A comparative analysis of the relationship of nature of poverty with Zakat collection and real gross domestic product : An empirical study in the context of Indonesia

Original Research Article

ISSN : 2456-1045 (Online)
(ICV-ECO/Impact Value): 3.08
(GIF) Impact Factor: 2.174
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Journal Code: ARJMD/ECO/V-18.0/I-1/C-12/OCT-2017
Category : ECONOMY
Volume : 18.0 / Chapter- XII / Issue -1 (OCTOBER-2017)
Website: www.journalresearchijf.com
Received: 31.10.2017
Accepted: 06.11.2017
Date of Publication: 15-11-2017
Page: 58-67

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Citation of the Article

S. Nisthar & A.A.M.Nufile (2017) *A comparative analysis of the relationship of nature of poverty with Zakat collection and real gross domestic product: An empirical study in the context of Indonesia; Advance Research Journal of Multidisciplinary Discoveries.18.0,C-12(2017):58-67; available at : http://www.iournalresearchiif.com*

ABSTRACT

This study aimed to analyze the comparative contribution of the collection of Zakat (Islamic social integrated finance) and Real Gross Domestic Product (RGDP) to the nature of poverty in Indonesia quantitative methodology. The time series data used in this study were collected from BAZNAS 2017 and web site – country. economy. The tools in the method used were correlation, regression, causality, Johansen co-integration, normality, autocorrelation LM, and hetereoskedasticy / homoskedasticity. The data were analyzed using the statistical software – Eviews 6.0. The two regression models were constructed to achieve the objective of this study such as model 01 and model 02. In the model one, HCI (Head Count Index: the nature of poverty in Indonesia) was the dependent variable and the collection of Zakat was the independent variable. In the model 02, HCI (Head Count Index: the nature of poverty in Indonesia) was independent variable. There was a significant relationship between HCI and the collection of Zaka in Indonesia. There was an inverse relationship between HCI and the collection of Zakat. One percent of increase in the collection of Zakat decreases in HCI (alleviation in the nature of poverty) by 5.5units in Indonesia whereas there were 2.8 units of decrease in the nature of poverty (HCI) due to the increase in RGDP without significant relationship between both the variables. The policy makers and the government of Indonesia could be made aware of using the findings of this study so as to adopt the appropriate strategic macroeconomic management.

Keywords:

Head Count Index,
Poverty,
Read Gross Domestic Product,
Zakat,
Indonesia

I. INTRODUCTION

The consideration for poverty is the focal point over the period of time by economists, sociologists and so on. As the nature of poverty is a multidimensional issue, the alleviation of poverty needs a broad set of well defined measure such as social security system in any society all over the world (Shirazi, 2006). From time to time, various measures with the intention of alleviating poverty have been implemented through policy measures of the constitutional portfolio of governments especially in the third world countries. The Islamic countries in the world considerably follow and implement the policy measures introduced through the teachings of the Holy Quran and the Prophet Muhammed (PBUH).

There is a significant progress in Indonesia in alleviating the nature of poverty since 1970s. The time period from the late 1970s to the mid 1990s is taken into consideration as one of the most "pro-poor growth" scenario in the economic history of Indonesia. The various development policies especially designed for better food security, development in agriculture, the provision of loans facilities, investment opportunities in education, infrastructure, and health services lowered the number of poverty stricken from 54.2 mn (40.1%) in 1976 to 34.5 mn (17.7%) in 1996. Economic growth (GDP) is one of the most prominent determinants of poverty alleviation in the country (Ministry of National Development Planning, 2006).

The collection of *Zakat* records the large potential contribution in the context of eliminating poverty. As there is the highest Muslim population in Indonesia in the world which represents 85 percent of total population in Indonesia or 216.66 million population (BPS, 2015), the collection of *Zakat* can be optimally achieved from the Muslims in Indonesia (BAZNAS, 2017). As the third pillar in Islam, *Zakat* is an obligatory payment for the entitled Muslims so as to purify their income and wealth by distributing it to the needy based on the specific criteria enacted by the Holy Quran and the Prophet Muhammed (PBUH). *Zakat* not only plays its major roles to provide funds for the poor to alleviate poverty, *Zakat* also is considered as a balancing tool for the economy. Thus, *Zakat* can prospectively fulfill the resource gap for poverty alleviation in the countries (BAZNAS, 2017). *Zakat* is a macroeconomic variable in Islamic economy and also *Zakat* plays an important role in the Indonesian economy. The functions of *Zakat* organizations are able to motivate the economy in this country. The objectives of *Zakat* organizations in this country are to stimulate economic growth and development, especially alleviate the nature of poverty, make equity in the economy, and become as social security with effectiveness (BAZNAS, 2017).

The Indonesian economy has achieved comparatively strong growth and development over a number of years. The structural changes in the various economic sectors of the economy have considerably taken place over these time periods, along with Indonesia becoming towards increasingly industrialized and incorporated into the global challenging economy. The economy of Indonesia has reached its expansion strongly over the recent decades, in spite of the upward economic contractionary pressure that was experienced by the country during the period of 1997-1998 Asian financial crises. This well-built pace of growth in this country has become a progressively more important part of the global economy. Hence, this country records now its position of fourth largest economy in the East Asian region after Japan, China, and South Korea and also the 15th largest economy in the global economy on the basis of purchasing power parity (PPP). In addition, the country's share of global Gross Domestic Product (GDP) presently is expected to persist to increase by 1½ per cent over the forthcoming years ahead (Stephen, 2011).

Accordingly, this study concentrates and tries primarily on finding and assessing statically the contribution of the collection of *Zakat* which is one of the prime Islamic social integrated finance which immensely and significantly has been expected to play its major roles among the Islamic community in Indonesia.

II. OBJECTIVE OF THE STUDY

To analyze the comparative contribution of the collection of *Zakat* and Real Gross Domestic Product (RGDP) to the nature of poverty in Indonesia.

III. LITERATURE REVIEW

Minnathul, et al (2015) aimed to assess the role of *Zakat* in eliminating the nature of poverty in Nintavur divisional secretariat division in Sri Lanka by using qualitative and quantitative data collected for the periods of 2010 and 2014. The method they used in their study was descriptive analysis by using both primary and secondary data sources. They found that that the collection of *Zakat* played a major role so as to alleviate poverty. Finally they recommended that the people should made aware of the collection of *Zakat*, the implementation of collective *Zakat*, the importance of training and skill development to improve the collection *Zakat* for making effective in alleviating the nature of poverty.

Zulkipli (2013) studied the perceptions of *Zakat* recipients at *Rumah Zakat* institution, in Yogyakarta, Indonesia using qualitative method of study. The data were collected for this study from semi structured interviews among the *Zakat* recipients. He found that Zakat and Zakat interest free loans empowered the recipients in the study area and they earned incomes above the poverty line. All the *Zakat* collections considerably contributed for a significant positive impact on their home economies, social lives and healthy condition.

Zulkipli (2009) analyzed the roles of *Rumah Zakat* Indonesia (RZI) so as to alleviate the nature of poverty in Indonesia using descriptive method. He used secondary data in this study to achieve the objective of this study. He concluded that private *Zakat* organizations implemented various attempts so as to promote the welfare of people in Indonesia in alleviating poverty. He found that the government of Indonesia needed Acts to make sure the control of private *Zakat* organizations to be under the control of government. He recommended that the private *Zakat* organizations and government of Indonesia should work together rather than challenging with each other.

Aan (2015) aimed to find the optimization of the potential of the collection of *Zakat* in Indonesia and the collaboration among stakeholders and the government regulation of Indonesia in alleviating the nature of poverty using the descriptive method in which the secondary sources of data were used to achieve the objective of the study. He found that the *Zakah* collection was a solution to eliminate the nature of poverty in Indonesia.

Mohamad (2010) aimed to find at the effects of productive-based *Zakat* in promoting the welfare of *Zakat* beneficiaries using quantitative data. The independent variable used in this study was the collection of *Zakat* and the dependent variables used were HDI and its components. He found that the collection of *Zakat* did not directly affect the value of Human Development Index (HDI) but there was effect on the allocation of revenue changed from the consumption expenditure to productive purpose.

Though there are a number of researches connected with the nature of poverty and the collection of *Zakat* in Indonesia, this study in particular focuses on the relationship of Zakat collection and Real Gross Domestic Product with the nature of poverty in Indonesia on the basis of Statistical Analysis..

IV. METHODOLOGY

The data used this study are the time series which have been collected from BAZNAS: 2017 Indonesia Zakat Outlook and the website - country economy. The dependent variable in this study is HCI (Head Count Index). The independent variables are Collection of *Zakat* and RGDP (Real Gross Domestic Product). Accordingly, the following two models are to be constructed and tested to achieve the objectives of this study.

$$HCI = f(Zakat) \ldots\ldots\ldots\ldots\ldots\ldots (1)$$
$$HCI_t = \delta_0 + \delta_1 logZAK_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$HCI = f(RGDP) \ldots\ldots\ldots\ldots\ldots\ldots (3)$$
$$HCI_t = \delta_0 + \delta_1 RGDP_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

HCI: Headcount Index - the proxy for the nature of poverty which measures the proportion of the population whose welfare falls below the poverty line (1.90 US$)
***logZAK$_t$*:** The logarithm of collection of *Zakat* for the selected time series
***RGDP$_t$*:** Real Gross Domestic Product (Percentage of RGDP) for the selected time series
***δ_0, δ_1*:** Coefficients
***ε_t*:** Error term

The collected data have been analyzed through various research methods and tools such as regression, correlation, Granger Causality, Johansen Co-integration, Trend and Fluctuations, Heteroskedasticity, Serial Correlation LM, and Normal Distribution

V. DATA ANALYSIS AND DISCUSSION

Correlation

Table 01 shows the correlational relationship among the HCI, log (Zak) and REGDP. The correlational relationship always measures the strength, significance, and the direction of relationship of the variables used in the studies. As per Table 01, the strength of relationship between HCI and LOG (ZAK) is very strong because value of correlation coefficient (r) is greater than 0.75 ($r > 0.75$). And also there is a negative relationship between HCI and LOG (ZAK) whereas there is a weak relationship between HCI and RGDP but there is a negative relationship between HCI and REGDP like in the correlational relationship between HCI and LOG (ZAK).

Table 01: Correlation Test

	LOG(ZAK)	RGDP
HCI	-0.891329	-0.264632

Regression

Table 02 shows the regression results of the model 01 which describes the relationship between the dependent variable identified as HCI (Head Count Index) and the independent variable *Zakat* collection. Accordingly, the following estimated model can defined:

$$HCI = 54.95 - 5.5 logZAK$$

Table 02: Regression Results – Model 01

Dependent Variable: HCI				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	54.94946	4.758812	11.54689	0.0000
LOG(ZAK)	-5.501071	0.722442	-7.614549	0.0000
R-squared	0.794468	Mean dependent var		19.65294
Adjusted R-squared	0.780766	S.D. dependent var		9.481371
S.E. of regression	4.439409	Akaike info criterion		5.929051
Sum squared resid	295.6253	Schwarz criterion		6.027076
Log likelihood	-48.39693	Hannan-Quinn criter.		5.938794
F-statistic	57.98136	Durbin-Watson stat		0.858945
Prob(F-statistic)	0.000002			

As per the results of the above estimated model 01 in terms of the estimated coefficient of independent variable *Zakat*, it is predicted that one percent of increase in *Zakat* decreases the HCI (Head Count Index) by around 5.5 units. As a result, there is an inverse relationship between the Head Count Index and the Collection of *Zakat* in the country of Indonesia. It means while the collection of *Zakat* considerably increases, the existence of poverty proxied by the Head Count Index decreases. In this estimated model, the value of R^2 is 0.79 (79.0%), which means the goodness of fit of the estimated regression line is represented by 79.0 percent. That is, 79 percent of variance of the dependent variable is explained by the independent variable - *Zaka*. The rest of 21 percent of the variance of the dependent variable – Head Count Index is explained by the external factors other than the collection of *Zakat* and also the *Zakat* – the internal factor/independent variable can influence the dependent variable – Head Count Index (HCI) by 79%. Therefore, it is understood that the estimated regression line of model 01 is fitted nicely. The factor or independent variable – *Zakat* is having significant relationship with the dependent variable – Head Count Index at below 5% level ($p < 0.000$).

Accordingly, the null hypothesis of "there is no significant relationship between *Zakat* and Head Count Index" is rejected whereas the alternative hypothesis of "there is a significant relationship between *Zakat* and Head Count Index" is accepted. The value of Durbin-Watson statistic is higher than the value of Adjusted *R* - squared ($DW > Adjusted\ R^2$). As a rule of thumb, it means there is no problem of spuriousness in this regression model. Therefore, it is not nonsense model. That is, all the dependent and independent variables are non-stationary. Therefore, the results of the regression model are not misleading to the conclusion.

Table 03: Regression Results – Model 02

Dependent Variable: HCI				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	34.80514	14.43959	2.410397	0.0292
RGDP	-2.812090	2.645912	-1.062806	0.3047
R-squared	0.070030	Mean dependent var		19.65294
Adjusted R-squared	0.008032	S.D. dependent var		9.481371
S.E. of regression	9.443216	Akaike info criterion		7.438601
Sum squared resid	1337.615	Schwarz criterion		7.536626
Log likelihood	-61.22811	Hannan-Quinn criter.		7.448345
F-statistic	1.129556	Durbin-Watson stat		0.275989
Prob(F-statistic)	0.304682			

Table 03 shows the regression results of the model 02 which describes the relationship between the dependent variable identified as HCI (Head Count Index) and the independent variable – Real Gross Domestic Product (RGDP). Accordingly, the following estimated model can defined:

$$HCI = 38.8 - 2.8RGDP$$

Accordingly to the above estimated model 02 in terms of the estimated coefficient of independent variable *RGDP* (Real Gross Domestic Product), it is estimated and predicted that one unit of increase in Real Gross Domestic Product decreases the HCI (Head Count Index) by around 2.8 units. Thus, there is a negative associationship between the Head Count Index and the RGDP in the country of Indonesia. It implies that while RGDP considerably increases the presence of status of poverty represented by the Head Count Index decreases by the amount. In this estimated model, the value of R^2 is 0.070 (7.0%), which means the goodness of fit of the estimated regression line is represented by 7.0 percent. That is, 7 percent of variance of the dependent variable is explained by the independent variable - RGDP. The rest of 93 percent of the variance of the dependent variable – Head Count Index is explained by the external factors other than RGDP and also the RGDP– the internal factor/independent variable can influence the dependent variable – Head Count Index (HCI) only by 7%. Therefore, it is understood that the estimated regression line of model 02 is not fitted nicely. The factor or independent variable – RGDP is having significant relationship with the dependent variable – Head Count Index at below 5% level ($p < 0.000$).

Granger Causality Test

Table 04 delineates the causational relationship between the collection of *Zakat*, Head Count Index, and Regal Gross Domestic Product. Accordingly to Table 04, the null hypothesis of "Log (Zak) does not cause HCI" is not accepted; rather it is rejected at below 5% significant level. Therefore, the collection of *Zakat* considerably can cause Head Count Index (the status of poverty). The null hypothesis of "HCI does not cause Log (*Zakat*)" is not accepted; rather it is rejected. Therefore, Head Count Index can considerably cause the collection of *Zakat*. Accordingly, there is a two way causational relationship between the collection of *Zakat* and the status of poverty (HCI). Meanwhile, there is no any sort of causational relationship between the real gross domestic product and the Head Count Index.

Table 04: Granger Causality Test

Pairwise Granger Causality Tests		
Null Hypothesis:	**F-Statistic**	**Prob.**
LOG(ZAK) does not Granger Cause HCI	9.58252	0.0047
HCI does not Granger Cause LOG(ZAK)	8.23032	0.0077
RGDP does not Granger Cause HCI	1.01355	0.3974
HCI does not Granger Cause RGDP	0.20787	0.8157
RGDP does not Granger Cause LOG(ZAK)	0.37540	0.6963
LOG(ZAK) does not Granger Cause RGDP	2.22851	0.1583

Johansen Co-integration test: Model 01

Table 05 shows the testing of the co-integration of the variables and long run relationship/associationship of the model 01/variables. The results of the Johansen Co-integration test are described in the following table (Table - 04).

Table 05: Johansen Co-integration test – Model 01

Hypothesis	statistic	Critical value 0.05	P-Value	Decision/results
Variables not co-integrated	28.50892 (Trace Statistic)	15.49471	0.0003	Variables are co-integrated. Therefore all the variables are having long run relationship/associationship/eventually move together in the long run.
Variables not co-integrated	16.19604 (Max-Eigen Statistic)	14.26460	0.0244	Variables are co-integrated. Therefore all the variables are having long run relationship/associationship/eventually move together in the long run.

All the two variables (HCI and *Zakat*) are having long run relationship and eventually moving together ensuring the close relationship between the variables such as HCI and *Zakat*. Trace test/statistic indicates that there is co-integration between the variables at less than 0.5% significant level ($p < 0.0003$). And also the value of Maximum Eigen statistic is greater than Critical value (16.19604 > 14.26460). Therefore, according to the Max-Eigen test, all the variables are connected with the long run associationship. Thus, the two tests ensure the long run relationship of the variables.

Johansen Co-integration test: Model 02

Table 06 shows the testing of the co-integration of the variables and long run relationship/associationship of the model 02/variables. The results of the Johansen Co-integration test are described in the following table (Table - 05).

Table 06: Johansen Co-integration test - Model 02

Hypothesis	statistic	Critical value 0.05	P-Value	Decision/results
Variables not co-integrated	10.23892 (Trace Statistic)	15.49471	0.2628	Variables are not co-integrated. Therefore all the variables are having no long run relationship/associationship /eventually move together in the long run.
Variables not co-integrated	8.405746 (Max-Eigen Statistic)	14.26460	0.3389	Variables are not co-integrated. Therefore all the variables are having no long run relationship/associationship/ eventually move together in the long run.

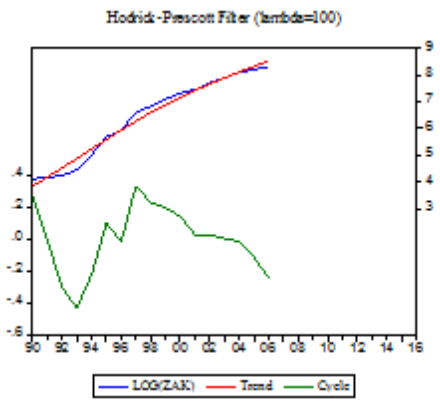
As per the table 06, the null hypothesis of "Variables not co-integrated" is accepted; rather the alternative hypothesis of "Variables are co-integrated" is rejected as the Critical Value is less than the Trace Statistic and the probability value is higher than 5% sign cant level. And also, accordingly to even the Max-Eigen Statatistic test, the Critical value is less than the value of Max-Eigen Statistic. Therefore the null hypotheses are accepted. As a result, there is no co-integration between the variables used in this model 02.

All the two variables (HCI and RGDP) are not having long run relationship and eventually not moving together with absence of ensuring the close relationship between the variables such as HCI and RGDP. Trace test/statistic and Max-Eigen Statistic imply that there is no co-integration between the variables at less than 0.5% significant level ($p < 0.2628$ and 0.3389 respectively). And also the value of Trace Statistic and Maximum Eigen statistic are less than Critical value (10.23892 < 15.49471 and 8.405746 < 14.26460 respectively). Therefore, according to the two tests, all the variables are not connected with the long run associationship. Thus, the two tests don't ensure the long run relationship of the variables.

Trend and Fluctuations – Collection *of Zakat*

Figure 01 shows the trend and fluctuations of the collection of *Zakat* over the time period. The Hodrick-Prescott (HP) filter is one of the generally used tools in macroeconomics, and also it is used to extract a trend component from time series data with the different smoothing value of Lambda (Robert, 2013). The fluctuation or cycle of the collection of *Zakat* over the considered time series of the data is very less as the cycle of the time series of the collection of *Zakat* accompanies similarly with the trend of collection of *Zakat*. And also, the trend of this time series is stochastic, not deterministic. Thus, there are less numbers of structural breaks in this time series. In the long run, the trend of collection of *Zakat* is upward slopping.

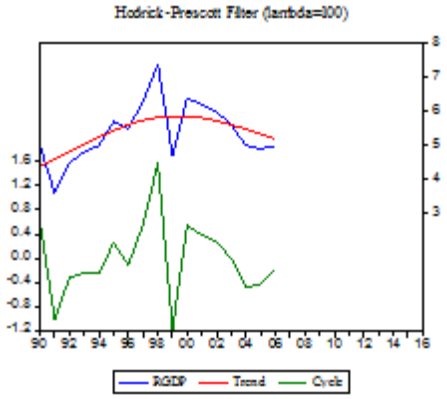
Figure 01: Trend and Fluctuations – *Zakat*



Trend and Fluctuations – RGDP

Figure 02 shows that the fluctuation or cycle of Read Gross Domestic Product over the considered time series of the data is very higher as the cycle of the time series of RGDP does not accompany similarly with the trend of RGDP. And also, the trend of this time series is deterministic, not stochastic. Thus, there are more numbers of structural breaks in this time series. In the long run, the shape of the trend of RGDP can be defined. Thus, initially it is upward slopping, and then it reaches its climax. And thereafter it is downward slopping. Thus, a proper trend can't be defined in case of Read Gross Domestic Product of Indonesia.

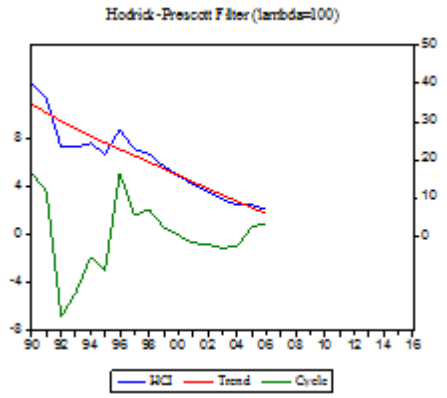
Figure 02: Trend and Fluctuations – RGDP



Trend and Fluctuations – HCI

Figure 03 shows the trend and fluctuations of HCI (the status of poverty) over the time period. The fluctuation or cycle of Head Count Index (HCI) over the considered time series of the data is less as the cycle of the time series of HCI accompanies similarly with the considerable trend of HCI. And also, the trend of this time series is considerably stochastic, not considerably deterministic. Thus, there are considerably less numbers of structural breaks in this time series. In the long run, the shape of trend of HCI is downward slopping.

Figure 03: Trend and Fluctuations - HCI



Residual Test: Normality – Model 01

In statistics it is conventional to assume that the observations are normally distributed. The entire statistical framework is grounded on this assumption and if this assumption is violated the inference breaks down and we might draw erroneous inference and wrong conclusions. For this reason it is essential to check or test this assumption before any statistical analysis of data. Normality can be assessed both visually and through normality tests. Since graphical tests are very much subjective use of analytical test is highly recommended. However, the Jarque-Bera test has become more popular to the practitioners especially in economics and business (Keya, 2016).

Figure 04: Normality Test – model 01

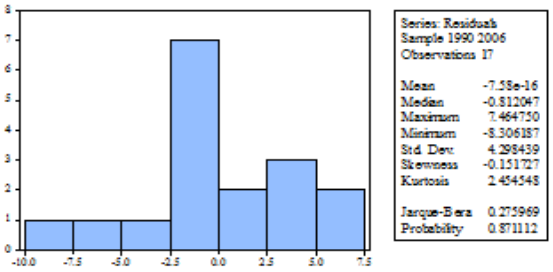


Figure 04 shows the normality test of model 01. In a good model, the residual should be normally distributed. The null hypothesis of "the residual is normally distributed" is accepted as the corresponding probability value of Jarque-Bera estimate is more than 5% significant level (87.1%). Thus, the alternative hypothesis of "the residual is not normally distributed" is rejected. It is one of the good sings of model 01.

Residual Test: Heteroskedasticity – Model 01

Table 07 explains the results of the heteroskedasticity test of model 02. The null hypothesis "there is no heteroskedasticity in the residual" can be rejected because the probability value of corresponding observed R-squared is less than 5 percent ($p >$ 0.05). That is, the value of probability is 0.16 percent (0.0016) which is less than 5% significant level. Accordingly, the trend of the residues of model 01 is heteroskedastic.

Table 07: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	21.14806	Prob. F(1,15)	0.0003
Obs*R-squared	9.945679	Prob.Chi-Square (1)	0.0016
Scaled explained SS	5.631409	Prob. Chi-Square(1)	0.0176

Residual Test: Serial Correlation – Model 01

There should not be serial correlation (auto correlation) or serial correlation in the residual. Table 08 shows that the value of the corresponding probability of Observed R-squared is more than 5% (5.17%). Therefore the null hypothesis of "there is no serial correlation in the residual" can't be rejected; rather it is accepted. Thus, there is no autocorrelation or serial correlation in the model 01.

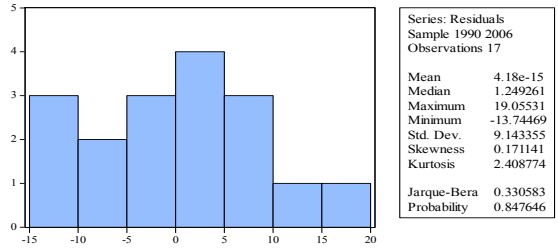
Table 08: Serial Correlation Test – model 01

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	4.009739	Prob. F(1,14)	0.0650
Obs*R-quared	3.784928	Prob. Chi-Square(1)	0.0517

Residual Test: Normality – Model 02

Figure 05 shows the normality test of model 02. In a good model, the residual should be normally distributed. The null hypothesis of "the residual is normally distributed" is accepted as the corresponding probability value of Jarque-Bera estimate is more than 5% significant level (84.8%). Thus, the alternative hypothesis of "the residual is not normally distributed" is rejected. It is one of the good sings of model 02.

Figure 05: Normality test – Model 02



Residual Test: Heteroskedasticity – Model 02

Table 09 explains the results of the heteroskedasticity test of model 02. The null hypothesis "there is no heteroskedasticity in the residual" cannot be rejected because the probability value of corresponding observed *R*-squared is more than 5 percent ($p > 0.05$). That is, the value of probability is 24.41 percent which is more than 5% significant level. Accordinlgy, the trend of residuals of model 02 is not heteroskedastic, but it is homoskedastic.

Table 09: Heteroskedasticity Test - model 02

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.300714	Prob. F(1,15)	0.2720
Obs*R-squared	1.356514	Prob. Chi-Square(1)	0.2441
Scaled explained SS	0.743910	Prob. Chi-Square(1)	0.3884

Residual Test: Serial Correlation – Model 02

Table 10 shows that the value of the corresponding probability of Observed R-squared is less than 5% (0.28%). Therefore the null hypothesis of "there is no serial correlation in the residual" can't be rejected; rather it is accepted. Thus, there is no autocorrelation or serial correlation in the model 01.

Table 10: Serial Correlation Test – model 02

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	15.44087	Prob. F(1,14)	0.0015
Obs*R-squared	8.916001	Prob. Chi-Square(1)	0.0028

VI. FINDINGS AND CONCLUSION

Based on the objective of this study, there is a significant relationship between HCI and the collection of *Zaka* in Indonesia. There is an inverse relationship between HCI and the collection of *Zakat*. Accordingly, if there is one percent increase in the collection of *Zakat*, there is 5.5 unit of decrease in HCI (alleviation in the nature of poverty) in Indonesia whereas there are 2.8 units of decrease in the nature of poverty (HCI) due to the increase in RGDP without significant relationship between both the variables. The correlation relationship of strength between HCI and the collection of *Zakat* comparatively stronger than the RGDP. But both are inversely correlated with the different strength of correlation. Accordingly to the causality test, there is a two way causal relationship between HCI and the collection of *Zakat* whereas there is no any causal relationship between HCI and RGDP (one way or two way). It is statistically found that there is a long run relationship between HCI and the collection of *Zakat* whereas there is no long run relationship between HCI and RGDP; rather there is short run relationship between HCI and RGDP. There is an upward trend over the period of time concerned in the collection of *Zakat* along with minimum number structural breaks and fluctuations whereas there is a trend with more structural breaks and fluctuations but it can be defined precisely. The residual of model 01 is normally distributed and homoskedastic and there is no autocorrelation in the residual of the model. The residuals of the model 02 also are normally distributed but heteroskedastic. There is no serial correlation in the residuals of the model 02. It can be concluded that the contribution of the collection *Zakat* in the context of Indonesia is much more statistically significant than Real Gross Domestic Product.

VII. RECOMMENDATION

The policy makers and the government of Indonesia can be made aware of using the findings of this study so as to adopt the appropriate strategic macroeconomic management in their fiscal policy in alleviating the nature of poverty among the Muslim society.

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Appendix - 01

Date: 09/12/17 Time: 21:43
Sample (adjusted): 1992 2006
Included observations: 15 after adjustments
Trend assumption: Linear deterministic trend
Series: HCI LOG(ZAK)
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.660315	28.50892	15.49471	0.0003
At most 1 *	0.559947	12.31288	3.841466	0.0004

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.660315	16.19604	14.26460	0.0244
At most 1 *	0.559947	12.31288	3.841466	0.0004

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

HCI	LOG(ZAK)
-0.244128	-0.830646
-0.144013	-1.354800

Unrestricted Adjustment Coefficients (alpha):

D(HCI)	2.642157	0.339097
D(LOG(ZAK))	-0.011005	0.116819

1 Cointegrating Equation(s):	Log likelihood	-24.47955

Normalized cointegrating coefficients (standard error in parentheses)

HCI	LOG(ZAK)
1.000000	3.402506
	(0.65981)

Adjustment coefficients (standard error in parentheses)

D(HCI)	-0.645023
	(0.14342)
D(LOG(ZAK))	0.002687
	(0.01151)

Appendix 02

Date: 09/12/17 Time: 22:14
Sample (adjusted): 1992 2006
Included observations: 15 after adjustments
Trend assumption: Linear deterministic trend
Series: HCI RGDP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.429010	10.23892	15.49471	0.2628
At most 1	0.115039	1.833173	3.841466	0.1758

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.429010	8.405746	14.26460	0.3389
At most 1	0.115039	1.833173	3.841466	0.1758

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

HCI	RGDP
-0.099955	0.592048
-0.101345	-1.403596

Unrestricted Adjustment Coefficients (alpha):

D(HCI)	1.566179	0.857988
D(RGDP)	-0.393257	0.190059

1 Cointegrating Equation(s):	Log likelihood	-54.12086

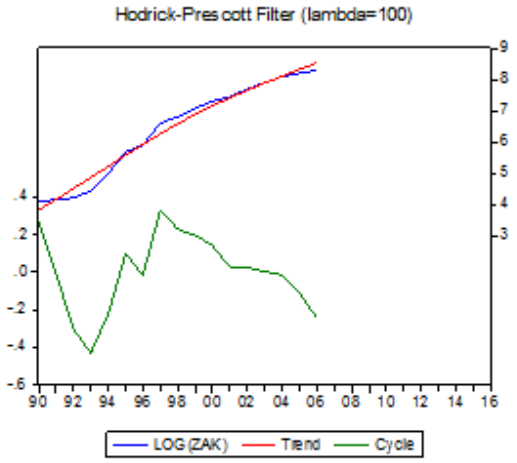
Normalized cointegrating coefficients (standard error in parentheses)

HCI	RGDP
1.000000	-5.923169
	(4.89686)

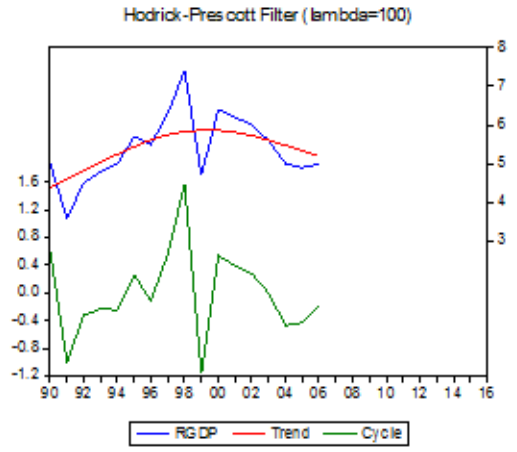
Adjustment coefficients (standard error in parentheses)

D(HCI)	-0.156547
	(0.09369)
D(RGDP)	0.039308
	(0.02173)

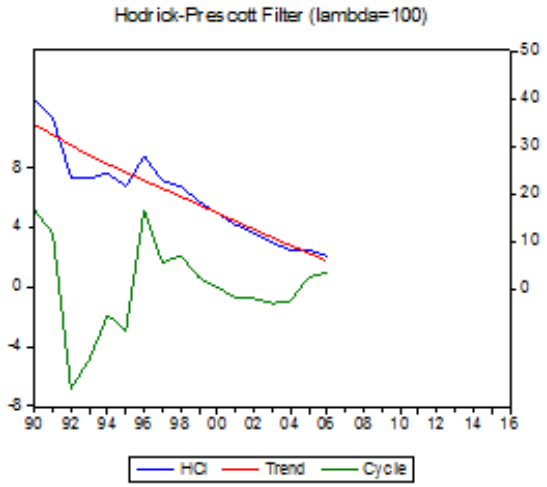
Appendix 03



Appendix 04



Appendix 05



Appendix 06

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	4.009739	Prob. F(1,14)	0.0650
Obs*R-squared	3.784928	Prob. Chi-Square(1)	0.0517

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 09/14/17 Time: 17:34

Sample: 1990 2006

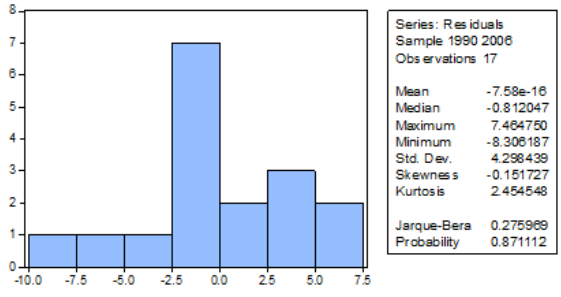
Included observations: 17

Presample missing value lagged residuals set to zero.

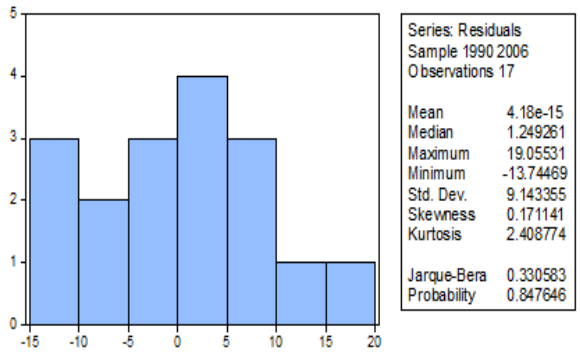
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.122280	4.343436	0.028153	0.9779
LOG(ZAK)	-0.029209	0.659479	-0.044291	0.9653
RESID(-1)	0.476595	0.238008	2.002433	0.0650

R-squared	0.222643	Mean dependent var	-7.58E-16
Adjusted R-squared	0.111592	S.D. dependent var	4.298439
S.E. of regression	4.051512	Akaike info criterion	5.794842
Sum squared resid	229.8064	Schwarz criterion	5.941880
Log likelihood	-46.25616	Hannan-Quinn criter.	5.809458
F-statistic	2.004870	Durbin-Watson stat	1.358714
Prob(F-statistic)	0.171532		

Appendix 07



Appendix 08



Appendix 09

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	15.44087	Prob. F(1,14)	0.0015
Obs*R-squared	8.916001	Prob. Chi-Square(1)	0.0028

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/14/17 Time: 18:15
Sample: 1990 2006
Included observations: 17
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.397372	10.52604	-0.797771	0.4383
RGDP	1.438436	1.923773	0.747716	0.4670
RESID(-1)	0.799912	0.203567	3.929488	0.0015

R-squared	0.524471	Mean dependent var	4.18E-15
Adjusted R-squared	0.456538	S.D. dependent var	9.143355
S.E. of regression	6.740470	Akaike info criterion	6.812922
Sum squared resid	636.0752	Schwarz criterion	6.959959
Log likelihood	-54.90983	Hannan-Quinn criter.	6.827537
F-statistic	7.720437	Durbin-Watson stat	1.335910
Prob(F-statistic)	0.005498		

Appendix 10

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	15.44087	Prob. F(1,14)	0.0015
Obs*R-squared	8.916001	Prob. Chi-Square(1)	0.0028

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/14/17 Time: 18:54
Sample: 1990 2006
Included observations: 17
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.397372	10.52604	-0.797771	0.4383
RGDP	1.438436	1.923773	0.747716	0.4670
RESID(-1)	0.799912	0.203567	3.929488	0.0015

R-squared	0.524471	Mean dependent var	4.18E-15
Adjusted R-squared	0.456538	S.D. dependent var	9.143355
S.E. of regression	6.740470	Akaike info criterion	6.812922
Sum squared resid	636.0752	Schwarz criterion	6.959959
Log likelihood	-54.90983	Hannan-Quinn criter.	6.827537
F-statistic	7.720437	Durbin-Watson stat	1.335910
Prob(F-statistic)	0.005498		

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