dokumen/rpjpd-2005-2025.

Rezende, C.E., Kahn, J.R., Passareli, L., & Vásquez, W.F. (2015). An Economic Valuation of Mangrove Restoration in Brazil. *Ecological Economics*, 120, 296-302.

Rusmilyansari, Rosadi, E., & Apriansyah. (2014). Kapasitas dan Strategi Kelembagaan Pemerintah dalam Pengelolaan Konflik Antar Pengguna Sumber Daya Perairan Kabupaten Tanah Laut. *Marine Fisheries*, 5(1), 41-48.

Sahadia, A.S., Komba, S., & Basri, M. (2019). Reformasi Birokrasi melalui Pengembangan Kapasitas Organisasi Pemerintah Kabupaten Buton Utara. *Jurnal Publica*, 10(1), 71-80.

Salim, E. (2010). Paradigma Pembangunan Berkelanjutan. Di dalam: Azis, I.J., Napitupulu, L.M., Patunru, A.A., Resosudarmo, B.P., editor. *Pembangunan Berkelanjutan: Peran dan Kontribusi Emil Salim*. Jakarta (ID): Kepustakaan Populer Gramedia.

Sari, N., Noor, I., & Prasetyo, W.Y. (2014). Pengembangan Kapasitas Kelembagaan Pemerintah Daerah dalam Meningkatkan Kualitas Pelayanan Perizinan Terpadu: Studi pada Kantor Pelayanan dan Perizinan Terpadu Kabupaten Kediri. *Jurnal Administrasi Publik*, 2(4), 634-640.

Satria, S.Y., & Anwar, K. (2018). Kapasitas Pemerintah Daerah Kabupaten Karimun dalam Mengelola Sumber Daya Mineral Pertambangan Granit tahun 2014-2016. *JOM FISIP*, 5(2): 1-14.

Setianto, N.A. (2016). Qualitative Modelling of The Impact of Government Grant on Beef Cattle Farming Performance. *Agripet*, 16(2), 114-120.

Sihombing, B. (2010). Studi Potensi Sumber-sumber Pendanaan Peningkatan Kapasitas yang Berkelanjutan pada Pemerintah Kabupaten Tapanuli Tengah. *Jurnal Manajemen dan Bisnis*, 10(2), 1-24.

Trisnantoro, L. (2011). Pengembangan Kapasitas Kepala Dinas Kesehatan: Apakah Perlu Diperkuat dengan Aturan di Level Peraturan Pemerintah? *Jurnal Manajemen Pelayanan Kesehatan*, 14(3), 119.

Triastuti, M.R.H. (2013). Menakar Kapasitas Governance Pemerintah Daerah dalam Memfasilitasi Usaha Kecil dan Menengah. *Jurnal Ilmu Administrasi*. 10(2), 186-198.

Widyahantari, R., & Rudiarto, I. (2018). Kapasitas Pemerintah Kota Bandung dalam Penyediaan Taman Tematik guna Mewujudkan Kota Layak Huni. *Jurnal Pengembangan Kota*, 6(1), 9-16.

Stock-return volatility persistence over short and long range horizons: Some empirical evidences

Kolawole Subair[1*]; Ajibola Arewa[2]

[1)] Department of Economics, Yusuf Maitama Sule University (Formerly Northwest University) City Campus, Kofa Nassarawa Road, Kano State, Nigeria.
[2)] Department of Banking and Finance, Lagos State University, Ojo, Lagos State, Nigeria.

**To whom correspondence should be addressed. E-mail:kolasubair@gmail.com*

Abstract
In this paper, we account for memory failure or otherwise in the daily evolution of stock return and volatility within the purview of short and long ranges based on the arrival of fundamental news. This accounts for the return on assets in the current period to be a function of returns realized in the pasts. To achieve this objective, we estimated ARMA, ARFIMA, GARCH, FIGARCH and HYGARCH models. After implementing maximum likelihood estimation technique, we found out that the ARMA coefficients were not significant, the GARCH coefficients were significant and the memory coefficients in terms of ARFIMA, FIGARCH and HYGARCH were statistically significant. In the light of these, we propose the rejection of efficient hypothesis in the long range and document a single memory in volatility in the short range. The study recommends that ARFIMA and HYGARCH are the best forecasting models for return and volatility respectively in the Nigerian stock market.

***Keywords**: Forecasting models, Memory failure, Nigeria, Short range and long range horizons, Stock-return volatility*

JEL Classification: C14, C22, C58, G17

INTRODUCTION

Changes in prices simply reflect the random arrivals of fundamental news in the stock market. Efficient Market Hypothesis (EMH) subsequently faces both theoretical and empirical challenges and gradually loses its ground just as other once-fully supported economic theories must encounter at some stages. One of the theoretical and empirical challenges is the existence of short and long memory in asset return which suggests that current returns are severely dependent on distant past realized returns. This does not only create opportunities for arbitrage profits but it also makes it possible for future returns to be predicted from past returns. The existence of long-memory properties involves the development of non-linear pricing models at the theoretical level to account for the long-memory behaviour.

As a result, Yajima (1985) concludes that if the underlying continuous stochastic processes of asset returns exhibit long memory, then the pricing derivatives by martingale models as well as the statistical inference concerning asset-pricing models based on standard testing procedures may not be appropriate. Since the introduction of models of autoregressive conditional heteroscedasticity (ARCH) by Engle (1982) and

their generalization by Bollerslev (1986), there have been numerous extensions of this approach to modelling the short and long memory volatility properties of asset prices (Baillie,Bollerslev & Mikkeslen, 1996).

This current study is in close tandem with the above-mentioned studies. In the study we applied batteries of ARMA and GARCH to examine the daily evolution of stock return and volatility in Nigerian stock market over short and long range horizons. We show that the long-range memory parameter is significant in the HYGARCH model, and we recommend equally that HYGARCH model is the best predictive model for speculators in Nigeria, since the HYGARCH error seems to have permanent effects on conditional volatility.

Booth & Koutmos (1988) carried out a study to model index stock returns for four major European stock markets as conditionally heteroskedastic processes with time dependent serial correlation. They found that current returns in these markets are nonlinearly dependent on their past history. The study concluded that the periods of high (low) volatility are associated with low (high) autocorrelations. This inverse relationship is significant in daily returns but, with one exception, it does not carry over to the weekly returns. The study recommended that substantial portion of remaining nonlinearity in the conditional mean of all stock index returns examined can be attributed to positive feedback trading strategies.

Campbell, Grossman, & Wang (1993) investigated the relationship between aggregate stock market trading volume and the serial correlation of daily stock returns. They found that the first-order daily return autocorrelation tends to decline with volume. Also, their study found that risk-averse "market makers" accommodate buying or selling pressure from "liquidity" or "non informational" traders. The study concluded that a stock price decline on a high-volume day is more likely than a stock price decline on a low-volume day to be associated with an increase in the expected stock return.

Andersen, Bollerslev, Diebold, & Ebens (2000) exploit direct model-free measures of daily equity return volatility and correlation in the Dow Jones Industrial. They found that the unconditional distributions of the variances and covariances are leptokurtic and highly skewed to the right, while the logarithmic standard deviations and correlations all appear approximately Gaussian. They concluded that Positive returns have less impact on future variances and correlations than negative returns of the same absolute magnitude. Whereas, Bianco, Corsi, & Ren`o (2008) confirmed the presence of LeBaron effect at intraday level complementing the efficient market hypothesis (for returns) with the heterogeneous market hypothesis (for volatility). They tested for the impact of unexpected volatility, defined as that part of volatility that cannot be forecast due to the presence of serial correlations in the time series. They found that contemporaneous volatility is significantly and positively correlated with the variance ratio. The study concluded that serial correlation is positively correlated with unexpected volatility, which is a previously unrecognized stylized fact of financial returns. The study recommended that the usual explanation of the LeBaron effect in terms of feedback trading is at least incomplete, advocating for a broader theory on the link between volatility and the way information is spread to heterogeneous market components.

Furthermore, David & Simonovska (2015) investigated whether correlated beliefs among sophisticated, but imperfectly informed traders can account for the patterns of return correlations across countries. They made use of calibrated information-based model to establish the correlation of beliefs. The study found that market-wide volatility explained the cross-section of aggregate volatility. The results are robust to controlling

for a number of alternative factors put forth by the existing literature. In furtherance of the significance of information in stock-return volatility, Balibey & Turkyilmaz (2014) examined the convenience of the FIGARCH (1, d, 1) and FIAPARCH (1, d, 1) models in evaluating asymmetry features and long memory in the volatility of the Turkish Stock Market. The study confirmed that the FIAPARCH (1, d, 1) model with skewed student-t distribution is more accurate for in-sample and out of- sample Value-at-Risk (VaR) analysis for short and long trading positions. In addition, the FIAPARCH (1, d, 1) model with skewed student-t has better accuracy results in capturing stylized facts in the volatility of Turkish Stock Market. The study concluded that evaluating of asymmetry and long memory property in volatility of the returns can ensure suitable Value-at-Risk (VaR) model selection for performance of risk management in the Turkish financial markets. The study therefore recommended that the findings can be used by portfolio managers, investors, regulators and financial risk managers in decision making.

Günay (2014) examined the long memory property of conditional variance considering the existence of structural breaks in the series. Empirical analysis was conducted through FIGARCH, HYGARCH, GPH and modified GPH method of Phillips. The sequential method of Bai-Perron multiple structural breaks analysis indicated 3 and 4 breaks for the BIST100 and the BOVESPA indexes, respectively. The study found that conditional variance of both indexes have long memory property, that is, both indexes' volatilities are foreseeable under the past price information. The study concluded that there is presence of information conflicts with the weak form of the Efficient Market Hypothesis.

Hongngoc (2014) investigated the long memory returns for ETF (Emerging Markets Equities) returns index of seven Asian countries during 2008-2013 periods. The ARFIMA, ARFIMA-FIGARCH and ARFIMA-HYGARCH models were estimated. The empirical results of log-likelihood information criterion analyses the statistics that support ARFIMA-HYGARCH model instead of ARFIMA and ARFIMA-FIGARCH model**.** The study found that the maximum values of log-likelihood of six series felt in estimations of ARFIMA-HYGARCH model. The study concluded that ARFIMA-HYGARCH model performs better than ARFIMA-FIGARCH and AFIMA models. However, Mohammadi & Rezakhah, (2017) adopted Smooth Transition HYGARCH Model to analyze the time-varying structure with short and long memory property. The study found that ST-HYGARCH models outperform the HYGARCH model in forecasting. The study concluded that ST-HYGARCH models better forecast the true conditional variances than HYGARCH and the ST-HYGARCH (3) model have lower errors than to other models.

Watanabe (2002) examined the pattern of autocorrelation of daily stock index returns in the Tokyo Stock Exchange (TSE) by estimating the two variants of the EGARCH model by Nelson (1991). The study confirmed that stock returns exhibit positive autocorrelation when volatility is low but they exhibit negative autocorrelation when volatility is rather high and that stock returns are more negatively autocorrelated after price declines than after price rises. The study concluded that an increase in margin requirements makes stock returns more positively autocorrelated.

On a final note, Bollerslev, Osterrieder, Sizova & Tauchen (2013) provided a detailed characterization of the dynamic dependencies and interrelatedness in aggregate stock market returns and volatilities using fractionally integrated processes. The study found that the coherence between volatility and the volatility risk reward is the strongest at long-run frequencies. Our results are consistent with generalized long-run risk models and help explain why classical efforts of establishing a naive return-volatility relation

failed. The study concluded that high-frequency-based multivariate model implies nontrivial return predictability over longer monthly horizons.

METHODOLOGY

The central focus of this study is to examine the short run and long run linear dependencies of return and volatility in Nigerian stock market. To achieve these, we propose the so called ARMA-GARCH and ARFIMA-HYGARCH models. Specifically we follow the approaches of Davidson (2004) and Zhou, Chen & Dong (2012). First we specify the ARMA and ARFIMA model.

The ARMA and ARFIMA specifications

The ARMA model provides the framework for examining short memory in return. It can be defined in terms of return on stock market as:

$$r_t = a_1 r_{t-1} + \ldots + a_p r_{t-p} + e_t + b_1 e_{t-1} + \ldots + b_q e_{t-q} \quad \ldots\ldots 3.1$$

Equation 3.1 is ARMA (p, q) model, which can be transformed by introducing backshift (B) into it to have a more compacted definition.

$$(1 - a_1 B - \ldots - a_p B^p) r_t = (1 + b_1 B + \ldots + b_q B^q) e_t \quad \ldots\ldots 3.2$$

$$a(B) r_t = b(B) e_t \quad \ldots\ldots 3.3$$

If the AR polynomial lies outside the unit cycle that is $a(B) = 1 - \sum_{i=1}^{p} a_i B^i < 1$, which means the sum of all AR roots is less than unity, and the MA polynomial lies outside the unit cycle that is $b(B) = 1 + \sum_{j=1}^{q} b_i B^i < 1$, which means the sum of all MA roots is less than unity, the ARMA will useful for studying the short memory characteristic of return. However, if $a(B) = 1 - \sum_{i=1}^{p} a_i B^i = 1$ and $b(B) = 1 + \sum_{j=1}^{q} b_i B^i = 1$, the appropriate specification is referred to ARIMA (p, d, q), where p is the lag length of the AR term, d is the differenced or integrated order and q is the lag length of the MA term. Thus, the first differenced ARIMA (p, 1, q) can be defined as:

$$r_t = \ln p_t - \ln p_{t-1} \quad \ldots\ldots 3.4$$

$$r_t = (1 - B) \ln p_t \quad \ldots\ldots 3.5$$

$$(1 - a_1 B - \ldots - a_p B^p)(1 - B) \ln p_t = (1 + b_1 B + \ldots + b_q B^q) e_t \quad \ldots\ldots 3.6$$

Equation 3.6 is not different from equation 3.2, but we can have a different equation if we move to second difference:

$$r_t = (1 - B)^2 \ln p_t \quad \ldots\ldots 3.7$$

$$(1 - a_1 B - \ldots - a_p B^p)(1 - B)^2 in_t = (1 + b_1 B + \ldots + b_q B^q) e_t \quad \ldots\ldots 3.8$$

This may continue provided the system is not stationary. On this basis we can specify integrated order as:

$$(1 - a_1 B - \ldots - a_p B^p)(1 - B)^d \ln p_t = (1 + b_1 B + \ldots + b_q B^q) e_t \quad \ldots\ldots 3.9$$

If d is equal to 1, then equation 3.9 is reduced to 6 or 3, and the short run dependency can be examined. However, if d is less than 1, we have Autoregressive Fractionally Integrated Moving Average (ARFIMA) of order p, m, q, where m=1+d.

$$(1 - a_1 B - \ldots - a_p B^p)(1 - B)^{1+d} \ln p_t = (1 + b_1 B + \ldots + b_q B^q) e_t \quad \ldots\ldots 3.10$$

$(1-a_1B-,,,-a_pB^p)(1-B)(1-B)^d \ln p_t = (1+b_1B+,,,+b_qB^q)e_t$ 3.11

$(1-a_1B-,,,-a_pB^p)(1-B)\ln p_t = \frac{(1-b_1B-,,,-b_qB^q)e_t}{(1-B)^d}$ 3.12

The fractionally differencing operator $(1-B)^d$ can be defined as.

$(1-B)^d = 1-dB+\frac{d(d-1)B^2}{2}+\frac{d(d-1)(d-2)B^3}{3X2}+\frac{d(d-1)(d-2)(d-3)B^4}{4!}+\ldots\ldots..3.13$

Using hyper geometric function equation 3.13 can be represented as:

$(1-B)^d = \sum_{k=0}^{\infty} -(1)^k \frac{\chi(d-1)}{\chi(k+1)\chi(d-k+1)}B^k$ 3.14

Once d is determined, $-(1)^k \frac{\chi(d-1)}{\chi(k+1)\chi(d-k+1)}$ can be expressed as a function of k [h (k)], therefore $(1-B)^d = \sum_{k=0}^{\infty} h(k)B^k$. This can be determined by fractionally integrating (*fi)* the $e=(e_1,...,e_{t-q})$ series. Then the series would yield $fi=(fi_t,...,fi_{t-q})$ series to have a well-simplified expression as:

$r_t = a_1Br_t+,,,+a_pB^pr_t + fi_t^{-1}e_t^{\,2}+...+b_q\,fi_{t-q}^{\,-1}e_{t-q}^{\,2}$ 3.15

Equation 3.15 is referred to ARFIMA (p, d, q), where d=1-m, m is expressed in fraction or percentage. And this can be used to study the long memory or long range linear dependency in return. We can now present the GARCH and HYGARCH models, which are required to examine short memory and long memory in volatility respectively.

The GARCH and HYGARCH specifications

The ARMA error in equation 3.2 is assumed to follow GWN process, which is defined as:

$e_t = z_t\sqrt{h}$ 3.16

$e_t \sim GWN(0,\sigma^2); z_t \sim GWN(0,\sigma^2); h_t > 0$. According to Bollerslev (1986) and in line with these assumptions the standard GARCH model is written as:

$h_t = c_0 + c_1e_{t-1}^2+...+c_qe_{t-q}^2+\theta_1h_{t-1}+...+\theta_1h_{t-p\theta}$ 3.17

Equation 3.17 describes GARCH (q, p) model, which explains the short run dependency in volatility of return. This equation can be rewritten as:

$\theta(B)h_t = c_0 + c(B)e_t^2$ 3.18

$c(B)e_t^2 = (1+\lambda B)e_t^2$ 3.19

$h_t = \frac{c_0}{\theta(1)}+\left(1+\frac{\lambda B}{\theta(B)}\right)e_t^2$ .....

3.20

The integrated GARCH model can be specified by introducing 1-B into equation 3.20 to have

$h_t = \frac{c_0}{\theta(1)}+\left(1+\frac{\lambda B(1-B)}{\theta(B)}\right)e_t^2$ 3.21

If the GARCH error is integrated d times, the expression 3.21 can be restated as:

$$h_t = \frac{c_0}{\theta(1)} + \left(1 + \frac{\lambda B(1-B)^d}{\theta(B)}\right) e_t^2 \quad \text{.....3.22}$$

Equation 3.22 is referred to as Fractionally Integrated GARCH (FIGARCH) model introduced by Baillie, Bollerslev & Mikkeslen (1996). The model has two components the amplitude (S) and fractionally differencing $(1-B)^d$. Baillie et al (1996) defined $S = \lambda(1) = 1$. This indicates that FIGARCH is not covariance stationary because $S = 1$. This may contradicts the assumption that the length of the memory increases as d increases (Davidson, 2004). Another shortcoming of FIGARCH is that it has infinite variance. To overcome these weaknesses, Davidson (2004) proposed Hyperbolic GARCH (HYGARCH) specification, which assumes that $S < 1$, by introducing another parameter φ into the lag polynomial, HYGARCH expressed as:

$$h_t = \frac{c_0}{\theta(1)} + \left(1 + \frac{\lambda B[1+\varphi(1-B)^d - 1]}{\theta(B)}\right) e_t^2 \quad \text{.....3.23}$$

$$\lambda = 1 - c \quad \text{.....3.24}$$

$$s = 1 - \frac{c}{\theta}(1-\varphi) < 1 \quad \text{.....3.25}$$

Equation 3.25 shows that the length of the memory increases as the d increases. So, HYGARCH is a generalization of the FIGARCH model. It is adopted in this study to examine the long run dependency in volatility of return.

RESULTS AND DISCUSSIONS

Data on all share index from Nigerian Stock Exchange (NSE) were collected on daily basis over the period 2000 to 2016. The preliminary tests conducted on these data indicate the features of the index. Table 1 presents the results of normality test.

Table 1. Normality test results

Stat	Value	T-value	P-value
Skewness	0.61734	16.273	1.5394e-059
Excess Kurtosis	23.739	312.95	0.0000
Jarque-Bera	98086	NA	0.0000
Lilliefors (D)	0.092636	NA	0.0000
Cramer-von Mises	16.52897	16.53095	0.0000
Watson (U2)	16.49779	16.49977	0.0000
Anderson-Darling	93.81322	93.83012	0.0000
Mean	0.0004375	10.67264	0.0000

Source: Authors' Computation

In Table 1, the mean or average value of stock market return is 0.00044 and significantly different from zero and negative, implying a very low average value. The preposition of normality is rejected by Jarque-Bera, Lilliefors, Cramer-von Mises, Watson and Anderson-Darling tests. The excess kurtosis is positive and significant, giving evidence of peakness or leptokurtic distribution. The coefficient of skewness is approximately one or greater than zero. This means the Nigerian stock market return is asymmetric and follows a nonlinear historical pattern. For purpose of iteration, the nonlinearity and leptokurtic tendencies are demonstrated in Figures 1 and 2 (Appendix) respectively

Figure 1shows that the distribution of Nigerian stock market return is peaked. This indicates presence of outlier, asymmetry, and high expectation of future values.

The scatter plot, in Figure 2, is not a replica of a steady ellipsoid; this confirms the asymmetric process of stock market return evolution. The reversibility of the logarithmic and differenced series of the index is examined using unit root tests based on Augmented Dickey-Fuller, Phillip-Perron, and Kwiatkowski-Phillips-Schmidt-Shin. For confirmation see Table 2 for the results of unit root tests.

Table 2. Unit root test

Test	log of market index	Return on Market
ADF	-1.838134 (-3.410884)	-35.61496 (-2.862038)
PP	-1.765351(-3.410884)	-47.59493 (-2.862037)
KPSS	1.22695 (0.146000)	0.097132 (0.146000)

Note the values in the parentheses are the 5% critical value
Source: Authors' Computation

The test results in Table 2 revealed to us that the ADF and PP statistics appear smaller than the 5% critical value for the logarithmic series, but the statistics are greater in respect of the differenced series. The KPSS statistics are greater than the 5% critical value with the logarithmic series but smaller in term of the differenced series. Thus, the logarithmic stock index series is characterized with unit root and must be differenced. Further justification of this is demonstrated in Figures 3 and 4 (Appendix) respectively for the line graphs of logarithmic and differenced series.

Figure 3 shows clearly a random walk process for greater parts of the distribution, while a reversible process is mostly represented in Figure 4. This suggests that stock return is mean reverting but raw prices are not. We now check if the variance of return is conditioned on time as shown in Figure 5 below:

Figure 5 (Appendix) reveals that conditional variance is not constant (that is 1) but varies significantly with time, in which case there are low and high variances-heterogeneous variance over range of time. To corroborate this, we conduct ARCH effects test at different lags. Table 3 reports the ARCH effects test.

Table 3. ARCH effects test

Test	Value	Probability
ARCH (2)	677.46	[0.0000]
ARCH (5)	303.40	[0.0000]
ARCH (10)	151.83	[0.0000]

Source: Authors' Computation

It is really obvious in Table 3 that the series of return exhibits ARCH effects at lags 2, 5, and 10 respectively. The evidence of conditional heteroscedasticity demonstrated in Figure 5 is very resilient. We consider again if daily stock market returns are linearly dependent or nonlinearly dependent using BDS test. The result is displayed in Table 4.

Table 4. BDS test result

Dimension	BDS-Stat	Std-Error	Z-Stat	P-value
2	0.054019	0.001556	34.71724	0.0000
3	0.091643	0.002471	37.08066	0.0000
4	0.114047	0.002942	38.76267	0.0000
5	0.123698	0.003066	40.34446	0.0000
6	0.124560	0.002957	42.12998	0.0000

Source: Authors' computation

The BDS (Brook, Dechert & Scheinkman, 1987) test in Table 4 shows asymptotic Z statistics at every dimension (2 to 6) with zero probability. This confirms the presence of nonlinear dependency characterizing the daily stock market return in Nigeria. Though the BDS test has established short run autocorrelation, yet it is economically impossible for chartists to exploit this opportunity to make abnormal return in the short run (Chikhi, Peguin-Feissolle &Terraza, 2013). Hence, it is economically (but not statistically) wise to reject the hypothesis of autocorrelation. However, long run permits valid prediction because of wide dynamics of the horizon. Emphatically, we conduct a pre-test of long run cyclical tendency of return structure using Hurst-Mandelbrot and Lo rescale (R/S) test. The statistics at three distict levels of confidence are reported in Table 5.

Table 5. Hurst-Mandelbrot and Lo R/S Test

Test	Value	C-Value @90%	C-Value @95%	C-Value @99%
Hurst-Mandelbrot	2.4786	[0.861, 1.747]	[0.809, 1.862]	[0.721, 2.098]
Lo	2.1745	[0.861, 1.747]	[0.809, 1.862]	[0.721, 2.098]

Source: Authors' Computation

Both Hurst-Mandelbrot and Lo statistics are statistically significant. This leads to the rejection of no autocorrelation and long term structural dependence. We further confirm this by plotting the periodograms of return and volatility of return shown in Figures 6 and 7 (Appendix) respectively.

A thorough sight view of Figures 6 and 7 indicates that the spectral density of return and volatility concentrate on low frequencies, and as the frequency tends towards zero, the density tends progressively to perpetuity. This is an approximated sign for long run autocorrelation. We verified this by exploring nonlinear models specifically, ARFIMA, GARCH, FIGARCH and HYGARCH. We first report the results of ARMA-ARFIMA in Table 6.

Table 6. ARMA-ARFIMA estimation results

Parameter	ARMA	ARFIMA
a	0.010000(0.8795)	0.010000 (0.9659)
b	0.010000(0.8831)	0.010000 (0.9666)
d	-	0.100000 (0.0000)

Note: the results in Table 6 are estimated from equations 3.2 and 3.15 respectively with lag length p=1, q=1; the figure in parentheses are the p-values.

Source: Authors' Computation

It is very clear in Table 6 that the ARMA parameters (a and b) are not significant, meaning that there is no significant ARMA structure characterizing the daily returns of Nigeria stock market. This implies that prediction of return is infeasible in the short run; speculators' goal is futile because stock market returns in the short run are not connected. However, the long run parameter (d) as revealed by the ARFIMA is significant at 1 percent. This result has reinforced the Lo's test in Table 5, earnestly suggesting that the stock market returns persist over long term range rather than short term range in Nigeria. By implication, our report shows that in the short term period, stock market return cannot be predicted; to the contrary, in the long run period return can be predicted in the Nigerian stock market. This means that our estimated results from the ARFIMA model do not complement the EMH, and thus, we have evidence

dully supported by Booth & Koutmos (1988) in European stock market. In addition, our evidence of long memory in return is in tandem with the findings of Watanaba (2002) in Tokyo Stock Exchange. To extend this investigation to volatility, GARCH, FIGARCH and HYGARCH are estimated and the results are shown in Table 7.

Table 7. GARCH-FIGARCH-HYGARCH estimation results

Parameter	GARCH	FIGARCH	HYGARCH
θ	0.077586 (0.0000)	0.070594(0.0000)	0.112699(0.0010)
λ	0.878862 (0.0000)	0.496672(0.0000)	0.380862(0.0000)
d	-	0.463569(0.0000)	-0.370489(0.0000)

Note: the results in Table 7 are estimated from equations 3.17, 3.22 and 3.23 respectively with lag length p=1, q=1; the figure in parentheses are the p-values
Source: Authors' Computation

Going by the results in Table 7, we have documented significant GARCH (1 1) process. The FIGARCH and HYGARCH parameters (including the long run parameter) are also significant. Therefore, our results uphold the presence of both short run and long run cyclical structure in volatility. In very simple terms, there is autocorrelation of volatility in short run and long run horizons, which makes prediction of volatility possible in Nigerian stock market. This deters EMH, by claiming that investors can employ historical information about volatility to forecast future volatility. This, thus fall within the evidences documented by David & Simonoysska (2015), Guinay (2014) and Balibey & Turkyilmaz (2014) that support our findings on long run volatility interdependency. More-also, our claim of ARFIMA-HYGARCH evidence in Nigerian stock market is supported by the study of Hongngoc (2014) in seven Asian countries. We conduct batteries of tests to evaluate the forecasting strength on the candidate models based on loss functions. The results are summarized in Tables 8 and 9.

Table 8. Forecasting strength of ARMA-ARFIMA

Test	ARMA	ARFIMA
Mean Squared Error (MSE)	0.0002616	0.0001312
Median Squared Error (MSE)	0.0002033	8.622e-005
Mean Error (ME)	-0.01521	-0.01002
Mean Absolute Error (MAE)	0.01521	0.01002
Root Mean Squared Error (RMSE)	0.01617	0.01145
Theil Inequality Coefficient (TIC)	0.921	0.9246

Source: Authors' Computation

The loss function statistics are in favour of ARFIMA except in the case of TIC. In this regards we propose ARFIMA (1, 0.10, 1) model as a better forecasting model than ARMA (1, 1) in Nigerian stock market. Let us see Figures 8, 9, 10 and 11 (Appendix) for additional explanation.

The conditional mean of shocks appears fairly constant and highly probably unvaried with time, truly white noised and random. Therefore, ARMA does not represent a good predictive model in Nigerian stock market. Clear distinctions between the ARMA and ARFIMA are that ARFIMA reveals connectivity between conditional mean of residual and return. Again the conditional mean is time bound. In this regards we suggest that ARFIMA must be a better predictive model compared to ARMA.

Table 9. Forecasting Strength of GARCH-FIGARCH-HYGARCH

Test	GARCH	FIGARCH	HYGARCH
Mean Squared Error (MSE)	2.668e-016	5.638e-016	5.236e-014
Median Squared Error (MSE)	7.349e-017	4.562e-016	5.421e-014
Mean Error (ME)	-3.674e-009	-1.663e-008	-2.266e-007
Mean Absolute Error (MAE)	1.217e-008	2.273e-008	2.266e-007
Root Mean Squared Error (RMSE)	1.633e-008	2.374e-008	2.288e-007
Theil Inequality Coefficient (TIC)	0.3739	0.4183	0.8541

Table 9 shows that FIGARCH is only selected by ME, while HYGARCH is favoured by all the tests except ME and TIC while GARCH is selected by TIC. HYGARCH has the most predictive power, and then followed by GARCH. FIGARCH lose out because of its weakness (see Davidson, 2004). The residuals and conditional variances of these models are presented in Figures 12, 13, 14, 15, 16 and 17 (Appendix).

Figure 12 provides an indication that shocks vary with time and Figure 13 shows that the conditional variance decays geometrically within the purview of a short run horizon. As shown in Figure 15, the FIGARCH conditional variance is the inverse of the GARCH conditional variance. Again it first decreases and increases with time, and disappears slowly on long time range. Figures 16 and 17 reveal that variance and shocks pool with tine on a long time range. It is practically overt that the conditional variance decays hyperbolically as shown in Figure 17.

CONCLUSION AND RECOMMENDATIONS

Conclusion

We proposed family of ARMA and GARCH specifications to investigate whether stock return and volatility in Nigerian stock market exhibit short/long range cyclical structure. The results revealed short run memory-less in return. Thus, we conclude that in the short run the market does not have memory in return, and the possibility of correctly predicting returns is extreme. However, long run memory in return was not refuted, this gives an indication that in the long run the Nigerian stock market is inefficient, speculative activities and riskless abnormal returns are sustained simultaneously. In addition, we found that volatility is auto-correlated both in the short and long-run periods. In this regard, we conclude that there are effects of shocks on volatility in all market cycles, and the shocks disappear in the short run rapidly, while in the long run they decay slowly. Based on these two results, we conclude that in Nigerian stock market, there is single memory in return, but double memory in volatility.

Recommendation

The supervisory unit in the Nigerian stock market should initiate a more robust platform through which information can easily be disseminated to all participants in the market. This can be archived by introducing a policy of increasing market competition or relaxation of listing requirements to accommodate more companies to be quoted and sustain optimal spread of information. Finally, among the competing models, we recommend ARFIMA and HYGARCH as the best alternative models for forecasting in the Nigerian stock market.

REFERENCES

Andersen, T.G., Bollerslev, T. Diebold, F. X., & Ebens, D. H. (2000). The distribution of stock return volatility. *Journal of Financial Economics*, 61, 43-76.

Baillie, R. T.,Bollerslev, B. T., & Mikkeslen, H. O. (1996). Fractionally integrated generalized autoregressive conditional heteroscedasticity. *Journal of Econometrics*, 74, 13–30.

Balibey, M., & Turkyilmaz, S. (2014). Value-at-Risk analysis in the presence of asymmetry and long memory: The case of Turkish stock market. *International Journal of Economics and Financial Issues*, 4(4), 836-848.

Bianco, S., Corsi, F., & Ren`o, R., (2008). Serial correlation and heterogeneous volatility in financial markets: Beyond the LeBaron effect, *Arxiv*: 0810.491v1(q-fin-ST).

Bollerslev, T. (1986).Generalized autoregressive conditional heteroscedasticity. *Journal of Econometrics*,31, 307–327.

Bollerslev, T., Osterrieder, D., Sizova, N., & Tauchen, G. (2013). Risk and return: Long-run relations, fractional cointegration and return predictability. *Journal of Financial Economics*, 108, 409–424.

Booth, G. G., & Koutmos, G. (1988).Volatility and autocorrelation in major European stock markets. *European Journal of Finance*, 4, 61–74.

Brock, W.A., Dechert, W.D., & Scheinkman, J. (1987). A test for independence based on the correlation dimension. Discussion Paper 8702, University of Wisconsin-Madison.

Campbell J., Grossman, S. J., & Wang, J. (1993). Trading volume and serial correlation in stock returns. *Quarterly Journal of Economics*, 108(4), 907-921.

Chikhi, M., Peguin-Feissolle, A., & Terraza, M. (2013). SEMIFARMA-HYGARCH modelling of Dow Jones return persistence. *Computational Economics*, 41(2), 254-261.

Davidson,J. (2004). Moments and memory properties of linear conditional heteroscedasticity models and a new model. *Journal of Business and Economic Statistics*, 22, 16-29.

David, J.M., & Simonovska, I. (2015).Correlated beliefs, returns, and stock market volatility.UC Davis, *NBER*.

Günay, S. (2014). Long memory property and structural breaks in volatility: Evidence from Turkey and Brazil. *International Journal of Economics & Finance*, 6(12), 119-130.

Hongngoc, T. (2014). Arfima-Figarch vs .Arfima-Hygarch: Case study ETF returns of emerging Asian Countries. *Asian Journal of Finance & Accounting*, 6 (2), 176-192.

Mohammadi, F., & Rezakhah, S. (2017). Smooth transition HYGARCH model: Stability and forecasting. *Arxiv*: 1701.05358v1 (Stat.CO).

Watanabe, T. (2002). Margin requirements, positive feedback trading, and stock return autocorrelations: The case of Japan. *Applied Financial Economics*, 12, 395-403.

Zhou, D., Chen, S., & Dong, S. (2012). Network traffic prediction based on ARFIMA model. *IJCSI International Journal of Computer Science Issues*, 9(6), 106-111.

APPENDIX

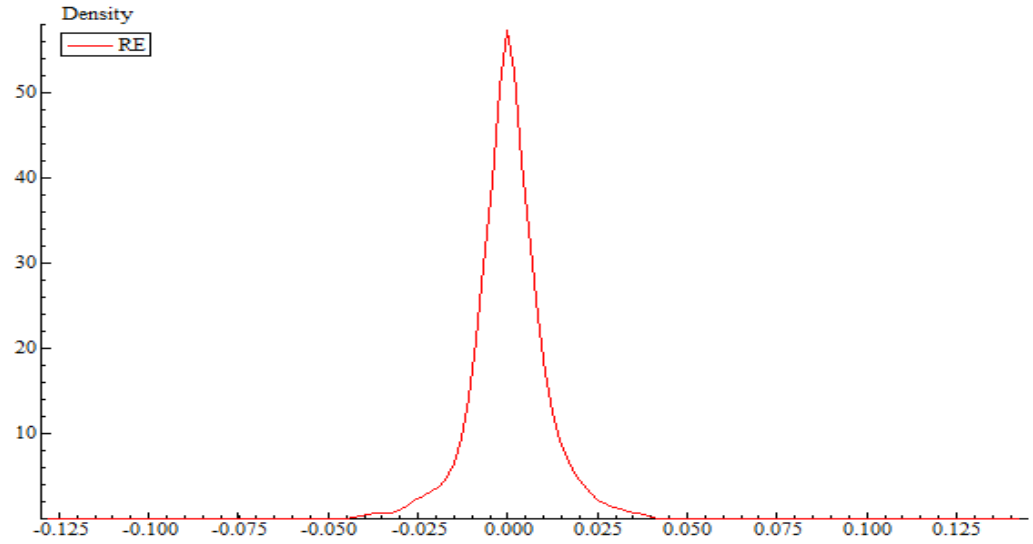


Figure 1. Density plot of market return

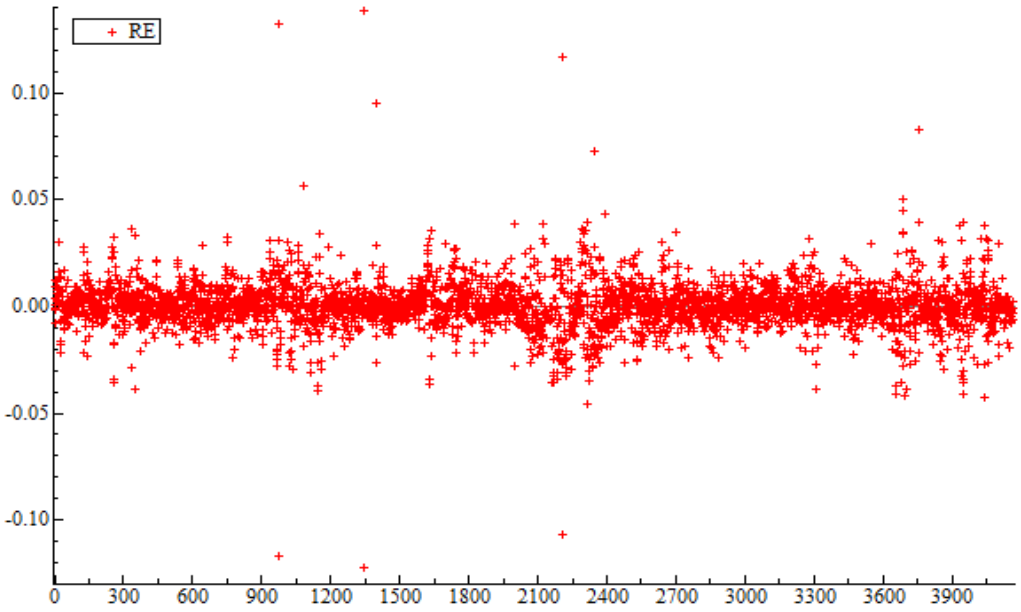


Figure 2. Scatter plot of market return

Figure 3. Line graph plot for log index

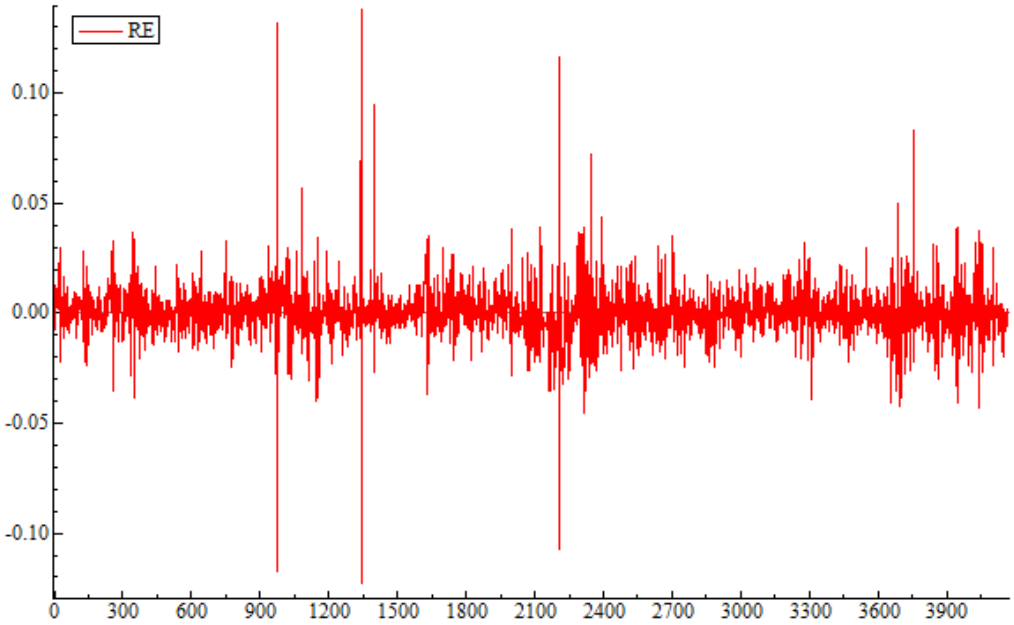


Figure 4. Line graph plot for differenced index

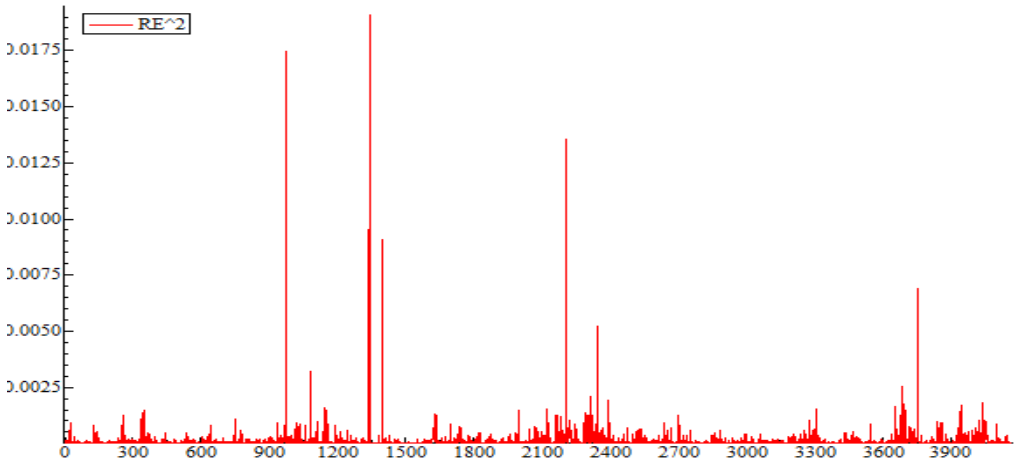


Figure 5. Conditional variance of return

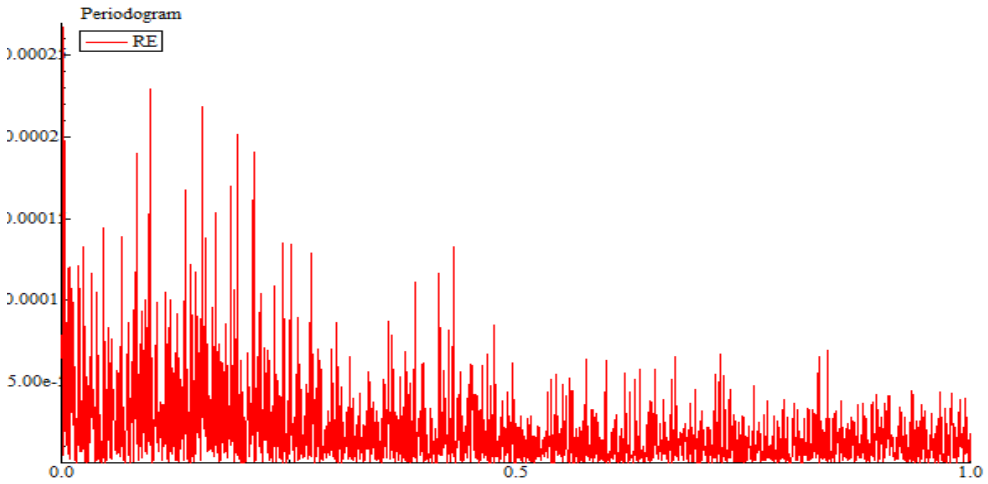


Figure 6. Periodogram of return

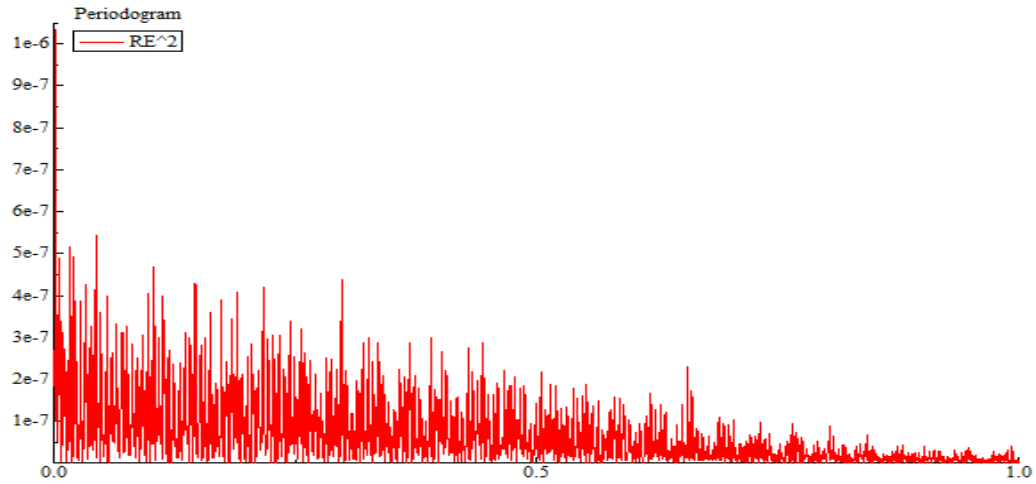


Figure 7. Periodogram of volatility

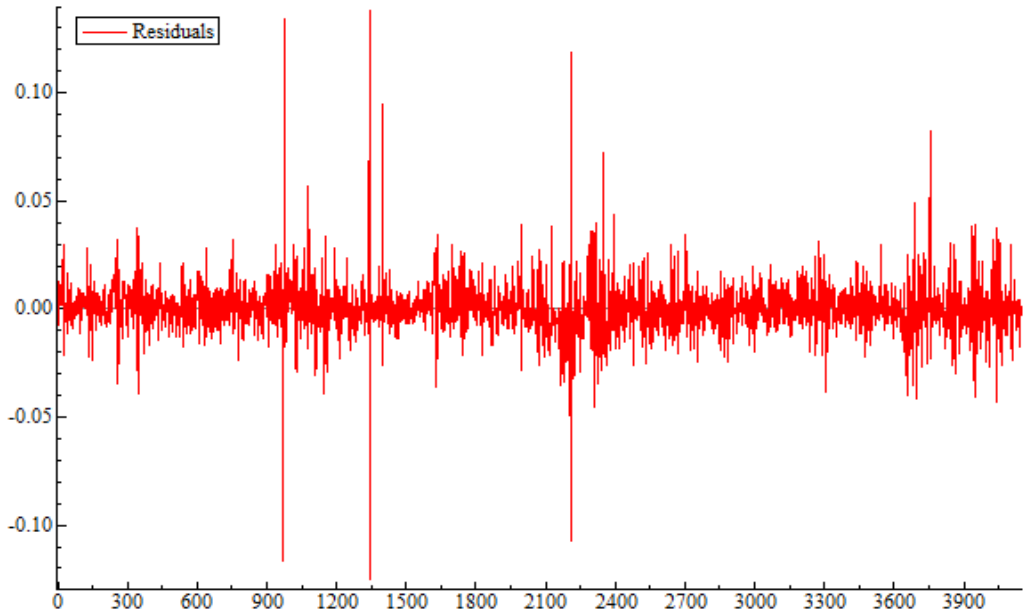


Figure 8. ARMA residual

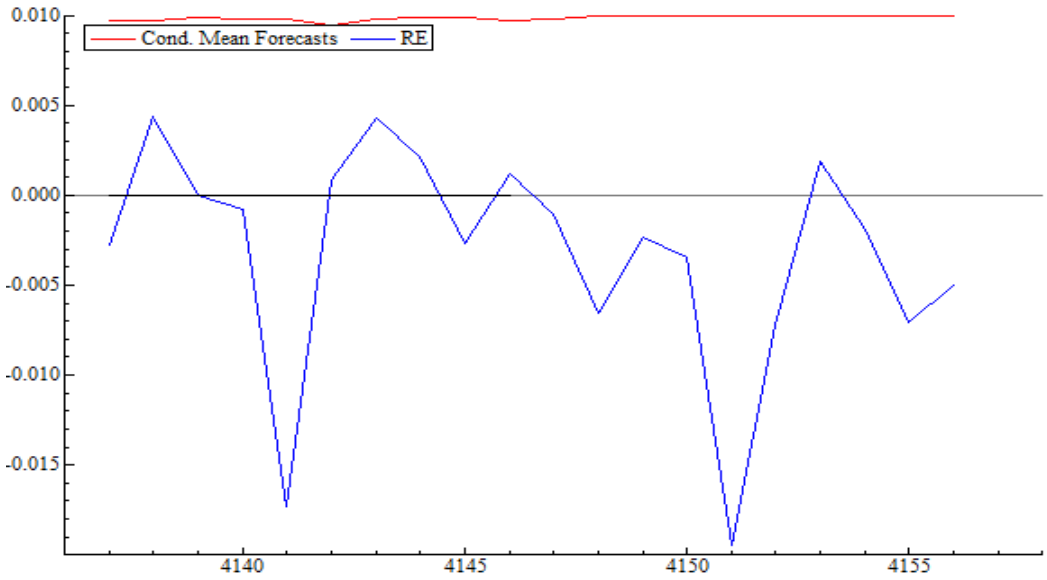


Figure 9. ARMA conditional mean

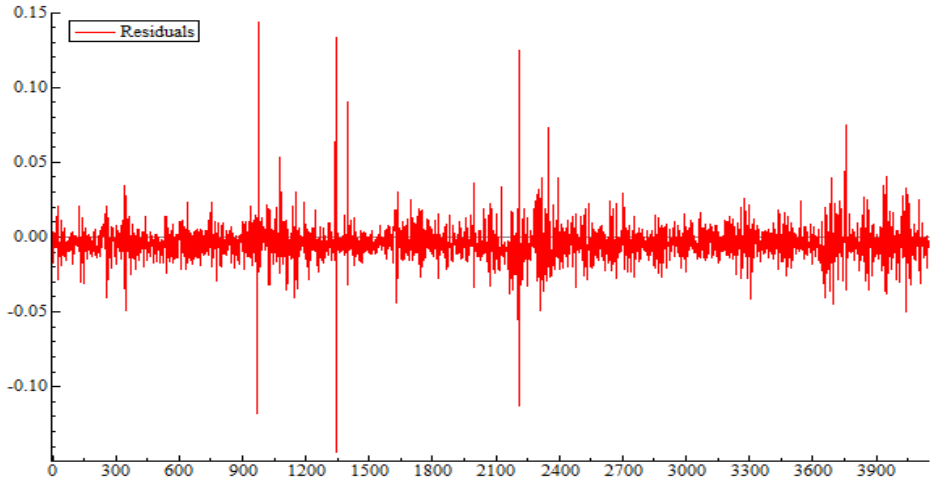


Figure 10. ARFIMA residual

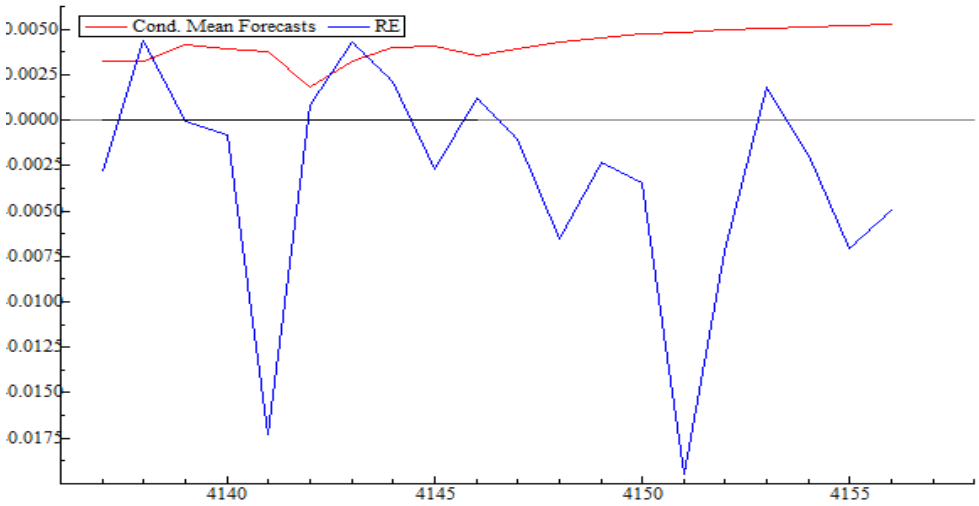


Figure 11. ARFIMA conditional mean

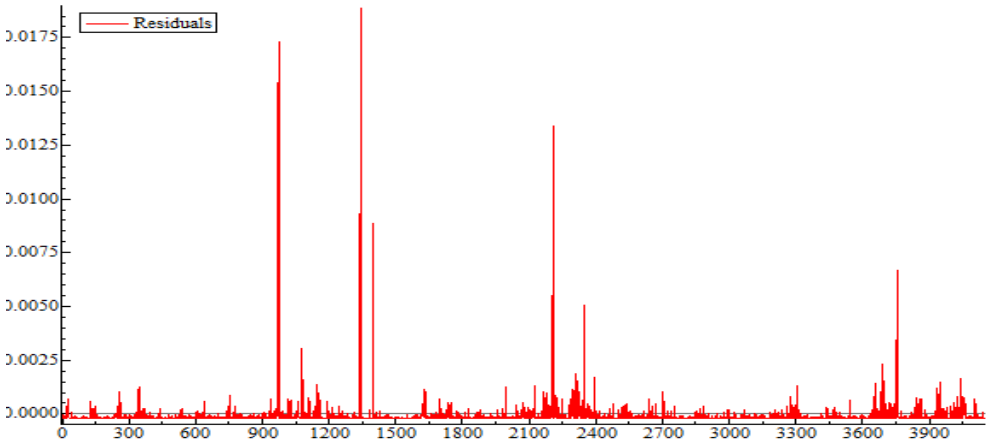


Figure 12. Residual of GARCH

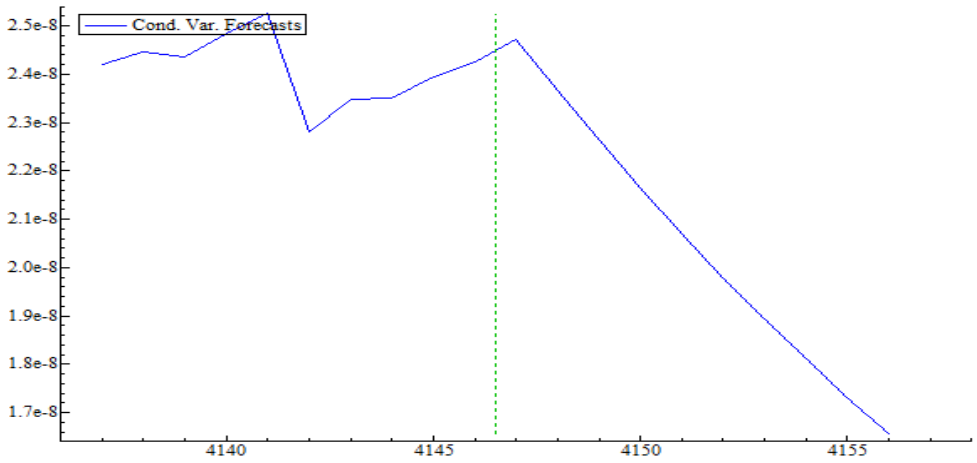


Figure 13. Conditional variance of GARCH

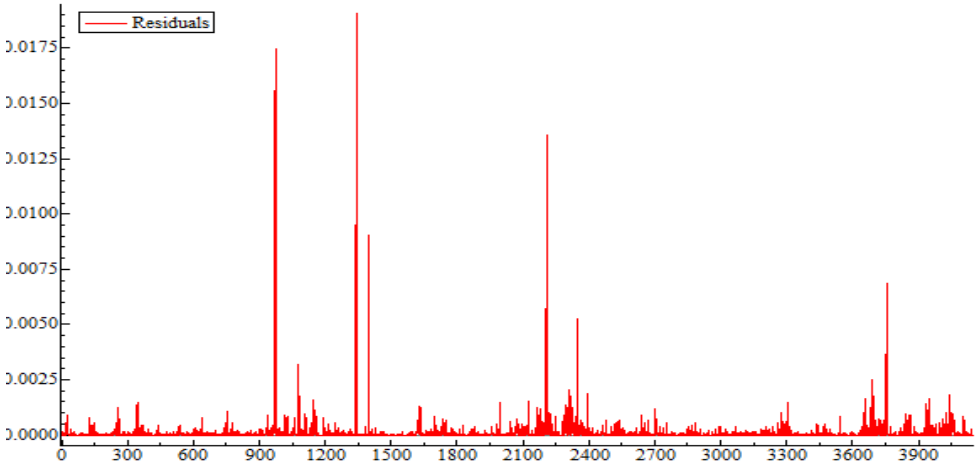


Figure 14. Residual of FIGARCH

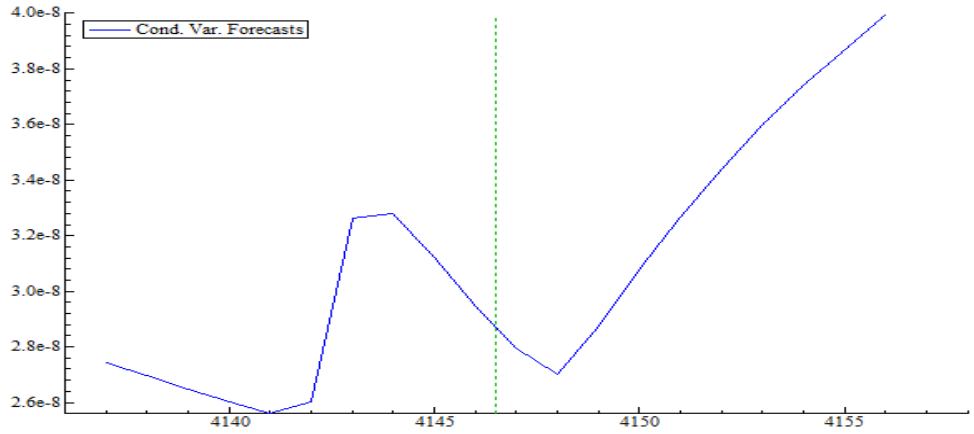


Figure 15. Conditional variance of FIGARCH

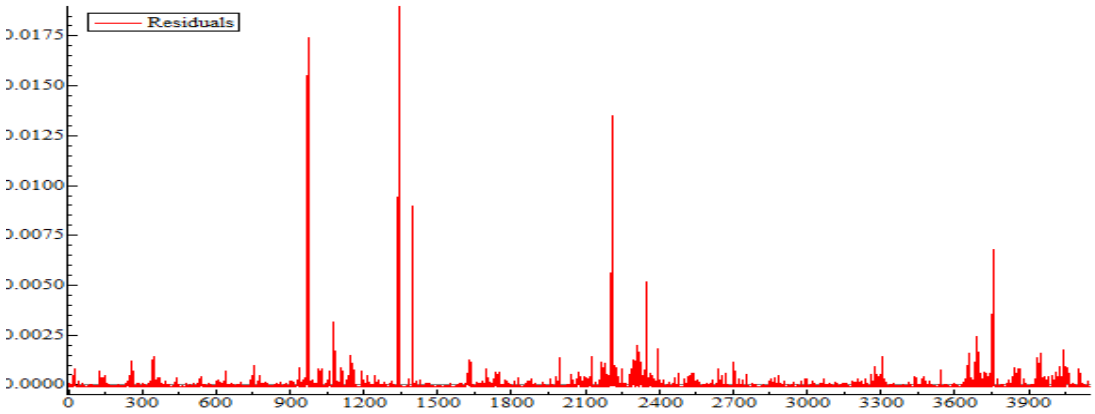


Figure16. Residual of HYGARCH

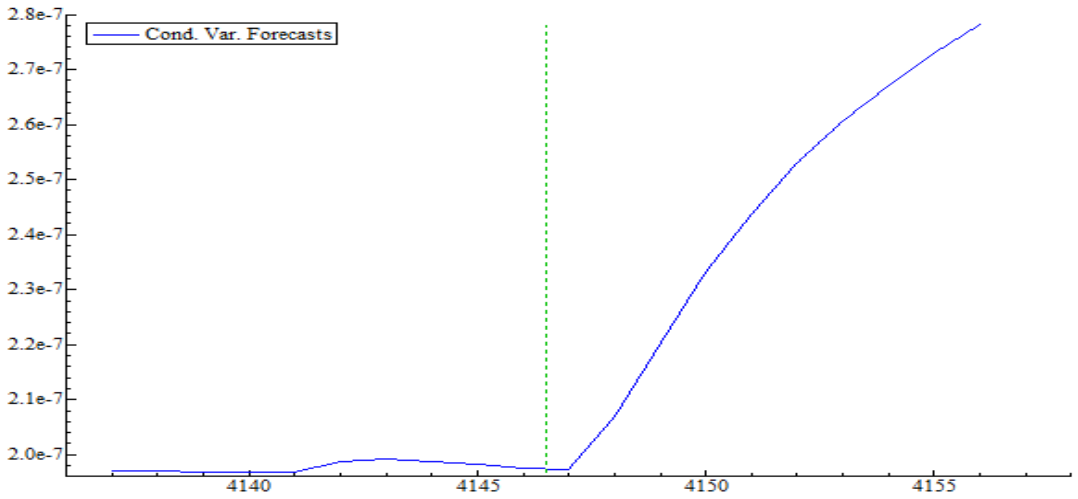


Figure 17. Conditional variance of HYGARCH

Influence of products and principles of sharia bank on customer decision with perception as intervening variable in Bank Jambi Syariah

Dahmiri

Department of Management, Faculty of Economics and Business, Universitas Jambi, Indonesia

Correspondence author email:dahmiri@unja.ac.id

Abstract

This study aims to analyze the influence of sharia bank products and the principles of sharia banks on customer decisions with perception as an intervening variable in Bank Jambi Syariah. Questionnaires were distributed to 301 customers. Analytical tool used is Structural Equation Modeling (SEM) analysis. The results indicate that sharia bank products, principles of sharia banks, and customer perceptions significantly influence both partially and simultaneously on the decision of Bank Jambi Syariah customers. Indirectly, products and principles of sharia bank significantly influence Bank Jambi Syariah customer decisions through customer perception. The dominant variable influencing customer decision is the principles of sharia bank. The originality of the model is reflected on the addition of an intervening variable, showing that there is a greater impact on the customer decision by including perception compared to the impact without including customer perception.

Keywords: *Bank, Customer decisions, Syariah*

JEL Classification: G41, G51, M31

INTRODUCTION

Advancements in various sectors of live never stop in line with the increasingly complex human needs and desires. Banking industry development is no less rapid with developments in other sectors with its new findings in effort to meet the life necessities.

The presence of Islamic Banks or Sharia Banks is a new thing in the modern economic system, where its emergence is in line with intense efforts in supporting Islamic economics carried out by Islamic economists. They believe that Islamic banks will be able to replace and improve conventional economic system which is based on interest (Antonio, 2012).

In Indonesia, the issuance of Law Number 21 of 2008 concerning Sharia Banking has an impact on the rapid development of the sharia banking industry because this law becomes a strong legal foundation in encouraging the development of sharia banking. The average growth of assets of sharia banks is generally higher than conventional banks, which is 18.81% in 2012-2018 (Jayani, 2019).

The development of sharia banks in Jambi Province showed a significant increase each year when it is compared to the growth of sharia banks at national level. Based on Bank Indonesia's data in 2018, in terms of assets, the development of sharia banks reached 6.40 percent of the total commercial banks in Jambi. This number is higher than the national share which is 4.75 percent (Jayani, 2019).

Bank Jambi Syariah is one of the sharia banks in Jambi Province and a business unit of Bank Jambi. Its development of the number of customers from year to year continues to increase for all products. In 2015, the number of customers was 3,446 and it increased in 2018 to 122,324 (Bank Jambi Syariah, 2019).

Customers' decisions on bank services and products are influenced by various factors including the type of products, the bank principles, and perceptions of the bank. Studies examining the effects of bank products and bank principles on customer perceptions and decisions to use bank products have been carried out both on conventional banks and sharia banks. However, study that combines products, principles of sharia banks, customer perceptions and decisions has never been done on a global scale, especially on Bank Jambi Syariah.

The selection of Bank Jambi Syariah as the study's object is due to the phenomenon of gap is more common in Bank Jambi Syariah compared to Bank Syariah Nasional (National Sharia Bank). In this respect, the model of the influence of products and principles of sharia bank on customer decisions with perception as an intervening variable in Bank Jambi Syariah becomes an interesting topic to be studied.

LITERATURE REVIEW

Sharia bank products

The principles of Islamic banking are based on: (Kasmir, 2010)

a. Justice. It can be seen from the reward system that is based on profit sharing and profit margins mutually agreed between the customer and the bank.
b. Partnership. Islamic banks regard the position of investor customers (depositors) and users of funds are equal as business partners.
c. Transparency. It can be seen through bank financial reports transparently an ongoing basis and customers can find out the level of security of funds and bank management.
d. Universality. In its operations, the bank does not differentiate customers based on their ethnic, religion, race, and religious groups in society in accordance with Islamic principles as *rahmatal lil 'alamiin*.

Based on the principle, sharia banking products are divided into three parts: the collection of funds (*funding*), the channeling of funds (*financing*), and a product involving service (*service*) (Karim, 2004)

a. Funding

Funding in Sharia Bank can be in the form of demand deposit, saving deposit, and time deposit. Demand deposit is a deposit that can be withdrawn at any time using cheque, bilyet giro, other payment instruction, or by overbooking. Saving deposit is a deposit that can be withdrawn based on specified requirements agreed in advance, but cannot be withdrawn using cheque, bilyet giro, and or other similar instruments. Based on Law Number 10 of 1998, time deposit is a deposit of fund that may only be withdrawn after a specified term based on the agreement between the customer and the bank.

b. Financing

Financing to customers is divided into four categories: 1) sale and purchase transaction in the form of *Murabahah, Salam,* and *Istishna'*; 2) leasing transaction in the form of *Ijarah*, based on the transfer of benefits. While in sale and purchase transaction the object of transaction is goods, the object of transaction in *ijarah* is service; 3) Financing based on profit sharing (*syirkah*), in the form of *Musyarakah* and *Mudharabah*; 4) Financing with contracts, including *hiwalah* (transfer of a debt), *rahn*

(pledge or mortgage), *qardh* (lending and borrowing of funds), *wakalah* (representative/agency), and *kafalah* (bank guarantee).

c. Service

There are two service products in Islamic banking, namely: a) *Sharf* or foreign currency exchange. Banks can earn profit from the rate margin in the event of different currencies, however the transaction must be conducted by using the exchange rate applicable at the time of transaction; b) *Ijarah* or leasing is a contract on using the benefits or services in return for compensation (Muhammad, 2004).

Relationship of products, principles, perceptions, and customer decisions

Perception is the process of selecting, organizing, and interpreting information inputs to create meaningful picture of the world Kotler (2016). Gibson, Ivancevich, Donelly, & Konopaske, (2012) stated that there are two factors influencing perception: 1) Internal factors: factors in the individuals including physiology, similar needs, attention, desires, and emotions; 2) External factors: characteristics of the environment. These factors could change people's perspective on the world around them and affect people's respond to feel and receive it. External factors influencing perception are: the size and placement of the object or stimulus, the colour of the object, the intensity and strength of the stimulus, and the motion and contrast of the stimulus.

Furthermore, decision is the choice of an action from two or more alternative choices. A consumer has various alternative choices before deciding to make, choose, and determine the purchase Schiffman & Wisenblit (2019). Pride and Ferrell (2010) divided factors influencing consumer decision into: 1) Personal factors are unique factors of an individual. Various factors influence purchasing decisions. Personal factors are classified into three, namely demographic factor, involvement factor, and situational factor; 2) Psychological factors exist in an individual that determines partially that person's behavior, affecting the behavior as a consumer, i.e. motives, perceptions, knowledge, and personality and abilities.

The interrelationship between products, principles of Sharia/Islamic banks, customer perceptions, and customer decisions has been carried out by researchers at different places and times. Theories and previous studies have shown a strong relationship between service products and customer decisions. The better the quality of the service, the higher chance the customer's decision to buy is. Studies on the influence of sharia banking products on customer decisions found that sharia banking products indeed have an influence on the decision to become customers of sharia banks (Chotimah, 2014; Susanto, Waluyo & Listyorini, 2012; Sumantri, 2014; Doraisamy, 2011; Rustam, Bibi, Zaman, Rustam & Haq, 2011; Bashir, 2013).

Principles of Islamic banks are very good and accepted well by consumers. The better these principles are applied, the more it will influence the customer's decision to use the services of a sharia bank. Studies on the influence of Islamic banking principles on sharia bank customer decisions found that there is an influence of these principles on the decision to become sharia bank customers (Kurniawati, 2014; Maisur & Shabri, 2015; Ahmad & Humayoun, 2011; Haque, Lone & Thakur, 2017; Akacem & Gilliam, 2002).

Customer perceptions of Islamic banks have a strong relationship with customer decisions. The better the customer perception of the bank, the higher chance the customer decides to become a customer of the bank. Studies on the influence of perceptions on the decision to become a sharia bank customer found that perceptions of sharia banks influence the customer decision (Rahmawaty, 2014; Astuti & Mustikawati,

2013; Fada & Wabekwa, 2012; Ahmad & Haron, 2002; Ritonga, 2013; Bick, Brown & Abratt, 2004).

The difference of this research with previous studies can be seen from several aspects, among others, the object of research. Studies on conventional banks has been carried out frequently both on a global and regional scale, while there is a limited research on Islamic bank/Sharia bank on a local scale, especially in Jambi Province. In terms of research variables, there are also differences with previous studies. There has not been previous research that combines products, principles, customer perceptions, and customer decisions in one model. The difference lies on the analytical method. Previous studies used linear regression analysis tools, for example in the studies of Chotimah, 2014; Susanto, Waluyo & Listyorini, 2012; Doraisamy, Shanmugam & Raman, 2011; Bashir, 2013; Kurniawati, 2014; Maisur & Shabri, 2015; Rahmawaty, 2014; Astuti & Mustikawati, 2013. Meanwhile some other studies used the average method as conducted by Rustam, Bibi, Zaman, Rustam, & Haq, 2011; Fada & Wabekwa, 2012; Ahmad & Haron, 2002; Bick, Brown & Abratt, 2004. This research uses Structural Equation Modeling (SEM) as the analysis tool which had not been widely used in previous studies.

METHODS

Data types and sources

Data used for this study are primary data and secondary data. Questionnaires to respondents, Bank Jambi Syariah customers, were distributed to obtain primary data directly from the object under study. Secondary data were from literature studies.

Population and Sample

The study population was all customers of Bank Jambi Syariah, in total of 122,324 people (Bank Jambi Syariah, 2019). Samples were selected from Bank Jambi Syariah customers by simple random sampling, where each customer has the same opportunity to become a respondent. According to Sevilla (2007), Slovin formula can be used to determine the sample size of the population, i.e.

$$n = \frac{N}{1 + Ne^2} = \frac{122{,}324}{1 + 122{,}324(0.05^2)} = 301$$

Whereas :

n : Number of Samples
N : Number of Population
e^2: Margin of error (5%)

Data processing method

Data collection instrument for this study is a structured questioner. Attributes under study refer to 5 point Likert scale (1-5). Validity, reliability, and normality tests were conducted in order to obtain validity and reliability of the questionnaire.

Model and hypothesis testing is using Structural Equation Modelling (SEM) analysis with AMOS. Hypotheses of the developed research model are tested by SEM techniques with a two-step approach (Brown and Peterson, 1994; Baldauf, David, and Nigel, 2001).

The first stage is an assessment of the measurement model and then the model is used in the second stage when assessing the structural model (Ferdinand, 2014). The reasoning for this approach is that an accurate representation of the realibity of

indicators can be accomplished well in two stages in order to avoid the interaction of the measurement model and the structural model. In the first stage, a qualitative analysis was carried out. Meanwhile a quantitative approach was used in the second stage to analyze the data, using Structural Equation Modeling (SEM). To examine the influences simultaneously, both direct and indirect influences between variables, the study used SPSS.

Table 1. Operational definition of research variables

Variables	Definition	Indicators	Scale	Item
Sharia Bank Products (ξ1)	Sharia Banking products are divided into three parts, including the collection of funds (*funding*), the channeling of funds (*financing*), and a product involving service (*service*) (Karim, 2004)	Funding	Interval	1
		Financing	Interval	2
		Service	Interval	3
Principles of Sharia Bank (ξ2)	The bank services provided in sharia bank are in accordance with sharia principles and Islamic law (Kasmir, 2002)	Justice	Interval	4
		Partnership	Interval	5
		Transparency	Interval	6
		Universality	Interval	7
Perception (η1)	Perception is the process of selecting, organizing, and interpreting information inputs to create meaningful picture of the world (Kotler, 2016)	Internal factors	Interval	8
		External factors	Interval	9
Costumer Decision (η2)	Purchasing decision is the selection of an action from two or more alternative choices before deciding on a purchase (Schiffman, Leon, Kanuk, Lazar and Joseph, 2013)	Personal factors	Interval	10
		Psychological factors	Interval	11

Source: Modified from various sources, 2019.

RESULTS AND DISCUSSION

Results

Customer responses to the Islamic/Sharia banking products (X1) which consist of three indicators, namely funding, financing, and service have the average score of 3.57. It means that the customers feel that sharia banking products are good. The customer responses to the principles of Islamic banks (X2) which consist of four indicators: justice, partnership, transparency, and universality have the average score of 3.62. It means that the customers feel that the principles of Islamic/sharia banks are good.

Customer responses to the perception (Y1) which consists of two indicators, namely internal factors and external factors, obtained an average score of 3.39 or "good enough". Customer responses to customer decisions (Y2) which consist of two indicators, personal factors and psychological factors, have an average score of 3.6 or "good".

Statements on the questionnaire are all valid and show a positive direction because the results of validity test showed Corrected Item Total Correlation greater than 0.3. Reliability test through Spearman Brown correlation obtained Cronbach's Alpha score above 0.6, indicating that all statement items are reliable. Normality test of the data shows the skewness ratio = -0.302 / 0.423 = -0.724, while kurtosis ratio = -0.004/0.826 = -0.005. Because the skewness ratio and kurtosis ratio are between -2 to +2, it can be concluded that the data distribution is normal.

Table 2. Item-total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	93.4333	131.426	.630	.928
VAR00002	93.5000	135.707	.624	.928
VAR00003	93.6000	133.697	.645	.928
VAR00004	93.4333	140.530	.313	.932
VAR00005	93.5000	137.086	.470	.930
VAR00006	93.9000	127.541	.666	.928
VAR00007	92.7333	137.099	.566	.929
VAR00008	93.1667	135.661	.475	.931
VAR00009	93.2333	140.530	.370	.931
VAR00010	93.6333	139.826	.389	.931
VAR00011	93.2667	135.444	.529	.930

Table 3. Reliability Statistics

No	Variable	Cronbach's Alpha	N of Items
1	Sharia Banking Products (X1)	.932	3
2	Principles of Sharia Bank (X2)	.954	4
3	Customer Perception (Y1)	.880	2
4	Customer Decision (Y2)	.878	2

To do a thorough hypothesis testing, it is necessary to present its full Structural Equation Model. It can be seen in the following Figure.

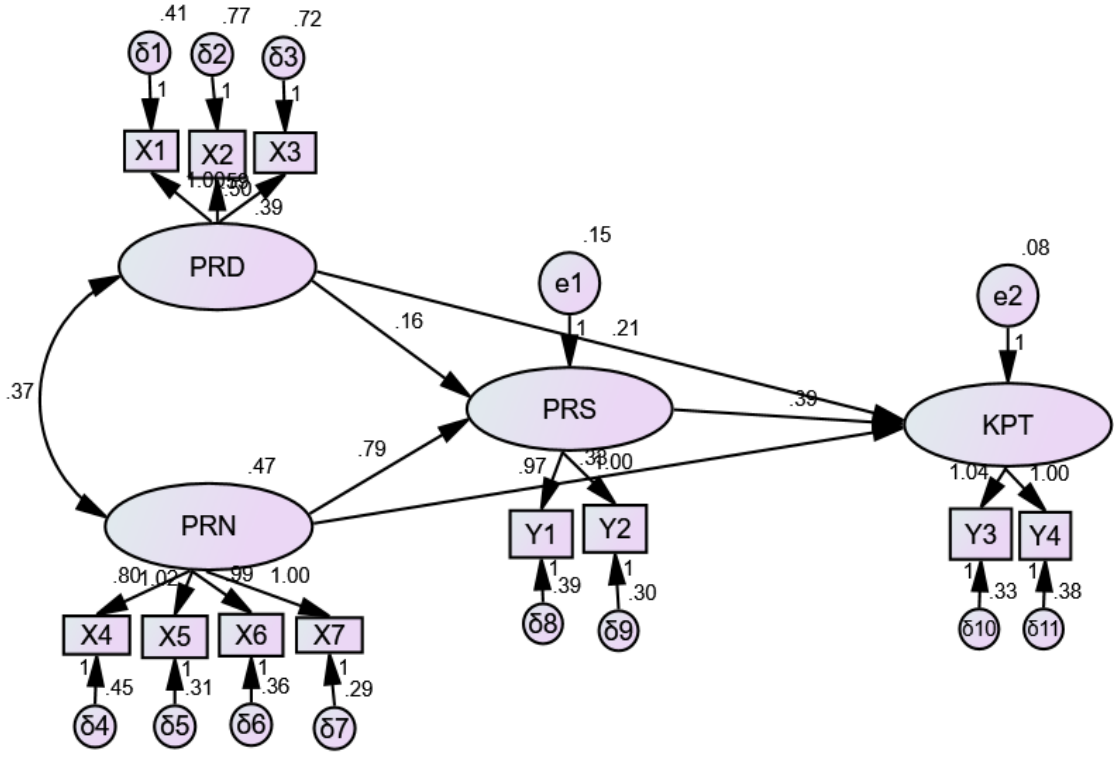


Figure 1. Structural Equation Model

Goodness-of-fit test is carried out to see the GFI, AGFI, TLI, CFI, and RMSEA indices.

Table 4. Goodness-of-fit indices

Goodness of fit Index	Cut-off Value	Model Result	Conclusion
Degree of freedom, DF		147	
RMSEA	0,08	0.072	Goodness of Fit
GFI	0,90	0.908	Goodness of Fit
AGFI	0,90	0.912	Goodness of Fit
CMIN/DF	2,00	1.832	Goodness of Fit
TLI	0,90	0.909	Goodness of Fit
CFI	0,90	0.922	Goodness of Fit

Source: Data processed (2019)

From Table 4, it shows that the RMSEA statistic is 0.072, a value lower than the recommended 0.08, the GFI statistic is 0.908 and greater than 0.90, the AGFI statistic is 0.912 and greater than 0.90, the CMIN/DF statistic is 1.832 and less than 2.00, the TLI statistic is 0.909 and greater than 0.90 and the CFI statistic is 0.922 and greater than 0.90. The results obtained in the analysis indicated an appropriate overall fit of the measurement model. According to Arbuckle and Wothke (2000), the best criteria to consider a good fit of the model is that the CMIN/DF statistic is below the maximum recommended value of 2 and the RMSEA statistic is below the maximum recommended value of 0.08 so it signifies a good model fit for all indices and the proposed model can be analyzed.

The results of significance tests of products and principles of sharia bank on customer decisions with perception as an intervening variable both partially and simultaneously are:

1. Hypothesis 1
   H1 is accepted because the value (P) <0.05. The conclusion is that sharia banking products have a significant influence on perception.
2. Hypothesis 2
   H2 is accepted because (P) < 0.05. The conclusion is that the principles of sharia bank have a significant effect on perception.
3. Hypothesis 3
   H3 is accepted because (P) < 0.05. The conclusion is that sharia banking products have a significant influence on customer decisions.
4. Hypothesis 4
   H4 is accepted because (P) < 0.01. The conclusion is that the principles of sharia banks have a significant effect on the customer decisions.
5. Hypothesis 5
   Simultaneously, the products and the principles of sharia banking influence perception (121.532 > 1.96)
6. Hypothesis 6
   Simultaneously, the products and the principles of sharia banking influence the customer decisions (122.242 > 1.96)
7. Hypothesis 7

H7 is accepted because (P) < 0.05, that is 0.004 < 0.05. The conclusion is that the perception has a significant effect on the customer decisions.

8. Hypothesis 8
   Simultaneously, the sharia banking products, the principle of sharia banks, and the perception have an influence on the customer decisions (112.445 > 1.96)

The direct relationship occurs between exogenous latent variables (products, principles) with endogenous intervening latent variable (perception) and endogenous latent variable (decision). The following table presents results of direct effects between exogenous and endogenous latent variables.

Table 5. Direct effects among research variables

Direct Effects		Endogenous Variables	
		Perception	Decision
Exogenous Variables	Products	0.160	0.210
	Principles	0.790	0.380
	Perception	0.000	0.390

As Table 5 shows, the strongest direct effect on customer perception is exercised by the principles of sharia banks of 0.79. It indicates that principles as a latent variable contributes greatly in influencing perceptions. If the principle of sharia bank is improved by one unit, then the customer perception will increase by 0.79. The strongest direct effect on decision is exercised by perception of 0.39. If the perception is improved by one unit, then the customer decision will increase by 0.39.

Indirect relationship between exogenous latent variables (products, principles) and endogenous intervening latent variable (perception) and endogenous latent variable (decision) is as Table 6.

Table 6. Indirect effects among research variables

Indirect Effects		Endogenous Variables	
		Perception	Decision
Exogenous	Products	0,000	0,1250
	Principles	0,000	0,1670
	Perception	0,000	0,000

The results in Table 6 show the indirect effects of exogenous latent variables on endogenous latent variables. The strongest indirect effect on decision is the principles of sharia banks of 0.167. It indicates that the principles of sharia bank as a latent variable contribute largely in influencing customer decisions, or every increase in the principles of sharia bank will result on the increase in customer decision by 0.167.

The direct relationships occur between exogenous latent variables (products, principles) with endogenous intervening latent variable (perception) and endogenous latent variable (decision). The following table presents the results of total effects:

Table 7. Total effects among research variables

Total Effects		Endogenous Variables	
		Perception	Decision
Exogenous Variables	Products	0,160	0,267
	Principles	0,790	0,635
	Perception	0,000	0,390

The total effects of exogenous latent variables on endogenous latent variables are shown in Table 7. The strongest total effect on perception is the principles of sharia banks, equal to 0.790. This means that each time the principles of sharia banks are improved then the customer perceptions will increase by 0.790. The strongest total effect on the decision is the principles of sharia banks of 0.635. This means that the principles of sharia banks as a latent variable have a large contribution in influencing customer decisions, or each time the principles are improved by one unit, the customer decisions will increase by 0.635.

Discussion

Decisions of Bank Jambi Syariah customer can be influenced by sharia banking products, the principles of sharia banks, and customer perceptions. After conducting literature review, it was found that there was no research that included customer perception as an intervening variable. The addition of customer perception as a variable is a novelty in this research model. The results of testing found that customer perception as intervening variable can influence customer decisions for Bank Jambi Syariah and the value for customer decisions is higher with customer perception, compared to without customer perception as variable. The R square value obtained is 58.6 > 52.1.

The results of this study have similarities in terms of the variables used and support previous studies on the influence of Islamic bank products on customer decisions, including studies of Chotimah, 2014; Susanto, Waluyo & Listyorini, 2012; Sumantri, 2014; Doraisamy, Shanmugam & Raman, 2011; Rustam, Bibi, Zaman, Rustam, & Haq, 2011; Bashir, 2013. This study is also in line with the results of previous studies that sharia bank principles influence customer decisions, including research conducted by Kurniawati, 2014; Maisur & Shabri, 2015; Ahmad & Humayoun, 2011; Haque, Lone, & Thakur, 2017; Akacem & Gilliam, 2002. Customer perceptions have a significant effect on customer decisions, the results of this study are in line with previous studies by Rahmawaty, 2014; Astuti & Mustikawati, 2013; Fada & Wabekwa, 2012; Ahmad & Haron, 2002; Ritonga, 2013; Bick, Brown & Abratt, 2004.

CONLUSIONS AND RECOMMENDATIONS

Conclusions

The sharia banking products, the principles of sharia bank and the customer perceptions partially have influenced significantly the decision of Bank Jambi Syariah customers. Simultaneously, sharia banking products, principles of sharia banks, and customer perceptions influence the decision of Bank Jambi Syariah customers.

The indirect effect between sharia bank products on the customer decision through customer perception as an intervening variable has a significant effect. In terms of indirect effect between the principles of sharia bank on the customer decision through customer perception as an intervening variable resulted on significant effect on the decision of Bank Jambi Syariah customers.

Variable that has a dominant influence on customer decision is the principles of sharia banks. The novelty of this study is the addition of customer perception as

intervening variable. The test results show that the effect on the decision of Bank Jambi Syariah is even greater.

Recommendations

Based on the research findings, there are several policy implications in accordance with priorities as input for management, in order to improve customer decisions, including: 1) There should be more varied and more attractive products of sharia bank; 2) Improving the application of Islamic bank principles, especially the principle of justice to all customers; 3) Increasing customer perception, among others, by improving services, bank environment, and bank facilities.

This study chose sharia bank as the research subject and the next researchers are advised to conduct similar study on commercial banks to find out similarities and differences between two groups of banks and also to give contributions to the development of science. Future studies are suggested to examine other variables such as service quality, marketing characteristics, bank characteristics, promotions, and others.

REFERENCES

Ahmad, A., & Humayoun, A.A. (2011). Islamic banking and prohibition of Riba/interest. *African Journal of Business Management*, *5*(5), 1763-1767.

Ahmad, N., & Haron, S. (2002). Perceptions of Malaysian corporate customers towards Islamic banking products and services. *International Journal of Islamic Financial Services*, *3*(4), 13-29.

Akacem, M., & Gilliam, L. (2002). Principles of Islamic banking: Debt versus equity financing. *Middle East Policy*, *9*(1), 124.

Antonio, S. (2012). *Bank Syariah Dari Teori Ke Praktek.* Jakarta: Gema Insani Press.

Arbuckle, J.L. & Worthke, W. (2000). *Amos 7.0 User's Guide*. USA: Development Corporation.

Astuti, T., & Mustikawati, R.I. (2013). Pengaruh Persepsi Nasabah Tentang Tingkat Suku Bunga, Promosi dan Kualitas Pelayanan terhadap Minat Menabung Nasabah. *Nominal, Barometer Riset Akuntansi dan Manajemen*, 2(1), 182-198.

Bank Jambi Syariah. (2019). *Perkembangan Nasabah Bank Jambi Syariah*. Jambi: Bank Jambi Syariah

Bick, G., Beric Brown, A., & Abratt, R. (2004). Customer perceptions of the value delivered by retail banks in South Africa. *International Journal of Bank Marketing*, *22*(5), 300-318.

Baldauf, A., David, W.C. & Nigel, F.P. 2001. Examining the Consequences of Sales Management Control Strategies in European Field Sales Organizations, International. *Marketing Review*, 18 (5):474 – 508.

Bashir, M.S. (2013). Analysis of customer satisfaction with the Islamic banking sector: case of Brunei Darussalam. *Asian Journal of Business and Management Sciences*, *2*(10), 38-50.

Brown, S. & Peterson, R. A. (1994). The Effect of Effort on Sales Performance and Job Satisfaction. *Journal of Marketing*, 58 (April):70-80.

Chotimah, C. (2014). *Pengaruh Produk, Pelayanan, Promosi Dan Lokasi Terhadap Masyarakat Memilih Bank Syariah Di Surakarta (*Unpublished Doctoral dissertation). Universitas Muhammadiyah Surakarta, Surakarta.

Doraisamy, B., Shanmugam, A., & Raman, R. (2011). A Study on Consumers'perferences Of Islamic Banking Products And Services In Sungai Petani. *Academic Research International*, *1*(3), 290- 302.

Fada, K.A., & Wabekwa, B. (2012). People's perception towards Islamic banking: a field work study in Gombe Local Government Area, Nigeria'. *International Journal of Business, Humanities and Technology*, *2*(7), 121-131.

Ferdinand, A. (2014). *Metode Penelitian Manajemen*. Semarang: Badan Penerbit Universitas Diponegoro

Gibson, J.L., Ivancevich, J.M., Donelly, J.H. & Konopaske, R. (2012). *Organizational Behavior, Structure, Processes, Fourteenth Edition*. New York: McGraw-Hill.

Haque, I., Lone, F.A., & Thakur, G. (2017). Islamic banking in India: what more needed?. *Journal of Islamic Economics, Banking and Finance*, 5(3), 75-86.

Jayani, D.H. (2019). *Berapa Aset Perbankan Syariah dan Konvensional?* Available at: https://databoks.katadata.co.id/datapublish/2019/09/20/berapa-aset-perbankan-syariah-dan-konvensional

Karim, A., (2004). *Bank Islam Analisis Fiqih Dan Keuangan–Edisi Keempat*. Jakarta: PT. Raja Grafindo Persada. .

Kasmir. (2010). *Dasar-dasar Perbankan*. Jakarta: Rajawali Pers.

Kasmir. (2002). *Bank dan Lembaga Keuangan Lainnya*. Jakarta: Raja Grafindo Persada.

Kotler, P. & Keller K. L. (2016). *Marketing Managemen*. Pearson Education,Inc.

Kurniawati, E.T. (2014). Analisis Pengaruh Profitabilitas Sistem Bagi Hasil dan Kualitas Layanan Bank terhadap Minat Nasabah Berinvestasi (Studi Kasus Pada Bank Muammalat Cabang Malang). *Jurnal Humanity*, *7*(2). 46-55.

Maisur, M. A., & Shabri, M. (2015). Pengaruh Prinsip Bagi Hasil, Tingkat Pendapatan, Religiusitas dan Kualitas Pelayanan Terhadap Keputusan Menabung Nasabah pada Bank Syariah di Banda Aceh. *Jurnal Administrasi Akuntansi: Program Pascasarjana Unsyiah*, *4*(2). 1-8.

Muhammad. (2004). *Teknik Penghitungan Bagi Hasil dan Profit Margin Pada Bank Syariah.* Yogyakarta: UII Press.

Pride, W.M. & Ferrel, O.C. (2010). *Marketing*. Sourth Western International Edition.

Rahmawaty, A. (2014). Pengaruh persepsi tentang bank syariah terhadap minat menggunakan produk di BNI Syariah Semarang. *Jurnal Addin*, 8(1). 1-28.

Rustam, S., Bibi, S., Zaman, K., Rustam, A., & Haq, Z.U. (2011). Perceptions of corporate customers towards Islamic banking products and services in Pakistan. *The Romanian Economic Journal*, *41*(4), 107-123.

Ritonga, H. A. H. D. H. (2013). Persepsi Etnis China Terhadap Perbankan Syariah Di Kota Medan. *Jurnal Ekonomi dan Keuangan*, *1*(2). 41-55.

Schiffman, L.G & Wisenblit, J.L. (2013). *Consumer Behavior*. Pearson

Sumantri, B. (2014). Pengaruh Kualitas Pelayanan Dan Produk Pembiayaan Terhadap Minat Dan Keputusan Menjadi Nasabah Di Bank Syariah. *Jurnal Economia, 10(2), 141-147.*

Susanto, M. D. A., Waluyo, H. D., & Listyorini, S. (2012). Pengaruh Produk Tabungan Dan Kualitas Pelayanan Terhadap Keputusan Menabung Pada KJKS BMT Binna Ummat Sejahtera Kec. Lasem. *Jurnal Ilmu Administrasi Bisnis*, *1*(2), 177-186.

Impact of economic growth on regional development in Jambi Province

M. Iqbal[1]*; Muhammad Firdaus[2]; Bambang Juanda[2]; Dedi Budiman Hakim[2]

[1)] Muaro Jambi Regency's Office of Tourism, Youth and Sports, Indonesia
[2)] Economics and Management Faculty, IPB University, Bogor, Indonesia

**To whom correspondence should be addressed. E-mail: miqbalhasip@gmail.com*

Abstract
This research work aims to, firstly, analyze the structure of economic growth based on regency/city typology in Jambi Province in 2008-2007, and secondly, to analyze regional development inequality in Jambi Province in 2008-2017. The analytical methods used are cluster analysis and Williamson Index. In this study, regions are grouped based on similar characteristics of economic growth in Regency/City in Jambi Province using cluster analysis in the period 2008 to 2007. The results of the cluster analysis generated three regional groups with different economic characteristics each year. Through Williamson Index it is found that the average value of development inequality in Jambi Province in 2008-2017 is 0.389, indicating that Jambi Province's inequality index is in the intermediate level. The results of panel data regression analysis show that HDI and Expenditure on Goods and Services have a significant effect on economic growth.

Keywords: *Cluster analysis, Economic growth, Regional inequality*

JEL Classification: R10, R11

INTRODUCTION

Development is a multidimensional process that includes continues changes strived to improve community welfare. One indicator of the success of development at the macro level is economic growth, reflected in changes in Gross Regional Domestic Product (GRDP) in a region (Todaro & Smith, 2008).

The main objectives of economic development are creating high growth, reducing inequality and the unemployment rate, and eliminating and reducing poverty. Indicators of success in economic development are the achievement of equity, efficient growth and balanced sustainability in economic development.

As one indicator of development, economic growth shows the extent to which economic activities generate additional community income over a given period as measured by the increase per capita GRDP. The higher the income per capita the higher the level of community welfare will be (Todaro & Smith, 2006). However, the acceleration of rapid economic growth can lead to unequal distribution of income. This is due to the absence of consideration whether economic growth rate is greater or smaller than the rate of population growth or changes in economic structure.

Regional inequality allegedly emerged not only due to the lack of equity in economic development, but also by the differences in the physical characteristics of the region (Sjafrizal, 2014). According to Myrdal (1957), differences in the level of economic progress between regions will result in adverse effects which in this case can cause an imbalance.

The impact of regional development with economic growth is the existence of different income inequalities between provinces. Jambi Province has a high level of income inequality in Sumatra Island. In 2016, Gini coefficient of Jambi Province was 0.349 and placed the province in the fourth rank in income inequality in Sumatra Island (Figure 1).

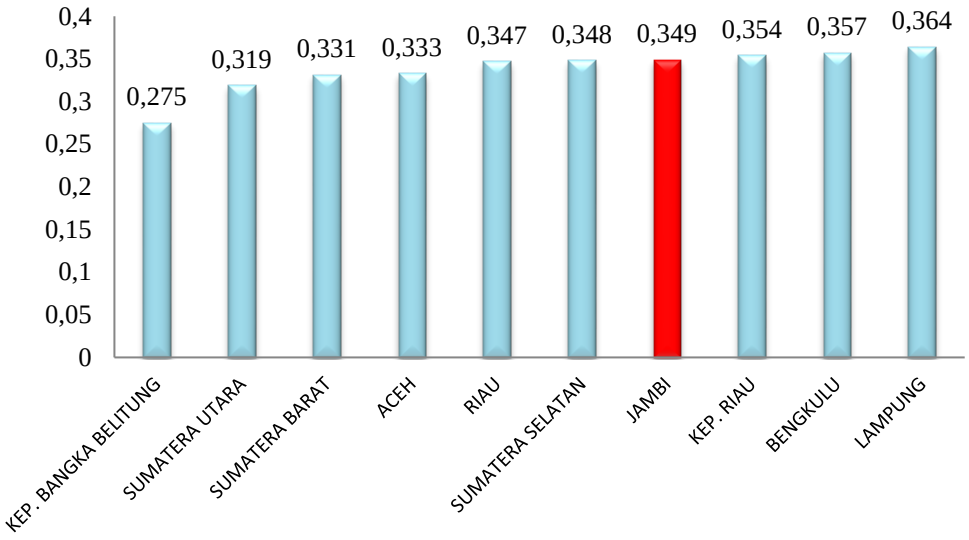


Figure 1. Gini coefficient of provinces in Sumatra Island in 2016
Source: Statistics Indonesia, 2018

Figure 2 show that the coefficient of variation in Jambi Province experienced a fluctuating GRDP change in 2012 – 2017. This indicates the existence of regional disparity in Jambi Province during the time period.

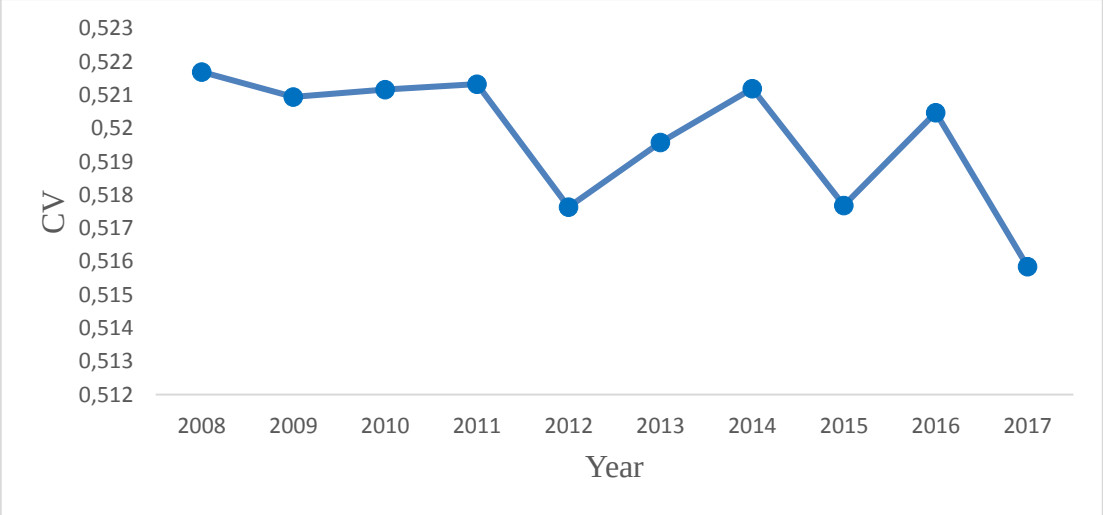


Figure 2. Coefficient of variation (CV) of GRDP in Jambi Province

Based on these facts, this study focuses on three things: (1) the structure of regional economic growth in Jambi Province based on the regional typology, (2) analyzing regional disparity in Jambi Province during 2008-2017, and (3) determining the factors significantly influencing economic growth in Jambi Province. The results of this study are expected to be beneficial for local government in taking policies related to development planning so that the problem of regions inequality can be reduced and addressed properly.

LITERATURE REVIEW

Regional development

Development is creating or managing something that does not exist yet. Rustiadi, Saefulhakim & Panuju (2007) explained that the concept of development has experienced a paradigm shift in accordance with community development dynamics. The concept of development mentioned is as follows:

1. Shifting from the situation to choose between growth, equity, and sustainability as trade-off choices to become choices in achieving balanced development goals
2. The tendency of approaches to achieving development goals at the macro level becomes approaches at the regional and local level.
3. Shifting assumptions about the dominance of the government into a development approach that encourages community participation in the development processes (planning, implementation, and control).

Development as a series of activities to improve the welfare of the community in various aspects of life, carried out in a planned and sustainable manner by utilizing and taking into account the resources, information, and science and technology advances, as well as looking at global development (Siagian, 2008). Irawan and Suparmoko (1998) stated that development is a process characterized by structural changes in the basis of economic activity or in the economic framework of the community with the process of transformation in the course of time. In general, development is always accompanied by growth, but growth is not always accompanied by development. At the initial level, economic development is followed by growth and vice versa.

Regional development is an integral part of national development carried out by regional autonomy, regulation of national resources, providing opportunities for enhancing democracy and efficient regional performance in the administration of government and community services, to improve the community welfare in the region in an equitable manner. Furthermore Arsyad (1999) and Syafrizal (2008a) stated regional economic development as a process of managing existing resources by local governments and their communities, also creating a partnership pattern among new employment opportunities and stimulating the development of economic activities in the region.

Economic growth

Kindleberger and Herrick (1977) stated that economic growth is a process of increasing output as a result of increasing the quantity of inputs as well as the efficient in the use of these inputs. They believed that economic growth does not only mean increasing inputs that will result in increased production (increased productivity). Furthermore, in the economic growth theory, the relationship between input and output is interpreted as a technical relationship in which the quantitative formulation sees output as a function of input. Economic growth thus can be stated in an economic growth model with measurable variables and parameters that can be tested statistically for its significance.

Romer (1986) suggests five facts that growth theory must be able to explain: 1) the average growth rate showing no variation with the level of income per capita; 2) the input factor growth rate is not enough to explain the output growth rate; the difference between input and output always presents in growth; 3) trade volume growth positively correlated with output growth; 4) population growth rate negatively correlated with income level; 5) skilled and unskilled workers tend to migrate towards high-income countries.

In 1987, Robert Solow was awarded the Nobel Prize in economics for his contribution to the theory of economic growth. In developing neoclassical growth model, Solow's research proved to be greatly influenced by the Harrod-Domar approach. The growth model of Solow is seen as a standard model for neoclassical economic growth. Its main framework discusses how economic growth is the impact of changes in quality and quantity of input factors.

The Solow model of growth theory refers to a production function developed by two American authors, Charles Cobb and Paul Douglas, commonly known as the Cobb-Douglas production function. The model focuses on four variables: output, capital, labor, and knowledge. The function is as follows:

$$Y_{(t)} = F(K_{(t)}, A_{(t)}L_{(t)})$$

Where:
Y is output
K is capital
L is labor
A is knowledge or effective labor

Furthermore, endogenous growth theory has a broader perspective than previous growth theories. In general, previous theories emphasized the importance of the process of capital accumulation in economic growth. In this sense, in order to have a high rate of economic rate a country has to have high rate of investment. Funds to finance investment are obtained from savings. The main key to economic growth therefore lies in the ability of a country to accumulate domestic savings.

The model presents a broader theoretical framework in analyzing the process of economic growth. Factors within the economic system (endogenous) influencing the process of economic growth are identified and analyzed.

Originally referred as *new growth theory*, the endogenous economic growth theory was born as a response and criticism of the Solow growth. It is the beginning of the revival of a new understanding of the factors determining economic growth in the long run, emerging as a response to the global development driven by technological advances that can improve performance in the production. Such global development could no longer be explained properly by neoclassical theory.

Endogenous growth theory was pioneered by Paul M. Romer in 1986 and Robert Lucas in 1988, initially were dissatisfied with the Solow Model as it was considered insufficient to explain long-run growth. The function in endogenous growth theory: $Y = AK$, where Y is the level of output, A represents influencing factors (technology), and K is the stock of physical capital and human resources.

Government spending

In macroeconomic theory, there are three main posts in government spending (Boediono, 1999):

1) Government spending on goods and services
2) Government spending on employee salaries. Employee salary changes affect macroeconomic processes, where changes will affect the level of demand in an indirect manner.
3) Government spending on transfer payments. Transfer payment is not purchase of goods or services by the government in the goods market but rather record payments or direct grants to various community groups, pension payments, interest payments or government loans to the public.

Sukirno (2000) explained that government expenditure is part of fiscal policy, a government action to regulate the economy by determining the amount of government revenue and expenditure each year in National Budget (*Anggaran Pendapatan Belanja Negara*/APBN) and in Regional Budget (*Anggaran Pendapatan Belanja Daerah*/APBD). The purpose of this fiscal policy is to stabilize prices, level of output, and employment opportunities as well as to stimulate or encourage economic growth.

Sukirno (1999) added that the role or intervention of the government is indispensable if the economy is fully regulated by a free market activity, as the economy does not reach full employment levels nor it reaches such stability. It will create a wide fluctuation in economic activities from one period to another and then have serious implications for employment opportunities, unemployment, and price.

GRDP per capita

GRDP per capita is one of the indicators to see the success of economic development in a region. GRDP is a net value of all final goods and services produced by various economic activities in a region in a period (Sasana, 2006). GRDP is able to give an indication whether a region is capable of managing their natural resources. Potential of their natural resources and other factors of production in a region determine the GRDP of the region. Differences in GRDP value among regions are due to limitations in the supply of those factors. Measurement of GRDP per capita is GRDP at constant price divided by population of a region.

According to Statistics Indonesia (2008), GRDP can be obtained with three approaches: *first*, the production approach: the total value of all final goods and services produced by various production units in a region/province within a certain period of time; *second*, the income approach: remunerations received by the factors in the production process in a region in a certain period of time; *third*, the expenditure approach: the total of all components of the final demand.

Unemployment

Unemployment is a condition where a person belonging to the labor force who is actively looking for job at a certain level of salary but cannot get the desired job (Sukirno, 2000). Sukirno (2000) stated three kinds of unemployment according to the circumstances: *first*, frictional unemployment, exists due to people being in the process of leaving one job and looking for another for better or as desired; *second*, structural unemployment, resulting from structural changes in the economy; and *third*, conjunctural unemployment, caused by the excessive natural unemployment and as a result of a reduction in aggregate demand.

According to Edwards in Arsyad (1999), in classifying unemployment it is necessary to consider the following dimensions: *first*, time (many of them want to work longer, e.g., work hours per day, per week or per month); *second*, work intensity (related to health and food nutrition); and *third*, productivity (lack of productivity is often caused by lack of complementary resources in work). In this respect, Edwards provides three types of unemployment: *first*, open unemployment, is a condition in which people are able to work and are willing to work but there is no available jobs suitable for them; *second*, underemployment, is a condition in which people in full time job but whose productivity is low so the reduction in their working hours has no effect to overall production; *third*, impaired labor, is a condition in which people may work full time but whose intensity is weak due to malnutrition or illness; and *fourth*, non-productive labor, is a condition in which people are able to work productively but cannot produce good results.

One important factor that determines people's prosperity is the level of income. If the community's income reaches its maximum, then the level of full use of labor can be realized, so that if unemployed it will reduce income and this will reduce the level of welfare and prosperity that they achieve and can lead to poor community welfare (Sukirno, 2004).

One important factor determining the welfare of people is the income rate. If the community's income reaches its maximum then there is full use of labor. If people become unemployed, it will reduce income and eventually reduce the level of welfare and prosperity, thus it can lead to poor community welfare (Sukirno, 2004).

Poverty

Todaro and Smith (2006) argue that absolute poverty is the number of people who are unable to command sufficient resources to satisfy basic needs. Additionally, Bellinger (2007) argues that poverty has two dimensions: the income dimension and the non-income dimension. Poverty in the income dimension is defined as the low-income family, while in the non-income dimension is characterized by incapability, lack of hope, lack of representation and freedom. Income dimension of poverty is discussed more often as it is easier to measure, and can be divided into relative poverty and absolute poverty.

Poverty is one of the problems arising in development as well as unemployment and inequality, all of which are interrelated. Development is an effort of structural changes intended to increase productivity and create employment opportunities that will ultimately increase the income of the population. However, not all people have the opportunity to be involved in development processes and activities, so there are some who are left behind and stay in the poverty. Special interventions are therefore needed to help those people to be out of poverty.

Human Development Index

Development has been measured, so far, using GDP and GRDP that are only capable to only indicate economic development. A more comprehensive indicator is therefore needed to not only for economic development but also the development of social and welfare aspects.

Important objectives in calculating HDI as an indicator of human development include: *first*, using indicators that measure the basic dimensions of human development and expansion of freedom of choice; *second*, utilizing a number of indicators to keep the measurement simple; *third*, creating a composite index instead of using a number of basic indices; and *fourth*, creating a measure including social and economic aspects.

HDI is a basic index composed of the following dimensions: *first*, long and healthy life, with live expectancy index; *second*, knowledge, measured by literacy rates and a combination of school participation rates for primary, secondary, and tertiary levels; *third*, a decent standard living, with indicator of GRDP per capita in the form of Purchasing Power Parity (PPP).

METHODS

Secondary data are used in this research. Data in the study include data on unemployment, number of population, poverty, HDI, capital expenditure, expenditure on goods and services and GRDP percapita. The data analyzed were obtained from the publications of Statistics Indonesia related to various regional economic indicators in Jambi Province during the period 2008-2017.

Analysis of regency/city typology was carried out by K-means cluster analysis, performed annually to see the development of economic growth in each regency/city. Indicators for the analysis are GRDP, unemployment, population, poverty, HDI, capital expenditure, expenditures on goods and services, and then the data are mapped.

The stages of *K-Means* Cluster analysis in this study are:

a. Standardization of each variable for each year.
b. Three clusters were determined according to their characteristics.
c. Determining the similarity of the area of the characteristics of economic growth based on the closest distance using the Euclidean distance.
d. Mapping the regencies/cities according to the results of cluster analysis.

To observe the level of regional inequality, Williamson Index is used. In this case the greater the index the greater the level of inequality between regencies/cities in a province. Williamson (1975) formulates the regional inequality index as follows:

$$V_w = \frac{\sqrt{\sum (Y_i - \tilde{Y})^2 P_i}}{\tilde{Y}}$$

Where:

V_w = Williamson Index of Jambi Province
Y_i = GRDP per capita in 2008-2017 of regencies/cities in the *i*-th
$\tilde{Y}$ = Average GRDP per capita in 2008-2017 of Jambi Province
P_i = *fi/n*, where *fi* is the number of regency/city population and *n* is the total population of the Province

To determine the factors significantly affecting economic growth in Jambi Province in the 2008-2017 periods, panel data regression analysis was performed. Model of panel data regression:

$$PDRB_{it} = \beta_0 + \beta_1 BM_{it} + \beta_2 BBJ_{it} + \beta_3 PR_{it} + \beta_4 KM_{it} + \beta_5 IPM_{it} + \beta_6 Pddk_{it} + \varepsilon_{it}$$

Where:

$PDRB_{it}$ = GRDP of regency/city *i*-th in year *t* (Million Rupiah)
$Pddk_{it}$ =number of population of regency/city *i*-th in year *t* (Person)
KM_{it} = poverty rate of regency/city *i*-th in year *t* (Percent)
IPM_{it} = human development index of regency/city *i*-th in year *t* (Index)
PR_{it} = unemployment rate of regency/city *i*-th in year *t* (Percent)
BM_{it} = capital expenditure of regency/city *i*-th in year *t* (Million Rupiah)
BBJ_{it} = expenditure on goods and services of regency/city *i*-th in year *t* (Million Rupiah)
β_0 = intercept
β_i = regression coefficient, with i =1,2,…,6
i = regency/city
t = year between 2018 and 2017

RESULTS AND DISCUSSIONS

Typology of regencies/cities in Jambi Province

The results of *K-Means* cluster analysis of typology of regency/city in Jambi Province with indicators of GRDP per capita, average expenditure per capita, unemployment rate, number of inhabitants/population, poverty rate, HDI, capital expenditure, and expenditure on goods and services obtained three clusters: Cluster 1,

Cluster 2, and Cluster 3

Metisen & Sari (2015) explained that *K-Means* analysis is non-hierarchical data clustering method that attempts to group data into one group with similar characteristics and one group with different characteristics.

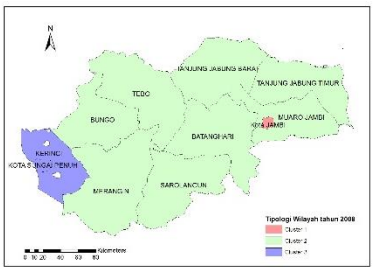
Indicators that differed significantly at the 5% level based on grouping criteria (high, medium, low) are GRDP, unemployment rate, number of inhabitants, poverty rate, HDI, capital expenditure, and expenditure on goods and services. Those indicators therefore are used to measure the characteristics of economic growth of a region.

Table 1. Characteristics of regional typology of each cluster in 2008

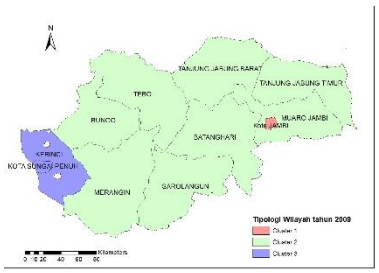
Indicators	Cluster		
	1	2	3
GRDP	High	Medium	Low
Employment rate	High	Medium	Low
Number of inhabitants	High	Medium	Low
Poverty rate	High	Medium	Low
HDI	High	Low	Medium
Capital expenditure	Medium	High	Low
Expenditure on goods and services	High	Medium	Low

In 2008, as Table 1 shows, Cluster 1 is Jambi City; Cluster 2 is Batanghari Regency, Tanjung Jabung Barat, Tanjung Jabung Timur, Bungo, Sarolangun, Merangin, Muaro Jambi and Tebo; while Cluster 3 is Kerinci Regency and Sungai Penuh City.

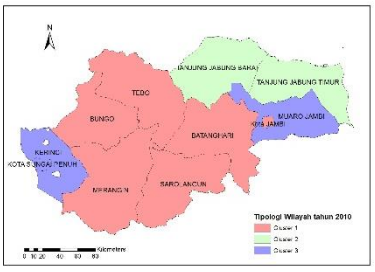
Changes in the economic growth group occurred every year. As shown in Fig. 3, there are different patterns in regional grouping. On one hand, several regions are consistently in high economic growth group. On the other hand, there are regions that are in low economic growth group each year.



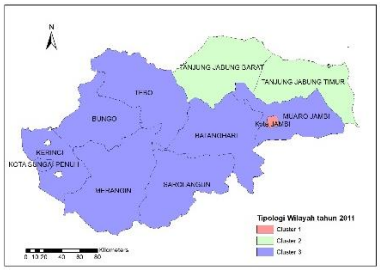
(a) Year 2008



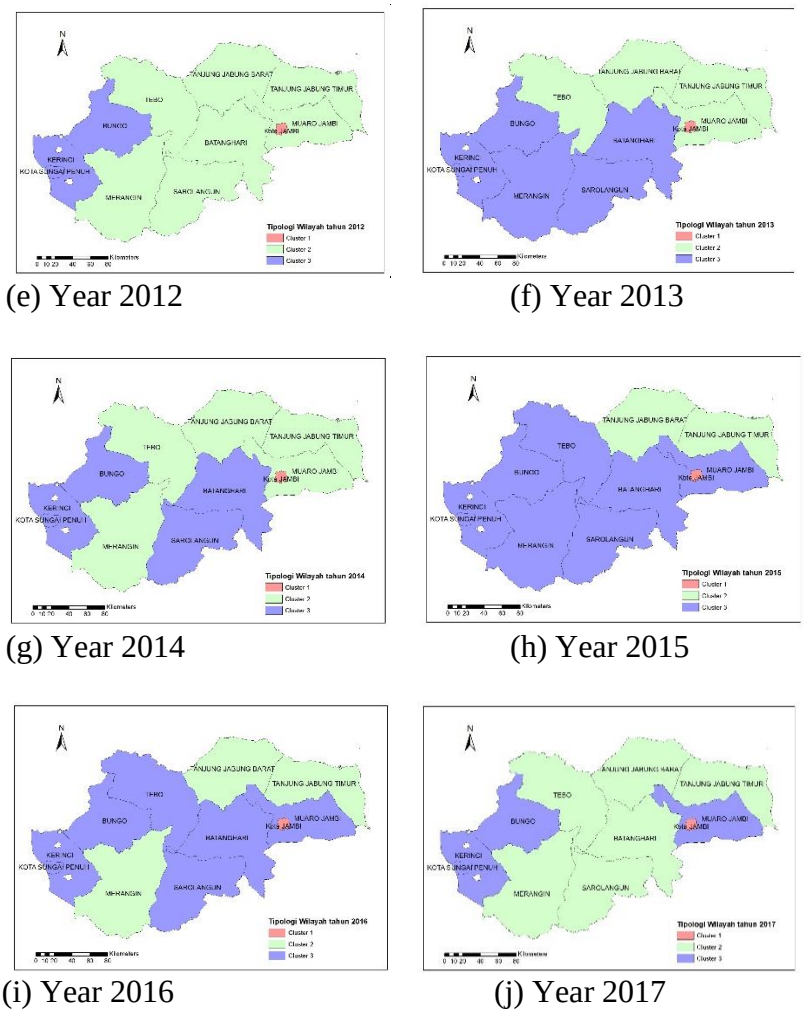
(b) Year 2009



(c) Year 2010



(d) Year 2011



(e) Year 2012 (f) Year 2013

(g) Year 2014 (h) Year 2015

(i) Year 2016 (j) Year 2017

Figure 3. Typology map of regions in Jambi Province in 2008-2017

Between 2009 and 2012 there were significant changes in the characteristics of regional economic growth. In 2010, regions in the high economic growth group were evenly distributed in almost all regencies/cities. However, this condition did not last long as there was a drastic change happened in 2011 that almost all regencies/cities in Jambi Province had low economic growth rate.

There was a change in 2017 that Jambi City consistently was in cluster 1, while cluster 2 consisted of Batanghari, Merangin, Sarolangun, Tanjung Jabung Barat, Tanjung Jabung Timur, and Tebo. Cluster 3 consisted of Muaro Jambi, Bungo, Kerinci, and Sungai Penuh City as shown in Table 3. This is based on the significant indicators as presented in Table 2.

Table 2. Characteristics of regional typology of each cluster in 2017

Indicator	Cluster		
	1	2	3
GRDP	High	Medium	Low
Unemployment rate	High	Low	Medium
Number of population	High	Medium	Low
Poverty rate	Medium	High	Low
HDI	High	Low	Medium
Capital Expenditure	High	Low	Medium
Expenditure on Goods and Services	High	Medium	Low

The results on the regional typology show that Jambi City consistently had relatively high economic growth rate (cluster 1). Some regencies/cities in Jambi Province, however, experienced a change in cluster of unstable economic growth (Table 3).

Table 3. Typology of regencies/cities in Jambi Province in 2008-2017

Year	Regency/City Typology		
	Cluster 1	Cluster 2	Cluster 3
2008	Jambi City	Batanghari, Bungo, Merangin, Muaro Jambi, Sarolangun, Tanjung Jabung Barat, Tanjung Jabung Timur, and Tebo	Kerinci and Sungai Penuh City
2009	Jambi City	Batanghari, Bungo, Merangin, Muaro Jambi, Sarolangun, Tanjung Jabung Barat, Tanjung Jabung Timur, and Tebo	Kerinci and Sungai Penuh City
2010	Jambi City, Batanghari, Bungo, Merangin, Sarolangun, and Tebo	Tanjung Jabung Barat, Tanjung Jabung Timur	Kerinci, Muaro Jambi, and Sungai Penuh City
2011	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur,	Kerinci, Muaro Jambi , Batanghari, Bungo, Merangin, Sarolangun, Tebo and Sungai Penuh City
2012	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur, Muaro Jambi , Tebo, Batanghari, Merangin, Sarolangun	Bungo, Kerinci, and Sungai Penuh City
2013	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur, Muaro Jambi , Tebo	Batanghari, Merangin, Sarolangun, Kerinci, Bungo, and Sungai Penuh City
2014	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur, Muaro Jambi , Tebo, Merangin	Batanghari, Bungo, Sarolangun, Kerinci, and Sungai Penuh City
2015	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur	Muaro Jambi , Tebo, Merangin, Batanghari, Bungo, Sarolangun, Kerinci, and Sungai Penuh City
2016	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur, Merangin	Muaro Jambi , Tebo, Batanghari, Bungo, Sarolangun, Kerinci, and Sungai Penuh City
2017	Jambi City	Tanjung Jabung Barat, Tanjung Jabung Timur, Merangin, Batanghari, Tebo, Sarolangun	Muaro Jambi, Bungo, Kerinci and Sungai Penuh City

Regional development inequality analysis

The results of the Williamson inequality index analysis in Jambi Province indicate that, in general, there was a fluctuation every year of inequality level during 2008-2017 with an average of 0.389 or at the level of intermediate of development inequality. This finding is in line with the study of Darzal (2016) that the development level based on Williamson index in Jambi Province in 2009-2014 is fluctuating.

In Jambi Province, inequality existed due to the differences in the ability of each region and also from various factors (natural resources, human resources, and population distribution) implicating on gross value added (GVA) in the economy among regions. The increase in economic growth is accompanied by rising inequality because the majority of the population is farmers. In this case the government must prioritize improving the quality of human resources in agriculture sector in order to achieve high agricultural productivity and efficiency and improve the economy (Mauliddiyah, 2014).

The occurrence of regional inequality is caused by differences in the endowment factor. Inequality that causes different levels of development in different regions and regions refers to the relative standard of living of the whole community. This difference causes a gap or welfare gap in various regions (Sukirno, 1976). The highest level of regional inequality in 2012 was 0.402 and the lowest in 2008 was 0.361. (Figure 4)

Regional inequality is caused by differences in the endowment factor. The inequality refers to the relative standard of living of the whole community. The difference becomes a welfare gap in the regions (Sukirno, 1976). The highest level of regional inequality was recorded in 2012 of 0.402 and the lowest was in 2008 of 0.361 (Figure 4).

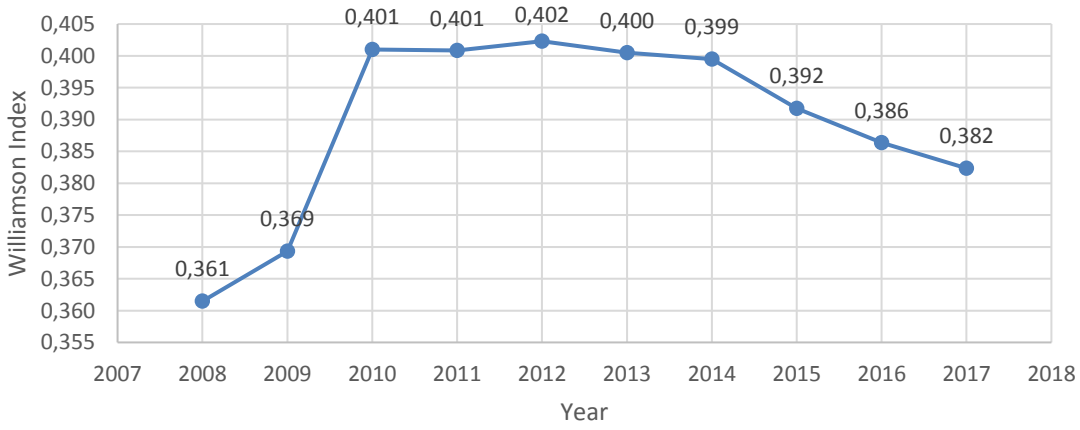


Figure 4. Regional inequality Williamson Index of Jambi Province in 2008-2017

Inequality in regional development is a universal phenomenon in all countries regardless of the size and level of development. Effort to reduce inequality among regions is increasing cooperation between regions so that there will be a balanced economic rise (Bahasoan, Hakim, Nurmalina, & Putri, 2019). According to Anwar (2005), it is necessary to give attention regarding the inequality in development both in terms of inter-community groups and spatial aspects, which is a problem of uneven regional development.

Jhingan (2010) explained that economic growth is an increase in the long-term capability of a country to provide more economic goods to its people. A country is able to provide various types of economic goods to its people with long-term economic

growth. Rapid development, however, prioritizes accelerated economic growth and it can affect development disparities between regions.

Factors affecting economic growth

The selection of panel data regression model is an analysis stage to determine the best estimation method between Common Effect, Fixed Effect, and Random Effect. Chow test aims to find out which model choice is better to use between Common Effect and Fixed Effect.

Table 4 shows the *p*-value of cross-section Chi-square is 0.000 < α=0.05, so H0 is rejected, indicating that Fixed Effect model is better to use than Common Effect model.

Table 4. Significant Test of Fixed Effect through Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	275.927146	(10,49)	0.0000
Cross-section Chi-square	267.201273	10	0.0000

Table 4 shows the *p*-value of cross-section Chi-square is 0.000 < α=0.05, so H0 is rejected, indicating that Fixed Effect model is better to use than Common Effect model.

Hausman test is carried out to find out the better model to use between Fixed Effect and Random Effect. Table 5 shows that the p-value is 0.0203 < α=0.05 which means that H0 is rejected, so Fixed Effect model is the better model to use.

Table 5. Significant test of random effect through Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.994956	6	0.0203

Based on the result of estimation of Chow test and Hausman test on three panel data regression models (pool Least Square, Fixed Effect, and Random Effect), it is obtained that the best model is Fixed Effect model. The results of regression of Capital Expenditure (BM), Expenditures on Goods and Services (BBJ), Unemployment (PR), Poverty (KM), HDI, and Population (Pddk) to the GRDP of regencies/cities in Jambi Province are shown in Table 6.

Table 6. Coefficients of factors affecting GRDP

Independent Variable	Dependent Variable (ln_PDRB)		Note
	Coefficient	*p*-value	
Intercept	-21.252	0.000	**
ln_BM	0.026	0.250	ns
ln_BBJ	0.057	0.059	*
ln_PR	0.002	0.868	ns
ln_KM	-0.045	0.539	ns
ln_IPM	7.603	0.000	**
ln_Pddk	0.072	0.851	ns
F-statistic	827.735	0.000	
Adj. R-squared	0.99		

*Note: ** : Significant at 5% level, * : Significant at 10% level, ns: not significant*

The results obtained in the model indicate that HDI has a significant impact on the GRDP of regencies/cities in Jambi Province at a 5% level. The coefficient value of HDI is 7.603 and is indicating that every 1% increase in HDI will impact on the increase of GRDP by 7.603 percent with the assumption that other variables are unchanged. This finding is in line with study of Brata (2002), Khodabakshi (2011), Aryanto & Handaka (2017), Akhsan (2018) and Firmansyah & Soejoto (2016) which concluded that good quality of human development supports economic development and vice versa, but contradict with Mukarramah, Yolanda, Zulkarnain (2019).

Expenditure on Goods and Services (BBJ) has a significant influence on GRDP of regencies/cities in Jambi Province at a 10% level. The coefficient value of BBJ is 0.057, indicating that every 1% increase in BBJ will raise GRDP by 0.057 percent with the assumption that other variables are unchanged.

In the other hand, capital expenditure (BM), unemployment (PR), number of population (ppdk) and poverty (KM) have no significant impact on GRDP of regencies/cities in Jambi Province. This finding is in line with study of Handaka (2017), Yunus & Amirullah (2019), but contradict with Hakim (2015), Utami & Indrajaya (2019)

These findings are in line with Jambi Province's condition that at the same time there are concentration of economic growth and increased poverty in the same region. It tells us that poverty and unemployment do not have a significant effect on GRDP of Jambi Province. Based on the 2017 data, the highest GRDP was owned by Jambi City, Tanjung Jabung Barat, and Tanjung Jabung Timur, but at the same time, the percentage of poverty was also the highest in regions including those three areas. Tanjung Jabung Timur had the highest percentage of poverty of 12 percent, followed with Tanjung Jabung Barat with 11 percent, Batanghari of 10 percent, Merangin of 9 percent, and both Sarolangun and Jambi City had 8 percent in the poverty rate, respectively. Furthermore, Fajri (2016) added that capital expenditure did not have a significant influence in increasing the economic growth of provinces in Sumatra. Policies relating to the allocation of capital expenditure are not appropriate so they have not been able to encourage regional economic growth.

R-Square value of the research model is 0.99, indicating that 99% of the imbalance/diversity of GRDP in regencies/cities in Jambi Province can be explained by the independent variables in the model while the rest is explained by other variables outside the model.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the regional typology with cluster analysis, Jambi City is the only region that has the highest economic growth rate compared to others in Jambi Province. Muaro Jambi and Bungo are classified as regions with unstable economic growth. In 2008, those regencies were in the moderate economic growth group but they joined the low economic growth group in 2017.

The results of Williamson Index analysis in Jambi Province during the 2008-2017 provide evidence that there was an inequality in development with the average value of 0.389, indicating that Jambi Province was in the intermediate level of development inequality. This is due to differences in various factors such as population distribution,

natural resources, and human resources that have implications for gross value added (GVA) in the economy among regions in Jambi Province.

The results of panel data regression with Fixed Effect Model indicated that Expenditure on Goods and Services (BBJ) and HDI have a significant impact on GRDP of regencies/cities in Jambi Province.

Recommendations

At the macro level, local government intervention in rising regional economic growth rate can be done through improving factors affecting GRDP and economic growth rate namely Expenditure on Goods and Services (BBJ) and Human Development Index (HDI). Local government should formulate policies that reduce regional development inequality in Jambi Province, especially in regions classified in the low economic growth cluster and regions with high level of inequality. Some of the policies include improving the quality of education, health, decent living standards, and infrastructure.

REFERENCES

Akhsan. (2018). Pengaruh Index Pembangunan Manusia Terhadap Pertumbuhan Ekonomi Daerah Di Kabupaten Enrekang. *Economis: Jurnal Ekonomi dan Bisnis*, 1(3), 49 - 55

Anwar, A. (2005). *Ketimpangan Pembangunan Wilayah Dan Pedesaan: Tinjauan Kritis*. Bogor: Crestpent Press.

Ardila, R. (2012). Analisis Pengembangan Pusat Pertumbuhan Ekonomi di Kabupaten Banjarnegara. *Economics Development Analysis Journal (EDAJ)*, 1(2): 1-9.

Arsyad, L. (1999). *Pengantar Perencanaan dan Pembangunan Ekonomi Daerah*. Yogyakarta: BPFE-UGM

Aryanto, W & Handaka, R.D. (2017). Analisis Pengaruh Belanja Modal, Indeks Pembangunan Manusia, dan Tenaga Kerja terserap terhadap Pertumbuhan Ekonomi Kabupaten/kota di Indonesia. *Jurnal Akuntansi Manajerial*, 2(2), 52–63.

Bahasoan, H., Hakim, D.B, Nurmalina, R., & Putri, E.I.K. (2019). Typology and inequality between island clusters and development areas in Maluku Province. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, *7*(2), 203 - 214.

Bellinger, W.K. (2007). *The Economcs Analysis of Public Policy*. Oxon: Routledge

Boediono. (1999). *Teori Pertumbuhan Ekonomi, Seri Sinopsis Pengantar Ilmu Ekonomi No.4, Edisi Pertama*. Yogyakarta: BPFE-UGM

BPS. (2008-2017). *Provinsi Jambi Dalam Angka* 2008-2017. Jambi: BPS Provinsi Jambi.

Brata, A.G. (2002). Pembangunan Manusia dan Kinerja Ekonomi Regional di Indonesia. *Jurnal Ekonomi Pembangunan*, 7 (2), 113-122.

Darzal. (2016). Analisis Disparitas Pendapatan dan Faktor-Faktor yang Mempengaruhinya di Provinsi Jambi. *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah*, 4(2),132-142

Fajri, A. (2012). Pengaruh Belanja Modal terhadap Pertumbuhan Ekonomi provinsi-provinsi di Sumatera. *Jurnal Perspektif Ekonomi dan Pembangunan Daerah*. 5(1), 29-35

Firmansyah, M.A. & Soejoto, A. (2016). Pengaruh Indeks Pembangunan Manusia dan Tingkat Pengangguran Terhadap Pertumbuhan Ekonomi Kabupaten Bojonegoro. *Jurnal Pendidikan Ekonomi*, 4(3), 1 – 6

Hakim, L. (2015). Pengaruh Belanja Modal Terhadap Pertumbuhan Ekonomi (Studi Kasus Kabupaten dan Kota di Pulau Jawa dan Bali). *Jurnal Ilmiah Mahasiswa FEB Universitas Brawijaya*, 3(1)

Harlik, Amir, A. & Hardiani. (2013). Faktor-faktor yang mempengaruhi kemiskinan dan Pengangguran di Kota Jambi. *Jurnal Perspektif Pembiayaan dan Pembangunan Daerah*. 1(2),109-120

Irawan & Suparmoko. (2003). *Ekonomika Pembangunan. Edisi keenam*. Yogyakarta: BPFE. UGM.

Jhingan, M.L. (2000). *Ekonomi pembangunan dan perencanaan*. Jakarta: Raja Grafindo Persada.

Kindleberger, C.P. & Herrick, B.H. (1983). *Economic Development. 4th ed*. New York: McGraw-Hill.

Khodabakhshi, A. (2011). Relationship between GDP and Human Development Indices in India. *International Journal of Trade, Economics and Finance*, 2(3), 251–253.

Maulidiyah, A. (2014). Analisis Disparitas Regional dan Pertumbuhan Ekonomi (Studi Kasus di Kota Batu Tahun 2002-2012). *Jurnal Ekonomi dan Studi Pembangunan* (JESP), 6(2), 156 - 163

Metisen BM, & Sari H.L. (2015). Analisis Clustering Menggunakan Metode K-Meas Dalam Pengelompokan Penjualan Produk pada swalayan Fadhila. *Jurnal Media Infotama*, 11(2), 110-118

Mukarramah, Yolanda, C., & Zulkarnain, M. (2019). Analisis Pengaruh Belanja Modal dan IPM Terhadap Pertumbuhan Ekonomi dan Kemiskinan di Kabupaten Aceh Timur. *Jurnal Samudra Ekonomika*, 3(2), 105-117.

Myrdal, G. (1957). *Rich Lands And Poor: The Road To World Property*. New York: Harper and Row

Romer, P.M. (1986). Increasing Return and Long Growth, *Journal of Political Economy*, 94 (5), 1002-1037.

Rustiadi, E., Saefulhakim, S., & Panuju, D.R. (2009). *Perencanaan Dan Pengembangan Wilayah.* Bogor: Crestpent Press.

Siagian, P.S. (2008). *Administrasi Pembangunan, Konsep, Dimensi dan Strateginya*. Jakarta: Bumi Aksara

Sjafrizal. (2008). Perencanaan Pembangunan Ekonomi Daerah. *Prisma*, 12, 15-24.

Sjafrizal. (2008a). *Ekonomi Regional, Teori dan Aplikasi*. Padang: Baduose Media

Sjafrizal. (2014). *Perencanaan Pembangunan Daerah Dalam Era Otonomi*. Jakarta: PT Rajagrafindo Persada.

Sukirno, S. (1976). *Beberapa Aspek Dalam Persoalan Pembangunan*. Jakarta: LP3ES.

Sukirno, S. (1999). *Ekonomi Pembangunan*. Jakarta: LPFE-UI

Todaro M.P. & Smith, S.C. (2006). *Pembangunan Ekonomi di Dunia Ketiga*. Jakarta: Erlangga

Utami, D.N. & Indrajaya, I.G.B. (2019). Pengaruh PAD dan Belanja Modal terhadap Pertumbuhan Ekonomi dan Kesejahteraan Masyarakat di Provinsi Bali. E-*Jurnal EP UNUD*, 8(10), 2195 – 2225

Yunus, S. & Amirullah. (2019). Pengaruh Belanja Modal terhadap Pertumbuhan Ekonomi (Studi pada Kabupaten-Kabupaten di Provinsi Aceh). *Jurnal Samudra Ekonomika*, 3(2), 186-193.

Inflation convergence and the determinant factors: A case study on 31 provinces in Indonesia

Rifdah Silfanah Mukhlish[1]; Diah Wahyuningsih[2*]

[1), 2)] Faculty of Economics and Business, Universitas Trunojoyo Madura, Indonesia

[*] *To whom correspondence should be addressed. Email: diahwahyuningsih@yahoo.com*

Abstract

This study aims to estimate (the possibility) the inflation convergence among regionals in Indonesia and also analyze the determinant/source factor of the regional inflation. The population of this study consists of 31 provinces by using secondary data of the 2008-2017 period. Consumer Price Index becomes the dependent variable while Gross Regional Domestic Product, Provincial Minimum Wage, credit and Open Unemployment Level become the independent variable. This research uses panel data analysis and Fixed Effect Model regression estimation approach. The result showed that inflation convergence happened among regionals in Indonesia that can be seen through the X1 variable coefficient value of -0.635457 since the value of $\beta < 0$. While for the convergence speed calculation, the measurement result showed that the duration needed by the inflation to return to the initial balance or its natural value is 68 months. The study result also showed that Gross Regional Domestic Product, Provincial Minimum Wage, credit and Open Unemployment Level have significant influence on the Indonesia's regional Inflation in 2008-2017.

Keywords: *Convergence, Panel data, Regional inflation*

JEL Classification: C33, O47, E31

INTRODUCTION

Inflation is a phenomenon in economy which becomes the discussion topic related to its broad impact on the macro economy aggregate. Inflation becomes the main focus of the monetary authority due to its influence on macroeconomic variables such as national output and unemployment (Utama, Wijaya, & Lim, 2017). Bank Indonesia as the monetary authority has defined the final goal that is to achieve and maintain the stability of rupiah value on the goods and service price, which is reflected through inflation (internal stability and external stability). Maintaining inflation within the tolerable level is not only the aim of domestic price stability, but often becomes the requirement to consider by the monetary policy makers (Alagidede, Coleman, & Adu, 2014). Especially, the rupiah stability can be reflected through the relative goods and service price stability. Therefore, since 2005 Bank Indonesia has been implementing a monetary policy framework which uses inflation as the main target of the monetary policy or known as Inflation Targeting Framework (ITF).

The Inflation Targeting Framework (ITF) implementation indicates a monetary policy change at the post-monetary crisis in Indonesia. The benefits of the policy depend on the central bank's credibility. This is because inflation expectations play a critical role in economic agent's decisions on consumption, investment, wage-setting, asset pricing,

and so forth, through their effect on the real interest rate. Inflation targeting affects macroeconomic variables and how the credibility of inflation targeting affects the transparency of monetary policy (Kim, Kang, & Ka, 2020). This study is significant in terms of formulating the monetary policy above since Bank Indonesia should comprehend the inflation characteristics and dynamics in the more detailed and comprehensive way.

The differences in inflation could be due to regional heterogeneities in the relative productivity growth of the tradeable versus the non-tradeable sectors (Balassa–Samuelson effect) (Dridi & Nguyen, 2019). The original Balassa–Samuelson model assumes that the economy consists of the tradable (T) and the non-tradable (NT) sectors, differing with respect to productivity growth (biased towards the tradable sector) (Konopczak & Welfe, 2017). A region with higher inflation experiences an increased dollarization of their domestic savings and decreased dollarization of loan on domestic and company in the non-tradeable sector (Brown, Haas, & Sokolov, 2017). However, the national data investigation is inadequate, since Indonesia has a very wide region with different economic structure. Regional data implementation concerning the inflation behavior is quite significant since national inflation is dominated only by several regions in Indonesia. Meanwhile, the understanding concerning regional inflation behavior is important to gain national inflation calculated based on the regional inflation with the value of regional CPI is 78% of national CPI. Regional inflation is also assumed as the main indicator of supply shocks. Besides, policy and efforts conducted to control the regional inflation has a strategic role which means it brings Bank Indonesia closer to its local stakeholder. Moreover, if the centered monetary policy is implemented, it could impact to the asymmetric policy among regions, since each region has its own characteristics and economy structure including the inflation.

Inflation mapping among regions showed the inflation variation among provinces in Indonesia, either in terms of level or volatility. Usually, the isolated and underdeveloped regions such as the Eastern region of Indonesia (KTI), especially East Nusa Tenggara, Papua, West Kalimantan, West Sulawesi, Central Sulawesi, and South Sulawesi tend to show a relatively higher inflation compared to the more advanced region and located in the center of economy, such as Java and Bali. It is caused by the specific local factor, especially the obstacle in distributing goods as the result of lacking infrastructure and the booming economy at the autonomy era as well as the international commodity price shocks. The high inflation dispersion among regions can also imply the labor market in Indonesia, wage level determination and living standard.

According to Ridhwan, Werdaningtyas, & Grace (2013) the research about factor decomposition of inflation heterogeneity among regions in Indonesia, either from the common factors category, regional factors, or local factors. The decomposition result indicated the relatively nearly balance national factor (54%) and regional/local factor (46%) in explaining the inflation variability among regions. Spatially, the highest common factor is in Java region, while the biggest local factor is in the eastern region of Indonesia such as Maluku, North Maluku, Papua, and North Sulawesi. The dynamic data panel model estimation result showed that the regional inflation determinant factor of regional inflation in Indonesia could be explained statistically significant by the adaptive and anticipative expectation factor although it was known that the scale of the first behavior was relatively more dominant than the second behavior. In line with the theory, the other related variables, such as exchange rate, output gap, and international oil price also had significant influence on inflation. It resulted on the wage variable which also gave significant influence on inflation and the contribution was quite sizeable at 11,71%.

The relatively high inflation level variation among regions in Indonesia can be caused by various factors, especially as the result of different economy structure and characteristics of each region. The different structure can be caused by the endogenous factor which reflects the existence of a power from the endowment or support factor of the region and exogenous factor which tend to be from outside of the region. However, by conducting the geographical or spatial approach and economic approach among provinces will create a possibility of interrelation, either among provinces in a region/economy zone or among the regions/zones itself which especially caused by trade and the effect of inter-region economic competition. Various regional information can be included in a monetary union (Nagayasu, 2011).

Empirical analysis used to know the characteristics and dynamics of the inflation level of Indonesia from the regional perspective are as follows: first, classifying the sources which differs the regional inflation. Second, by focusing on the local factors which drive the regional inflation gap, the next step is analyzing determinant factors of the inflation difference in the whole region of Indonesia. The regional inflation level may increase the knowledge of the monetary policy makers concerning the inflation dynamics in a broad way (Beck, Hubrich, & Marcellino, 2006). Persistent heterogeneity in the inflation expectation (with dependent rational expectation prevalence) exists due to the result of long term equilibrium (Silveira & Lima, 2014). Convergence can be defined as a tendency of movement of one or more variables towards a certainly same point. To achieve economy integration, convergence criteria becomes one of requirements in creating a single currency, either the nominal convergence (inflation and interest rate) or the real convergence (income per capita, labor productivity, and comparative price rate). Inflation convergence among all European Union member states in recent years implies that inflation rates across the EU do not permanently deviate from the European Central Bank's goal for price stability. Consequently, inflation synchronization does not seem to pose a challenge for further enlargement of the euro area (Brož & Kočenda, 2018). The theory of price convergence is commonly related to the Law of One Price (LOOP) theory and market integration. The LOOP theory stated that an efficient market shall have the same price if it is stated with the same currency since merchants demand the prevailing higher price and the buyers demand the market lowest price. In the perfectly integrated market, if a price in a certain location increased drastically than those in other locations, then the market power will tend to drive the price to move back into the equality. The LOOP theory is only possible for the non goods.

This study aims to analyze how far the inflation level could be varied in the whole regions and what factors which could make the difference. However, 3 provinces were removed, they are North Kalimantan, Papua, and West Papua because North Kalimantan is a relatively new province while Papua and West Papua were removed because of the obstacle in obtaining the data. Therefore, only 31 provinces are used.

METHODS

Data type and source

This study used panel data which is the combination of the cross section and time series data. The cross section data is obtained from 31 provinces in Indonesia while the time series data is obtained from the 2008-2017 period. The data type is secondary and is obtained from Badan Pusat Statistik (BPS) and Bank Indonesia. This study required data concerning inflation level by using Consumer Price Index (CPI) proxy, exchange value, Gross Regional Domestic Product (GDP), international oil price, credit and provincial minimum wage (UMP) and Open Unemployment Level (TPT)

Econometrics and model specification

Inflation convergence model

The method used to estimate convergence is the fixed effect model data panel method. This method will be quite relevant to explain the individual (regional) inflation convergence compared to the national level.

Speed of convergence

After conducting convergence test, the next step is measuring the speed on the convergence itself (speed of convergence). Cecchetti & Li, (2008) said that speed of convergence is the duration needed by inflation to return to the initial balance or natural value after the shock which can be measured by using half-life deviation equation.

$$\theta = \frac{\ln(0.5)}{\ln(1+\beta)} \quad \text{.....(1)}$$

Panel data regression

This study used panel data analysis where the panel data itself is the combination of time series and cross section data. Panel data or longitudinal is following the sample from time to time and providing several observations on each individual in the sample. Panel data is available broadly at the advanced and developing country (Hsiao, 2003). The equation of panel data which is the combination of time series and cross section data can be written as in the following:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \varepsilon_{it} \quad \text{.....(2)}$$
$$i = 1, 2, \ldots, N \; ; \; t = 1, 2, \ldots, N$$

In the model, Y is the dependent variable while X is the independent variable. N shows the amount of observation while T shows the amount of analyzed time.

There are three techniques of panel data regression model estimation that can be used namely pooled least square (PLS), fixed effect (FEM) model and random effect model (REM). There are two tests conducted to determine the most suitable technique used in estimating the panel data regression. Chow Test is used to choose between the PLS or FEM method. A Hausman test examines differences in the estimated parameters and the result is used to determine whether the REM and FEM estimates are significantly different. The null hypothesis of the Hausman test is that if the assumptions of the REM hold, then the REM produces the same estimated parameters as the FEM but they are better. If REM assumption do not hold, then the estimated parameters are significantly different and the REM estimates contain bias. If you fail to reject the null hypothesis in a Hausman test, you use the REM estimates. If reject the null hypothesis in a Hausman test, using the FEM estimates as the alternative hypothesis implies that the FEM estimates are consistent (Pedace, 2013).

Estimation technique

This study will discuss the inflation convergence happens among provinces in Indonesia and the determinant factors influenced the regional inflation. The models used in this study are as follows:

a. Convergence model

Following Cecchetti & Li (2008) here is the estimation equation used:

$$\Delta\rho_{Rel\,it} = \alpha_1 + \beta\,\rho_{Rel\,it-1} + \sum_{h=1}^{k}\gamma_h\ \Delta\rho_{Rel\,it-h} + \varepsilon_{it} \quad \text{..... (3)}$$

Where:

$P_{Rel\ it}$ = ln (p_{it} / $\bar{p}_{it}$) = price differences

p = price index in province
p_{it} = national price index
k = maximum number of lags

The convergence test is obtained based on the estimation value of β (speed of convergence) that is when the value of $\beta > 0$ showed the most divergent price and if the value of $\beta < 0$ showed the convergent price. The estimation result with the smallest Schwarz Bayesian

b. Panel data regression

Panel data regression is used to analyze the determinant factor of the regional inflation in Indonesia which is applied in the following model:

$$IHK_{it} = \beta_0 + \beta_1 GRDP_{it} + \beta_2 UMP_{it} + \beta_3 CREDIT_{it} + \beta_4 TPT_{it} + \varepsilon_{it} \quad (4)$$

Where:

IHK_{it} : Consumer Price Index in province i in year t
$GRDP_{it}$: Gross Regional Domestic Product in province i in year t
UMP_{it} : Provincial Minimum Wage in province i in year t
$CREDIT_{it}$: Credit in province i in year t
TPT_{it} : Open Unemployment Rate in province i in year t
ε : *error term*

RESULT AND DISCUSSION

The estimation result of inter-regional inflation convergence model

Convergence test was conducted on each province by using the inflation data of 31 provinces in Indonesia. The estimation result with the smallest Schwarz Bayesian Criterion (SBC) will be chosen as the best model.

Table 1. Convergence results in the FEM test

Variable	Coefficient	Probability
C	0.637656	0.0000
X1(-1)	-0.635457	0.0000
X2(-4)	-0.087006	0.3344

The test result showed the inflation convergence among provinces in Indonesia which can be seen from the X1 variable coefficient value of -0.635457 since the value of $\beta < 0$. After conducting convergence test, the next step is measuring the speed of convergence. Cecchetti & Li (2008) said that speed of convergence is the duration needed by inflation to return to the initial balance or natural value after the shock which can be measured by using half-life deviation equation. Regional inflation which moved in convergence to national inflation showed that shock in each region tend to be temporary that it will not cause persistent change to the national inflation.

Table 2. Convergence speed calculation results

Variable	Coefficient	Probability	Half time
C	0.637656	0.0000	-
X1(-1)	-0.635457	0.0000	68.68

The measurement result showed that the duration needed by the inflation to return to the initial balance or natural value is 68 months. Regional inflation takes 68 months to move convergently towards national inflation, this shows that the shock that occurred in each region tends to be temporary, causing persistent changes to national inflation. Evaluate differences in regional inflation persistence especially if it can cause differences

in regional real interest rates and be a concern by the monetary authority. Differences in inflation persistence between regions remain and pose a challenge for this country. In general, regional inflation outside Java tends to be higher than in Java with a greater level of volatility.

Decomposition using the factor analysis method indicates that the role of national and regional factors in explaining the variability of domestic inflation is equally important. Common factors are mainly in the Java region, while local factors are in Eastern Indonesia. Half life statistical convergence of prices relative to the national average requires 29 months for 16 provinces (Ridhwan, Werdaningtyas, & Grace, 2013).

The convergence of price indexes in the US. The purpose of his research is to determine the factors that influence the speed of convergence. The methodology used is half time during the period 1918-1995. Half price convergence in the US is 9 years and can be explained by transportation costs and the amount of shocks (Cecchetti, Mark, & Sonora, 2002). The evidence of regional inflation as statistically different among regions in Japan. The research identified the common factor driven by monetary and economic activities, and then found that inflation responds to the common shock differently among regions. Finally, no evidence of price convergence is obtained in our group consisting of all regions although there seems to be convergence among subgroups. Discrepancies in regional income seem to go some way toward explaining those in regional inflation (Nagayasu, 2011).

Inflation convergence in Indonesia is a monetary phenomenon where demand pull is more dominant, a number of literatures have emphasized the large role of the supply side to regional inflation. This non-monetary factor is triggered by cost pressures on goods and services as a result of problems in the availability, adequacy and affordability of inventories. Supply-side inflation has been a problem in controlling regional inflation in Indonesia lately. As part of the initiative to monitor and control inflation in the regions, particularly inflation caused by cost suppression factors.

The estimation result of determinant/inflation source

There are three models used in this study to analyze the panel data regression, they are PLS, FEM and REM. Then, Chow test and Hausman test were conducted to choose the most suitable model. Consumer Price Index (CPI) became the dependent variable in this study. In the other hand, there were four independents variables namely Gross Regional Domestic Product (GRDP), Provincial Minimum Wage (UMP), credit and Open Unemployment Level (TPT).

There were three panel data regression estimations namely PLS, FEM and REM which will be compared to obtain the best model through several test such as Chow test and Hausman Test.

Chow test

Chow test was used to compare between PLS and FEM. The result of Chow test was as in the Table 3.

Table 3. Chow test estimation results

Effects Test	Statistic	d.f.	Probability
Cross-section F	4.081093	(30,275)	0.0000
Cross-section Chi-square	114.158969	30	0.0000

From the Chow test result, the chi square cross section probability value was 0.0000 less than 0.05 which means the chosen model to use was the FEM.

Hausman test

The result of Hausman test could be seen in the Table 4.

Table 4. Hausman Test Estimation results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob
Cross-section random	84.655212	4	0.0000

From the Chow result, the random cross section probability value was 0.0000 less than 0.05 which means the chosen model to use was the FEM.

After being tested through Chow test and Hausman test, it could be concluded that the chosen model to use was the FEM which could be seen in the Table 5.

Table 5. Fixed Effect Model estimation results

Variable	Coefficient	Std. Error	Probability
C	132.07	30.5877	0.0000
LOG(GRDP)	10.4131	1.48764	0.0000
LOG(UMP)	20.0932	3.42965	0.0000
LOG(CREDIT)	6.08897	2.75231	0.0278
LOG(TPT)	-11.49	3.58009	0.0015

Based on the FEM regression result, statistically, it showed that the GRDP variable coefficient had positive and significant influence on regional inflation. The coefficient value of 10.41311 was defined as positive relation. It means that if the GRDP increases by 1%, then the regional inflation in Indonesia will increase by 10.41%. Provincial Minimum Wage (UMP) has positive and significant influence on regional inflation. The UMP coefficient value was 20.09, which means every increase on Provincial Minimum Wage (UMP) by 1% will increase 20.09% regional inflation in Indonesia. The estimation result was suitable with the theory, where Provincial Minimum Wage had a significant influence on regional inflation. The aim of minimum wage establishment is increasing the labor wage which is still below the minimum wage and also protecting the labor from those businessmen who gave inadequate wage to the labors. One of the components in establishing minimum wage is the inflation rate in each province. On one side, inflation can be caused by the lack of production and increased society's demand on a certain good. Meanwhile, in the other hand, inflation can also be caused by the increased production cost in a company which will cause the increasing production result cost. The high inflation rate will surely drive the labor to demand the increase on the provincial minimum wage. This condition may cause any significant obstacles on the economic development faced by the developing country. The problem is the decreased job vacancy as the result of increased provincial minimum wage as one of the company's production cost components. These results are consistent with research conducted by Ridhwan, Werdaningtyas, & Grace (2013) that the provincial minimum wage has a positive and significant effect on the formation of regional inflation. Provincial minimum wage is one of the costs of production inputs in 2008-2013 which increased by an average of 20%.

Credit had positive and significant influence on the regional inflation. The coefficient value of credit was 6.088973, which means any increase on credit by 1% will increase 6.08% regional inflation in Indonesia. The estimation result is suitable to the theory where credit had positive influence on regional inflation. The correlation of inflation and credit can be seen from the amount of credit distribution. Inflation influences through nominal interest rate. It was because the real interest rate formed from the nominal interest rate was reduced by the inflation. If the inflation rate is high, then the real interest rate will decrease, this will cause the increasing amount of credit distribution caused by the decreased real interest rate. The effect of inflation change on the credit

distribution did not happen directly but through the real interest rate at first. The high inflation is usually related to overheat economic condition. It means, the economic condition experiences overloaded demand on their products that the price will tend to increase. The over inflation will also decrease the purchasing power of money. Besides, high inflation can also decrease the real income rate obtained by the society. On the contrary, if the inflation decreased, then it will be a positive sign for the society along with the decreased risk of purchasing power of money and the risk of decreased real income.

The open unemployment level had negative significant influence on the regional inflation. The coefficient value of open unemployment level is -11.490021, which means any increase on the open unemployment level by 1% will decrease 11.49% regional inflation in Indonesia. The estimation result is suitable with the theory where the open unemployment level had a negative influence on regional inflation. In the short term, the increasing inflation showed the economic growth, still, in the long term, high inflation will cause bad impact. The high inflation will cause the domestic goods price become relatively more expensive than the import goods. The more expensive price causes the decreased competitiveness of the domestic goods in the international market. This will impact the export value which will tend to decrease while otherwise, the import value will tend to increase.

The lack of domestic goods and service price competitiveness caused the low demand on domestic product. The production will be decreased. Some business people will decrease the production. The decreased production will cause a certain amount of labor lose their job. Economists stated their opinion that the over inflation indicates the worse economic condition of a country. The high inflation may drive the central bank to increase the interest rate. This caused contraction or negative growth in the real sector. The further impact is the increasing unemployment. Thus, inflation and unemployment were the two parameters which can be used to measure the quality of the economic health faced by a country.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Speed of convergence 68 months that indicates the length of time needed by inflation to return to its initial balance or natural value. By using panel data regression analysis with the FEM as the best model, the result concluded that the determining factors of the regional inflation or determinant/source of inflation among regions are: Gross Domestic Regional Product (GRDP) which had positive and significant influence on the regional inflation in Indonesia during 2008-2017. The Provincial Minimum Wage (UMP) had positive and significant influence on the regional inflation in Indonesia during 2008-2017. Credit had positive and significant influence on regional inflation in Indonesia during 2008-2017. Open unemployment level (TPT) had negative significant influence on the regional inflation in Indonesia during 2008-2017.

Recommendation

Considering the expectation factor which is relatively dominant in terms of influencing the domestic inflation rate, especially at the regional level, the coordination between policy makers – in this case are the government and Bank Indonesia – either in the central or regional level shall be enhanced that the role of KPw-BI (Representative Office of Bank Indonesia) in the regional level will be more significant in directing the economic agents expectation in their working area. One of the concrete steps taken is

through the Regional Inflation Controlling Team (TPID) and/or other related forums at the regional level which will be more relevant to be developed to reinforce the strategic alliance to develop the regional economy.

The effort of controlling inflation in the region or province shall be focused on the efforts to guarantee the price affordability. Besides, the government shall reinforce the activity of providing clear information to the society concerning various steps and policies which will be taken by the government in controlling the price. It was conducted to maintain the society's expectation on the necessity price.

ACKNOWLEDGMENT

We grateful to Bank Indonesia Institute for research assistance funds through the Bank Indonesia Institute research assistance program.

REFERENCES

Alagidede, P., Coleman, S., & Adu, G. (2014). A Regional Analysis of Inflation Dynamics in Ghana: Persistence, Causes and Policy Implications. *Working Paper*, (October). Retrieved from https://www.theigc.org/wp-content/uploads/2014/09/Alagidede-Et-Al-2014-Working-Paper.pdf

Beck, G., Hubrich, K., & Marcellino, M. (2006). Regional Inflation Dynamics Within And Across Euro Area Countries And A Comparison With The US. *Working Paper Series*, (681). Retrieved from https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp681.pdf

Brown, M., Haas, R. De, & Sokolov, V. (2017). Regional Inflation , Banking Integration , and Dollarization. *Review of Finance*, (March), 1–36. https://doi.org/10.1093/rof/rfx021

Brož, V., & Kočenda, E. (2018). Dynamics and Factors of Inflation Convergence in the European Union. *Journal of International Money and Finance*. https://doi.org/10.1016/j.jimonfin.2018.04.002

Cecchetti, S., & Li, L. (2008). Do Capital Adequacy Requirements Matter for Monetary Policy? *Economic Inquiry*, *46*(4), 643–659. https://doi.org/10.1111/j.1465-7295.2007.00085.x

Cecchetti , S., Mark, N., Sonora, R. (2002). Price Index Convergence Amomg US Cities. *International Economic Review*, *43*(4), 1081–1099. https://doi.org/10.1111/1468-2354.t01-1-00049

Dridi, J., & Nguyen, A. D. M. (2019). Assessing Inflation Convergence In The East African Community. *Journal of International Development*, *31*(2), 119–136. https://doi.org/https://doi.org/10.1002/jid.3396

Hsiao, C. (2003). *Analysis of Panel Data*. Retrieved from https://assets.cambridge.org/052181/8559/sample/0521818559ws.pdf%0D

Kim, Y., Kang, K., & Ka, K. (2020). Do Bond Markets Find Inflation Targets Credible? Evidence from Five Inflation-Targeting Countries. *International Review of Economics and Finance*, *67*(1), 66–84. https://doi.org/10.1016/j.iref.2019.12.007

Konopczak, K., & Welfe, A. (2017). Convergence-Driven Inflation and the Channels of its Absorption. *Journal of Policy Modeling*, 1–16. https://doi.org/10.1016/j.jpolmod.2017.02.001

Nagayasu, J. (2011). Heterogeneity and Convergence of Regional Inflation (Prices). *Journal of Macroeconomics*, *33*(4), 711–723.

https://doi.org/10.1016/j.jmacro.2011.07.002

Pedace, R. (2013). *Econometrics for Dummies*. Retrieved from https://books.google.com/

Ridhwan, M., Werdaningtyas, H., & Grace, M. (2013). Dinamika Dan Heterogenitas Inflasi Regional di Indonesia. *Working Paper*, *11*. Retrieved from https://www.bi.go.id/id/publikasi/wp/Documents/Dinamika dan Heterogenitas Inflasi Regional di Indonesia.pdf

Silveira, J., & Lima, G. (2014). Heterogeneity in Inflation Expectations and Macroeconomic Stability under Satisficing Learning. *Working Paper Series*, (28), 1–25. Retrieved from https://econpapers.repec.org/scripts/redir.pf?u=http%3A%2F%2Fwww.repec.eae.fea.usp.br%2Fdocumentos%2FSilveira_Lima_28WP.pdf;h=repec:spa:wpaper:2014wpecon28

Utama, C., Wijaya, M., & Lim, C. (2017). The Role of Interest Rates and Provincial Monetary Aggregate in Maintaining Inflation in Indonesia. *Buletin Ekonomi Moneter Dan Perbankan*, *19*(3), 267–286. https://doi.org/10.21098/bemp.v19i3.666

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 considers to be published in other publications.
3. The manuscript may be the result of research, literature/theoretical study, methodological review, critical original 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 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