ZAKAT AND ECONOMIC DEVELOPMENT: STUDY IN THREE MUSLIM COUNTRIES IN SOUTHEAST ASIA

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Abstract

This study has main objective to analyze the effect of zakat on per capita income as one indicator of economic development. The data is analyzed by Cobb-Douglas production function and panel data analysis model. Study findings show that zakat significantly and positively affect on per capita income. This study also found that compared to Foreign Direct Investment (FDI), most popular instrument of government to increase economic development, zakat has a greater coefficient. In addition, Muslims as a majority population on average unable to contribute significantly to economic development. However, they could contribute to zakat as seen from increase in amount of zakat collection.

Keywords: Zakat, per capita income, panel data, FDI

INTRODUCTION

Central Intelligence Agency (CIA) in Southeast Asia explains three countries that have a Muslims majority population. Indonesia has 87.2% population Moslem and the largest Muslim Southeast Asia, followed with Brunei Darussalam with a Muslim population of 78.8% and Malaysia with 61.3%. In addition, total GDP Indonesia is largest compared to Malaysia and Brunei Darussalam. Indonesia's GDP in 2015 reached 861.9 billion dollars, while Malaysia and Brunei Darussalam were 296.2 billion dollars and 15.5 billion dollars respectively (World Bank, 2015).

Studies at 60s as Kindleberger (1958), Higgins (1959) and Krause (1961) emphasized many aspects of economic growth as a part of economic development of a country. Furthermore, Mankiw (2012) discussed Solow Growth Model by explaining the Cobb-Douglas production function as a function to explain economic growth with two variables very concerned, namely capital and labor. The capital and labor increase in same proportion

will increase output in that proportion. Unfortunately, output analysis describes only the economic development, the factors outside the economy excluded from analysis.

Ellen H. Palanca (1986) made a study the effect of religion on economic development. It was explained that core analysis in theory of economic development is human resources, natural resources, technology, and capital accumulation. The analysis does not include non-economic factors, as religion which he quoted from explanation Michael Todaro.

Furthermore, Omar, Hussin and Ali G.H (2015) conducted a study of relationship between Islam and economic development proxied by per capita income in Malaysia. They found that Islam as a religion adopted by majority of population had a significant impact on economic development in country. Furthermore, Askari, Iqbal, and Mirakhor (2015) also explained that Islam is a rule-based system. The state should provide incentives to comply rules in an Islamic perspective based on the Qur'an and Sunnah.

One incentives is *zakat* payment. Islamic teachings explains several verses in Qur'an the obligation of a Muslim to pay *zakat,* such as Al-Anbiya verse 73, Al-Hajj verse 41 and 78, An-Nur's verses 37 and 56 and many more. Theoretically, relationship between *zakat* and per capita income can be found in explanation of Mariyanti and Mahfudz (2016). They explained that *zakat* can become the largest source of funding to increase economic empowerment and also as an instrument in order to evenly distribute income to reduce poverty. Therefore, increasing *zakat* will also relate with increased income from poor people.

Several researchers of previous studies discussed *zakat.* Chodhury (1986) showed that higher *zakat* will affect to per capita income through higher investment. In addition, Mahat and Warokka (2013) showed that *zakat* is an instrument that will increase economic growth. Managerially, Toor and Nasar (2004) evaluated *zakat* as a social safety net program from Pakistan government. They found several things that must be addressed in *zakat* management to improve social welfare.

This study has the main objective is to analyze the effect of *zakat* on economic development. Solow theory framework is used to explain economic growth without non-economic factors in the analysis.

There are relationship between economic development, economic growth, and income per capita. Todaro and Smith (2011) explained that development process is a series of stages in continuous economic growth of all countries. Perkins (2001) explained that economic growth related to per capita income and also an increase in a country's national products. Krause (1961) also defined economic development as an achievement achieved by poor countries to increase their income per capita and their standard of life. Therefore, an indication of economic development can be seen from its economic growth and per capita income.

This study basically uses the Solow neoclassical growth model to explain economic growth of a country. Gross Domestic Product (GDP) data was used by economists to measure economic growth (Mankiw, 2012). Todaro and Smith (2011) explained that Solow neoclassical growth model uses the function of aggregate production where GDP is affected by capital and labor. These relationships can be explained by Cobb-Douglas production function to explain that capital and labor increase in same proportion will increase output with that proportion.

Todaro and Smith (2011) explained in neoclassical free-markets that foreign investment can increase capital accumulation. Solow in Growth Theory explained the labor input as a supply from population, so that population is also labor. At this level, phenomenon of three countries with majority Muslim population become the reason t analyze the of economic growth which will increase per capita income and also economic development.

In addition, Palanca (1986) argued that non-economic factors outside the economic development analysis actually always provide appropriate institutional motivations and procedures in community, one them is religion. Mirakhor and Askari (2010) further explained that economic development process put humans as the end result of process. Mirakhor and Askari (2010) also explained four components needed in development, namely equity, sustainability, productivity and empowerment. Mirakhor and Askari (2010) in Islam context described three Meta phrameworks of development whose ultimate goal is humans, namely self-development (*rushd*), physical development on earth (*istimar*) and overall development of humans consists of physical and self-development.

Omar, Hussin and Ali G.H (2015) conducted a study the relationship between Islam and economic development. It was proxied by per capita income in Malaysia. They found that Islam as a religion adopted by majority of population had a significant impact on economic development. Akari, Iqbal, and Mirakhor (2015) explained that Islam is a rule-based system. The state should provide incentives to increase the rules compliance in perspective of Islam that follows the Qur'an and *Sunnah*. One of incentives is paying *zakat.* Several verses in Qur'an clearly explain obligation of a Muslim to pay *zakat*.

RESEARCH METHODS

We use the Cobb-Douglas production function with further modification below to illustrate the Solow neoclassical growth model.

$$F(K,L) = AK^{\alpha}L^{1-\alpha} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Makniw (2012) explained that A is a parameter, the value is greater than zero, K is capital accumulation and L is labor force. This study uses FDI as a proxy for capital accumulation as presented by Todaro and Smith (2011). The uniqueness of Solow growth model to differentiate it from other growth theories is the model proposed by Solow can be modified by incorporating technology as an exogenous variable (Mankiw, 2012).

Mankiw (2012) said that technology was efficiency of labor. It was describe the knowledge owned by community about the production process. The technology increase also increases the efficiency of its workforce. Furthermore, in Solow growth model, concept population growth explains that labor input is a given supply from population, the population can include labor (Aghion and Howitt, 1999). Based on this concept, this study tries to develop it by specifying the existing Muslim populations only. This is because the Southeast Asian countries observed in this study have the largest Muslim population and aim to see the contribution of Muslims as a population to economic development proxied by income per capita. Furthermore, Palanca (1986) and Wan Omar et al (2015) showed that Islamic affect on economic development. We include a new variable, namely Islam, which is proxied by *zakat* as one obligations that must be fulfilled for every Muslim.

This study uses balanced panel data to combine cross-section with time-series (Matyas and Sevestre, 1996). We use data from 3 countries with

largest Muslim population in Southeast Asia (Indonesia, Malaysia, and Brunei Darussalam) with an 11-year time series for each country, starting from 2004-2014. The total observations are 33. Bolstad (2007) explained that minimum observation was 25 ($n \geq 25$).

The advantage of panel data was to reduce multicollinearity problems and eliminate or reduce bias (Matyas and Sevestre, 1996). The collected data will be analyzed by eviews program. The data in this study have larger number of time series than the parameters. Based on Ekananda (2014) and Gujarati and Porter (2009), we use Fixed Effect Model (FEM) and to determine the heterogeneity in each character country, this study uses fixed effect least squares dummy variability (LSDV) (Gujarati and Porter, 2009). This study uses 3 countries with observed as dummy variables, then the dummy variables specified were two to avoid dummy-variable traps (Gujarati and Porter, 2009). Furthermore, because this study uses the Cobb-Douglas production function that not linear, according to Gujarati and Porter (2009), we must transform the model into a logarithmic equation, so that model in this study can be written as follows,

$$\ln Y_{it} = \ln a_0 + a_1 D_{1i} + a_2 D_{2i} + a_3 \ln CAP_{it} + a_4 \ln MPOP_{it} + a_5 \ln R_{it} + e_t \ldots.(2)$$

Where,

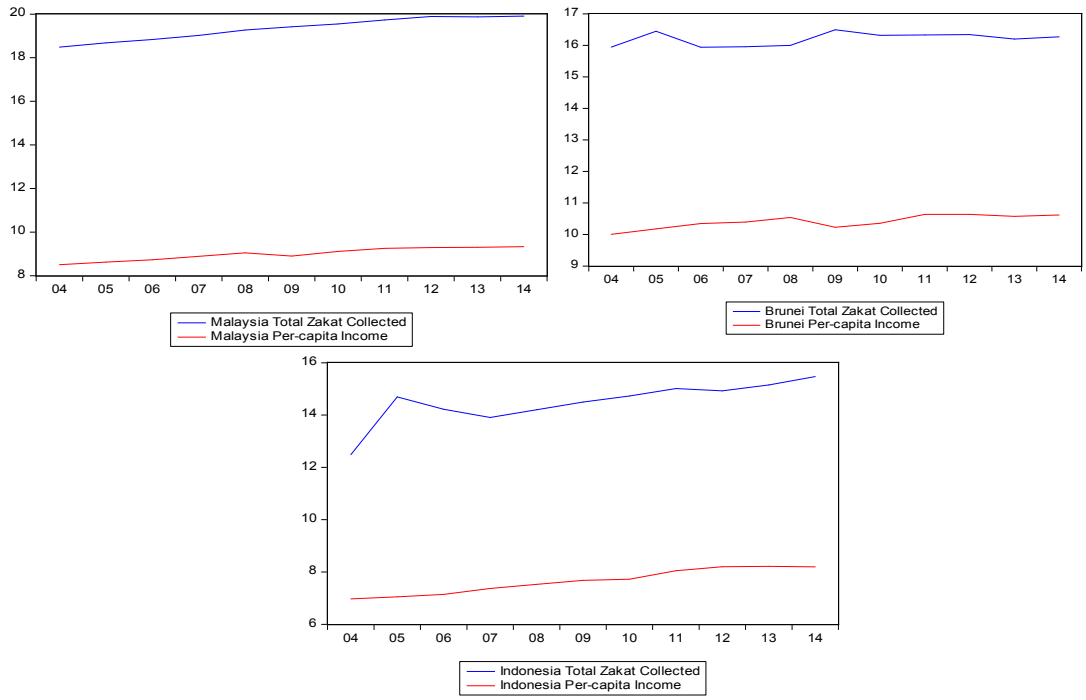
Notation	Operational Definition	Proxies
Y	Economic growth as an indicator of economic development	GDP per capita
CAP	Capital Accumulation	FDI
MPOP	Muslim population as labor supply	Muslim population
R	Islam	Total zakat accumulation
E	Eror term (non-observable random term)	-
$\mathbf{A_{0...5}}$	Constant	-
I	Individual data (*i th subject*)	-
T	Time-series data (time period for each individual)	-

Source: researcher, 2016

The dummy variable is a notation to describe Dummy 1 (D_{1i}) = 1 for Brunei Darussalam, and 0 for others, Dummy 2 (D_{2i}) = 1 for Indonesia, and 0 for others, and 0 for Malaysia.

RESULTS AND DISCUSSION

This study data comes from World Bank, CIA, National *Amil Zakat* Agency (BAZNAS), MUIB (Brunei Islamic Religious *Majlis*), Malaysia *Zakat* Collection Center, and others. The graph 1 illustrates the state of *zakat* and per capita income in three countries with largest Muslim population in Southeast Asia.



Source: Secondary data, 2017 (processed)

Figure 1. *Zakat* And Per Capita Income In Three Countries

Graph 1 shows trends similarities in all two three country for the increase in both capita income and in *zakat* collection. Per capita income in Indonesia continues to increase at a less volatile rate compared to Brunei Darussalam. Year 2009 showed a decrease in per capita income. While per capita income in Malaysia shows the same trend with Indonesia.

Total amount of *zakat* collected for Indonesia and Brunei show a volatile trend. IT very different from Malaysia to shows a steady increase from 2004 to 2014. Indonesia had a peak increase in its tax collection 2006 before finally a sharp decline until 2008, after that year, tax collection in Indonesia showed stable upward trend. The collection of *zakat* in Brunei fluctuated

and tends to be flat. Brunei has an increase in largest collection of peak double taxes in around 2005 and 2009.

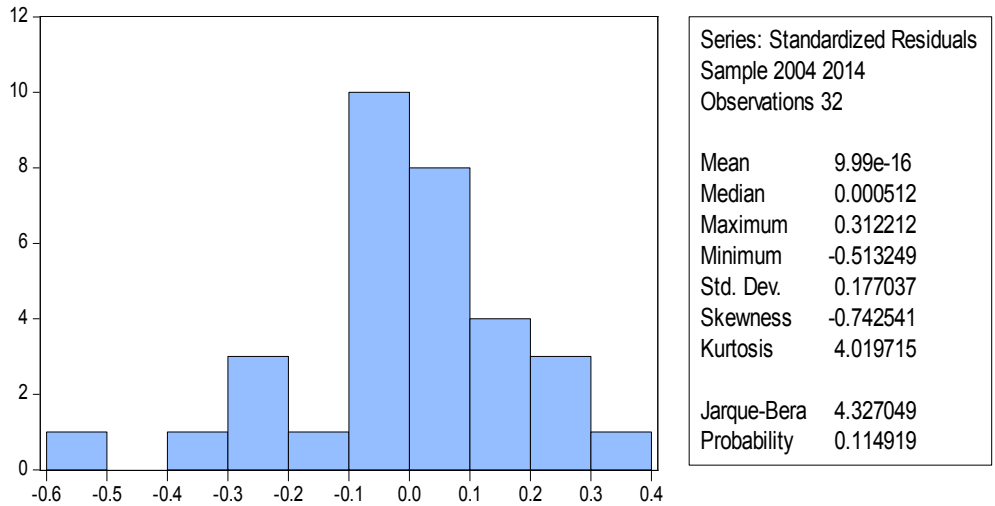


Figure 2. *Jarque-Bera Normality test*

Normal distribution of data is shown by Jarque-Bera test. The results show a probability value of 0.11. It can be concluded that error terms are normally distributed. These results is shown in Appendix 1. Appendix 2 shows R-square of 0.978. It means that on average, all observed variables are able to affect per capita income by 98%, while other 2% is explained by other variables outside the model. The dummy variable results are shown in table 1 and table 2.

Table 1 Percentage coefficients for each country

Country	Coefficient	Value (%)
Malaysia	-6.856	-6.9
Brunei Darussalam	4.328	-2.5
Indonesia	0.782	-6.1

Source: Secondary data, 2017 (processed)

Table 1 shows Malaysia, Brunei Darussalam and Indonesia have a negative slope. It means if there is no increase in FDI, Muslim population, and *zakat*, or if the variables tend constant, per capita income of each country will decrease. Malaysia decreases 6.9%, Brunei Darussalam decreases 2.5% and Indonesia decreases 6.1%.

Table 2 Percentage coefficients for each country

Variables	Coefficient	Probability
Capital Accumulation (FDI)	0.100	0.01
Muslim Population (MPOP)	0.241	0.32
Islam (R)	0.499	0.00

Source: Secondary data, 2017 (processed)

Table 2 shows the results of t-test as a result of hypothesis test. Muslim population variable (Mpop) is not significant at various significance levels of 5% and while in FDI and *Zakat* variables, by looking at probability, can reject the hypothesis zero.

Table 3. Table of regression with fixed effect model Least Squares Dummy Variable (LSDV)

Dependent Variable: Y
Method: Panel Least Squares
Date: 12/15/16 Time: 14:55
Sample: 2004 2014
Periods included: 11
Cross-sections included: 3
Total panel (unbalanced) observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DUMMY_1***	4.328212	1.120728	3.861966	0.0007
DUMMY_2*	0.782489	0.458267	1.707496	0.0996
CAP**	0.100441	0.038859	2.584740	0.0157
MPOP	0.241045	0.242132	0.995508	0.3287
R***	0.499720	0.091942	5.435168	0.0000
C	-6.856396	4.343219	-1.578644	0.1265

R-squared	0.976448	Mean dependent var	9.083374
Adjusted R-squared	0.971919	S.D. dependent var	1.153589
S.E. of regression	0.193311	Akaike info criterion	-0.281668
Sum squared resid	0.971602	Schwarz criterion	-0.006843
Log likelihood	10.50669	Hannan-Quinn criter.	-0.190571
F-statistic	215.5898	Durbin-Watson stat	1.221818
Prob(F-statistic)	0.000000		

The negative slope shown by each country (Malaysia, Indonesia, Brunei) explain their dependence on research variables in model to increase their economic development. Table 1 shows without additional investment in form of FDI, there is no growth of Muslim population, and no additional *zakat* is collected, then the per capita income of each country on average will decrease as 1. FDI and *zakat* have a positive and significant relationship to affect per capita income, but not for Muslim population variable.

Zakat and FDI have far different coefficients. FDI is significant at level of 10%, while *zakat* is significant at level of 1% at coefficient of 0.1 for FDI and 0.5 for *zakat*. The coefficient value can be interpreted that average increase in *zakat* by 1% will increase per capita income by 0.5%, and an increase in average on FDI of 1% will increase the average income per capita by 0.1%. The amount of *zakat* contribution to per capita income as an indicator of economic development when compared to FDI can produce a recommendation to government to pay more attention to *zakat* as an instrument to increase per capita income as an indicator of economic development rather than focusing to attract foreign investors to invest in form of FDI.

These results consistent with Mahat and Warokka (2013) to show that *zakat* can become a major source of economic growth and can become domestic direct investment rather than Foreign Direct Investment. It is currently a highly regarded instrument for development in developing countries. In addition, this study consistent with Ahmed (2008) that *zakat* is an instrument to reduce poverty levels, one of which is an increase in per capita income to shows indicators of economic development.

This study found that Muslim population was not significant to affect per capita income. It can be interpreted that on average the Muslim population has a very small contribution to economic development. Solow neoclassical growth model explains that population is the labor itself because the labor supply is the population. This means that labor will affect the economic development, but insignificant results on Muslim population variables indicate that possibility of Muslims in three countries being observed does not work as labor. Therefore, increasing trend of *zakat* in 3 countries and explains that Muslims do not contribute to being a workforce which will increase economic development. Future research should answer questions

from where the sources income of Muslim populations so that they are able to pay *zakat* as an obligation in Islamic teachings.

There is another possibility to explain the small contribution of Muslim communities to economic development, namely the existence of unemployment and poverty. We suggest a new view in looking at economic development as suggested by Oladapo and Rahman (2016) to explain the main determinants of human development as the ultimate goal of economic development based on *maqasidal Shari'ah*, namely, social justice, human rights human, education, health, and income. In addition, Oladapo and Rahman (2016) also explain latent factors that must also be considered in development are gender, marital status and religious beliefs..

CONCLUSION AND SUGGESTIONS

Per capita income should be concerned as an indicator of economic development. This study results indicate that *zakat* has a positive and significant effect on economic development. Furthermore, *zakat* has a greater impact on development than FDI. Therefore, *zakat* can be used as a reference in economic development rather than FDI where many developing countries used it as the main instrument to improve economic development. This study also found that Muslims as the majority population on average were unable to contribute significantly to economic development, but on other hand, *zakat* showed an increasing trend so further research was needed on source of income to pay *zakat*. Another possibility that arises from small contribution of majority of Muslim population to economic development is that there is still unemployment and poverty.

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