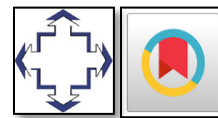# Analyses of Relationship between Economic Growth and Zakat Distribution: Some Comparative Studies between Indonesia and Malaysia

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ABSTRACT

Zakat serves as an economic instrument within the framework of Islam and can serve as a substantial source of revenue for the state, contributing to the funding of various expenditures. In contrast to alternative revenue streams, zakat possesses explicit and comprehensive guidelines on its acquisition and allocation. The state bears the task of maximizing the efficiency of zakat institutions to effectively mobilize and allocate zakat monies as a catalyst for economic development. Indonesia utilizes a bottom-up approach for the collection of zakat, whereas Malaysia follows a top-down approach. Therefore, the present investigation focuses aims to examine the impact of zakat distribution on economic development in two selected nations. The examination focused on many variables, including GDP, Gini index, inflation, and zakat distribution. The period for the analysis spanned from 2001 to 2019, and the ARDL approach is being used for the purpose of doing data analysis. The findings suggest that the distribution of zakat did not exert a statistically significant impact on economic development, either in the short-term or long-term, within the contexts of both nations. Therefore, there is a need to promote the professional and efficient management of zakat to enhance its collection and facilitate its effective distribution.

1. Introduction

The aspiration for progress is a commonly held goal across nations, regarded as both rational and inherent in the process of constructing a nation (Todaro, 1993). Evaluation of development initiatives is conducted by analyzing the magnitude of output expansion and national revenue. Economic growth is universally prioritized in all countries as a crucial indicator of successful development (Tambunan, 2016). Within the framework of developing nations, the need to attain economic expansion emerges as a crucial requirement to narrow the disparity between these countries and their more advanced counterparts. Djadjuli (2018) states that the primary aim of national economic development is to attain economic growth. According to Mulyani et al. (2017), the main objective is to achieve the highest level of economic growth. The assessment of a country's economic prosperity encompasses multiple notions, among which is Gross Domestic Product (GDP) (Yuliadi, 2019).

In addition, many studies also illustrate in relation with economic growth, given that its importance towards economic development. Pertiwi et al (2021) states that economic growth relates with environmental issue. In addition, given some social issues exist, economic growth can affect poverty level (Yani et al, 2022; Susilo, et al, 2020), government spending – social and subsidy (Maulid et al, 2021; Susilo et al, 2020; Abdillah, 2023), human capital development, including education budget increase and creating job widely (Rismawan et al, 2021; Abdillah et al, 2020; Susilo et al, 2020). Meanwhile, other studies find that economic growth is influenced by the macroeconomic variables, such as interest rate following business cycle (Melati and Kurniawan, 2023) and government expenditure, inflation, and the trade balance (Sujianto, and Azmi, 2020). Above studies then mostly discuss issue on economic growth from macro and social point of view, but not from social finance, such as Zakat.

In early 2019, the world saw the extensive repercussions of the COVID-19 pandemic, resulting in substantial disruptions across various sectors, including social, economic, health, and financial realms. The global economic growth rate has decreased due to restrictions placed on human activities (Table 1). Several nations have employed fiscal and monetary stimuli to support and maintain economic growth. Nevertheless, the effectiveness and operation of monetary policies have been the subject of continuous debate and examination (Karim, 2010). Yuliadi (2016) states that fiscal strategies were utilized to control aggregate demand by means of government budgets and tax rates. Furthermore, Table 1 compares the economic and zakat growth in both Indonesia and Malaysia. Empirically, there is a consistent correlation between the expansion of zakat and the subsequent increase in economic growth, both in Indonesia and Malaysia. This suggests that an increase in zakat collection can boost economic growth by enhancing consumer demand through increased purchase activities. Zakat can enhance the purchasing power parity of the underprivileged and thereafter be utilized for the acquisition of goods or services.

Table 1. Economic and Zakat Growth in Indonesia and Malaysia (in Percentage)

| No | Years | Country | | | |
| | | Indonesia | | Malaysia | |
		Economic Growth	Zakat Growth	Economic Growth	Zakat Growth
1	2015	4.9	10,64	5.1	4,6
2	2016	5.0	37,45	4.4	4,1
3	2017	5.1	24,06	5.8	6,0
4	2018	5.2	30,42	4.8	5,86
5	2019	5.0	26,10	4.3	4,77

Source: World Bank (2020)

According to prevailing economic perspectives, the development assessment relies on measuring overall production growth. In this case, Islam considers development as a comprehensive concept that includes various aspects, such as moral, social, political, and economic factors, with the aim of reducing income inequalities (Mannan, 1993). Islamic economics is a system that derives its policies from the teachings of the Al-Quran and the Sunnah of the Prophet Muhammad. During the time of Prophet Muhammad, zakat and alms were important sources of state revenue. According to Mannan (1993), governments in Islamic countries can use progressive taxation to finance social programs using zakat profits.

In Malaysia, the management and supervision of zakat is decentralized, with each state independently governing and overseeing its own zakat system. The administration of zakat is supervised by the Islamic Religious Council in each specific area, with the Zakat Collection Center (PPZ) functioning under the Federal Territory Islamic Religious Council (MAIWP) for the federal territories (Nizar & Falikhatun, 2020).

However, the management of zakat in Indonesia is overseen by two legislative acts, namely Law No. 38 of 1999 and Law No. 23 of 2011. These acts explicitly deal with the regulation and administration of zakat. There are two separate classifications of zakat management organizations: The two organizations being discussed are Badan Amil Zakat (BAZ) and Lembaga Amil Zakat (LAZ). The Badan Amil zakat is an important governmental organization that oversees the national-level management of zakat. LAZ functions as a subsidiary entity that works together with BAZ to simplify the collection, distribution, and allocation of zakat. The community founded LAZ to assist BAZ in achieving its zakat-related goals. Currently, Indonesia boasts an extensive network consisting of 548 Zakat Management Organizations. According to BAZNAS, there is one National BAZNAS, 34 Provincial BAZ, 463 Regency/City BAZ, 28 National LAZ, 19 Provincial LAZ, and 41 Regency/City LAZ.

While the relationship between zakat and economic growth is widely acknowledged, empirical investigations have not yet yielded definitive findings. Anggraini (2016) and Robi (2019) shown that zakat exerts a favorable and substantial impact on economic growth by means of income multiplier and productivity enhancement. Meanwhile, Maulidiyah (2018) discovered that zakat has a positive impact on economic growth, but only in the long term. This is because its multiplier effect requires a longer period to have an impact on aggregate demand. In contrast, Mawaddah (2011) discovered that zakat has an impact on economic growth over an extended period. However, this impact is negative, primarily due to the unjust distributional mechanism employed by zakat administration. Tambunan (2016) concluded that zakat's impact on economic growth is limited by the lack of understanding among Muslim society, which in turn impacts the quantity of zakat collected. Therefore, considering the studies, the impact of zakat on economic growth remains uncertain due to factors like as the varying size of the Muslim community, the different approaches to zakat management, and the associated regulations.

Hence, this investigation yields noteworthy findings, especially regarding the utilized model. The ARDL method was employed to precisely estimate both immediate and prolonged patterns, particularly in cases of limited data availability and different degrees of stationarity. This paper investigates the differences in zakat development conditions between Indonesia and Malaysia, with a specific focus on the contrasting collection mechanisms and their potential consequences for economic growth in each nation. Thus, the objective of this research is to provide valuable insights on the role of zakat to economic growth, given the difference approaches taken by the two countries either in the short or long run. The expected results of this study are also forecasted to provide a scholarly and practical understanding of

the relationship between zakat and economic growth. These findings are expected to provide useful insights for future study in this field.

2. Literature Review
Theoretical overview

The Harrod-Domar model, an economic growth hypothesis, was developed by economists Evsey Domar and RF Harrod. Harrod first published his theory in 1939 in the Economic magazine, while Domar later introduced his idea in 1947 in the American Economic Review publication. According to Sukirno (2012), this theory seeks to clarify the necessary conditions that an economy must meet to achieve continuous and lasting growth over a long period of time. This theory includes three essential requirements: the optimization of capital goods production, a savings rate proportional to the national income, a stable capital-output ratio, and an economy with two different sectors. The notion of Gross Domestic Product (GDP) is utilized to measure the total income of a nation by evaluating the overall value of goods and services produced within the economy during a certain period (Yuliadi, 2019). The economic growth rate is computed by utilizing the following components:

$$G_t = \frac{(GDP_t - GDP_{t-1})}{GDP_t} \times 100\% \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(1)}$$

Information:
G_t : Economic growth in period t
GDP_t : Gross Domestic Product in period t
GDP_{t-1} : Gross Domestic Product in the previous period

Economic growth can be conceptualized as a dynamic phenomenon, rather than a static snapshot of the economy at a specific point in time. To fully understand the economy's dynamic nature, it is important to analyze it as a system that experiences temporal transitions, highlighting its inherent evolution (Utami et al., 2021). Adam Smith and David Ricardo are esteemed researchers who made substantial contributions to the development of classical economic growth theories. Arsyad (1997) attributes the systematic analysis of economic growth to Adam Smith, considering him as the pioneer. Smith has analyzed the long-term path of economic growth, including the key factors that influence it, such as overall expansion of production and population growth.

Previous research and hypotheses development
a. Gini index and economic growth

The Gini index was initially introduced by Corrado Gini, a distinguished Italian statistician, economist, and sociologist. The Gini index was initially introduced in 1912. The Gini index is utilized as a measure to evaluate the magnitude of income inequality within a specific country. In 1955, Simon Kuznets proposed the concept of an inverted U-curve, suggesting that throughout the early phases of development, there is an increasing gap in income distribution. Nevertheless, if a specific level of development is reached, income distribution tends to become more equal (Kuncoro, 2010).

Income inequality is a significant expression of disparity within a country, creating a division between wealthy and poor individuals. This division is apparent not only in terms of monetary assets but also becomes visible geographically through the existence of developed and underdeveloped areas. Moreover, this phenomenon encompasses several sectors of the economy, where certain industries hold a position of dominance while others assume a subordinate role (Putri et al., 2015). The likelihood of a civilization achieving prosperity and

contentment is extremely low when many of its inhabitants are impoverished and experiencing suffering. Adam Smith argued in his influential book "Wealth of Nations" that an increase in money among a small group of individuals or favored social classes does not stimulate development and growth (Zweimüller, 2000). Baum and Smith (1992) argued that existing inequalities are not dependent on economic growth, stating that wealth and poverty will endure regardless of the economic conditions. Smith contends that economic advancement has the capacity to improve the quality of life for all sectors of society while preserving the underlying income distribution. Although inequalities are projected to persist, it is envisaged that the problem of absolute poverty will be successfully tackled.

H1: Statistically, the Gini index significantly negatively impacts Indonesia's and Malaysia's short- and long-term economic growth.

b. Inflation and economic growth

According to Atmadja (1999), Keynes presents an explanation of inflation in which it occurs when societal ambitions exceed economic capacities, resulting in an inflationary gap caused by aggregate demand surpassing the supply of goods. The limitation on the quantity of goods and services provided (Aggregate Supply) is a result of the inability to quickly increase production capacity to match the increase in overall demand.

Fiscal and monetary policies are commonly utilized to control inflationary pressures to sustain a stable and moderate inflation rate. The purpose of this method is to create advantageous economic circumstances and promote long-lasting economic growth. Multiple studies have examined the impact of inflation on economic growth. Nevertheless, the outcomes of these research display discrepancies resulting from differences in the acceptable level of inflation as a driver for economic growth. Ahmad (2022) conducted a study investigating the relationship between economic development and inflation in Pakistan. The results of his inquiry suggested that inflation had an adverse effect on the volatility of commerce. It indicates that maintaining a state of low and stable inflation can potentially boost commerce and prosperity, whereas high inflation can negatively impact trade and economic advancement. A study conducted by Ahmad (2022) found that Pakistan has an inflation threshold of 10%. This means that if inflation goes over this limit, it will lead to a decline in economic growth.

A literature review was undertaken on the scholarly work authored by Azam and Khan (2020). The maximum threshold for inflation in less developed nations was determined to be 12.2%, whereas in wealthy nations, it stood at 5.3%. This barrier functions as a focal point for the preservation of macroeconomic stability. This discovery is consistent with the investigation carried out by Sumon and Miyan (2017), which presents empirical proof endorsing a favorable correlation between inflation and the economy of Bangladesh. It is important to mention that during the study period, the inflation rates observed were consistently below 8%. Hasan et al. (2022) recently conducted research that found a negative impact linked to the inflation rate in Bangladesh.

The study undertaken by Adeniyi (2020) investigated the influence of inflation on economic progress in five randomly chosen African countries. The analysis revealed that inflation had heterogeneous impacts on the economic growth of these countries. In Egypt, inflation had a positive impact on the economy, but in Nigeria it had negative ramifications. Yuliadi and Prawoto (2017) argue that it is crucial to acknowledge that inflation has adverse effects that go beyond its influence on the government. Inflation has negative effects on individuals by reducing the purchasing power of those with fixed incomes, eroding the value of monetary assets, and exacerbating income inequality.

Regarding Indonesia, Adam et al (2022) demonstrate that employing the nonlinear model indicates that economic growth is adversely impacted by inflation only when it above a critical threshold of 9.59 percent. It suggests that a specific percentage increase in the inflation rate can have a positive impact on economic growth. This condition aligns with the Phillips curve theory, which suggests that in the short term it can stimulate economic growth through demand-side effects, but in the long term it can have a negative impact owing to supply-side effects. A study conducted by Munir et al (2009) in Malaysia similarly indicates the presence of an inflation threshold number, which represents a structural break point. If the inflation rate remains below the threshold amount, there is a positive correlation between inflation and economic growth. Therefore, the impact of inflation on economic growth is contingent upon its relationship to the threshold value.

H2: Statistically, inflation significantly positively impacts Indonesia's and Malaysia's short- and long-term economic growth.

c. Distribution of zakat funds and economic growth

Several scholarly investigations Diverse observations have been observed about the association between zakat and economic growth. Anggraini's (2016) research findings indicate that zakat has a significant and positive impact on economic growth. Distributing zakat payments gradually can improve the community's income and quality of life, resulting in a positive influence on economic growth. Based on a survey conducted by Robi in 2019, The research findings suggest that zakat has a beneficial effect on economic growth. However, the suggested influence becomes evident when zakat funds are directed towards productive initiatives that directly contribute to increasing productivity and stimulating economic growth.

On the other hand, according to Maulidiyah (2018) Maulidiyah's (2018) research, employing the VAR/VECM technique, concluded that zakat has a negligible effect on short-term economic growth. Over time, zakat has been found to have a positive impact on the economy since the collection and distribution of zakat funds have supported economic activities, including both consumption and production, through the multiplier effect. The study done by Mawaddah (2011) produced results that showed slight differences. The immediate effects of zakat may not be immediately visible, as the utilization of zakat funds for consumption and production activities has a more significant impact on long-term economic growth, especially through the mechanisms of aggregate supply and demand. However, empirical evidence indicates that zakat has a notable and negative effect on economic growth as time passes. The phenomenon can be ascribed to individuals' inclination to direct zakat donations primarily to their immediate family members instead of channeling them through zakat institutions, which possess the capacity to make a constructive contribution to economic advancement. In general, zakat can exert a favorable and noteworthy influence on the trajectory of economic progress. Nevertheless, the varying outcomes of these studies suggest that elements such as the effective allocation of zakat funds, fair distribution practices, and the level of zakat awareness are significant determinants in assessing the true influence of zakat on a country's economy, as exemplified by the case of Indonesia.

Furthermore, it is intriguing to compare the approaches employed in zakat management between Indonesia and Malaysia. In Malaysia, the management and supervision of zakat are decentralized, with each state independently governing and overseeing its own zakat system. The administration of zakat is supervised by the Islamic Religious Council in each specific region, with the Zakat Collection Center (PPZ) functioning under the Federal Territory Islamic Religious Council (MAIWP) for the federal territories (Nizar & Falikhatun, 2020). In

Indonesia, the management of zakat is regulated by two legislative acts, namely Law No. 38 of 1999 and Law No. 23 of 2011. These laws explicitly deal with the regulation and administration of zakat. There are two separate classifications of zakat management organizations: The two organizations being discussed are Badan Amil Zakat (BAZ) and Lembaga Amil Zakat (LAZ). The Badan Amil zakat is an important governmental organization that oversees the national-level management of zakat. Therefore, the differentiation approach can yield varying outcomes about the impact of zakat on economic growth.

H3: Statistically, the distribution of zakat funds significantly positively impacts Indonesia's and Malaysia's short-term and long-term economic growth.

Research Framework

Based on established hypotheses and relevant literature, it is seen that all variables have a beneficial impact on economic growth. The Gini index is characterized by an inverted U-curve, indicating that throughout the early stages of development, there is an increasing inequality in the distribution of income. However, once a specific level of development is reached, income distribution tends to become more equal. The occurrence of inflation can be attributed to the situation where societal desires exceed the economic capacity, resulting in a positive inflationary gap caused by aggregate demand surpassing the supply of goods (a demand-side effect). Meanwhile, the sign of zakat distribution refers to the systematic allocation of zakat monies, which can effectively improve the community's income and standard of living, while positively influencing economic growth.
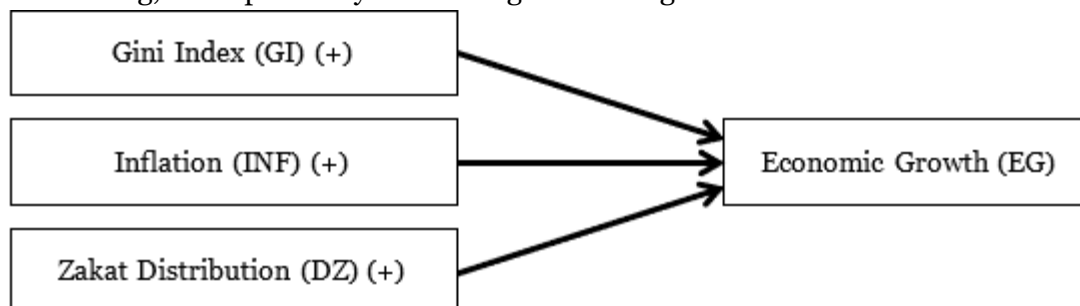

Figure 1. Research Framework

3. Research Method

This study employs some variables which come from Indonesia and Malaysia, as follows

a. Economic growth (EG) as dependent variable which was retrieved from World Bank. The economics growth is calculated through real gross domestic product (GDP at Constant Price) in yearly basis. The EG covers Indonesia (EGID) and Malaysia (EGMY)

b. Gini Index (GI) as independent variable which was obtained from world bank in yearly basis. The GI includes Indonesia (GIID) and Malaysia (GIMY)

c. Inflation Rate (INF) as independent variable which the data is taken from World Bank in yearly basis. The INF accommodates Indonesia (INFID) and Malaysia (INFMY)

d. Zakat Distribution (DZ) as independent variable which the data is from Badan Amil Zakat Nasional (BAZNAS) and Pusat Pungutan Zakat (PPZ) in yearly basis. The DZ includes Indonesia (DZID) and Malaysia (DZMY).

This section delineates the fundamental tactics utilized in the implementation of this work. The approaches employed included unit root tests and Bounds Tests for cointegration and causality within the framework of the ARDL (Autoregressive Distributed Lag) modeling methodology. The Pesaran et al. (2001) model, which was initially proposed, is advantageous

since it can be applied to variables with different integration levels, regardless of whether they are stationary (I (0)), have a unit root (I (1)), or are co-integrated.

The current study employed the Autoregressive Distributed Lag (ARDL) methodology to investigate the correlation between the distribution of zakat monies and economic growth in Indonesia and Malaysia from 2001 to 2019. The data were subsequently analyzed using EViews version 10. The secondary data were obtained from reliable sources, such as official publications like the World Bank, governmental statistical organizations, Indonesian and Malaysian Zakat Amil Institutions, and reputable journals indexed in Scopus. The following section outlines the procedural sequence of the autoregressive distributed lag (ARDL) model employed in this study:

Data Stationarity Test

Prior to conducting regression analysis using the ARDL Model, it is essential to determine the stationarity of the variables included in the study. Non-stationary research data will result in false regression. The determination of the stationarity of time series data is achieved through the application of a unit root test. The researchers conducted unit root testing using the Augmented Dickey-Fuller Test (ADF), a method devised by Dickey-Fuller. The significance threshold used was 5% (Basuki and Prawoto, 2015). When conducting a unit root test on time series data, Dickey-Fuller recommends estimating the following models: (1) Model excluding the constant term (intercept) and time trend, (2) The model incorporates a fixed (intercept) term without a temporal trend, (3) The model incorporates a fixed value (intercept) and a temporal trend.

The method for evaluating the model estimation outcomes involves examining the t-statistics, which are then compared to the MacKinnon critical value test at a significance level of 5%. If the t-statistic value is below the 5% significance level, then the null hypothesis (H0) is accepted, indicating the presence of a unit root in the data, which implies that the data is not stationary. Conversely, if the t-statistic value exceeds the 5% significance level, then the null hypothesis (H0) is rejected in favor of the alternative hypothesis (H1), indicating that the data does not exhibit a unit root and is therefore stationary. The ARDL model does not include disparities in the levels of stationarity, whether at level I (0) or first difference level I (1), and is not applicable if the variable is stationary at the second difference I (2) (Katrakilidis and Trachanas, 2012).

Optimum Lag Test

Following the completion of the data stationarity test, the analysis proceeds with the optimal lag test. The purpose of the lag function in the ARDL model is to demonstrate the impact of time intervals on observations. The ARDL model selection provides different approaches, such as the Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC), for choosing the most suitable model. To select the optimal lag, it is preferable to choose the lag with the lowest value of the AIC criterion, since a smaller AIC value indicates higher performance. Meanwhile, SBC serves the same purpose as AIC, but SBC imposes a more substantial penalty for extra coefficients (Falianty 2003 in Fadhilah and Sukmana, 2017). Optimum lag testing is beneficial for resolving autocorrelation issues (Nugroho, 2009 in Basuki and Prawoto, 2015).

Classical Assumption Test.

Diagnostic test to test whether there is a violation of basic econometric assumptions (Fadhilah and Sukmana, 2017).

a. Normality test

The Normality Test is conducted to ascertain the normal distribution of the residuals. The validity of the significance test relies on the assumption that the residuals obtained follow a normal distribution. If the Jarque-Bera probability value exceeds the significance level α = 0.05, it can be concluded that the data being analyzed follows a normal distribution. (Basuki and Prawoto, 2015).

b. Autocorrelation Test

The autocorrelation test is employed to examine the presence of correlation among elements within a sequence of observations. When there is correlation in the model, the estimated parameters are affected by bias and the model becomes less efficient. To ascertain the presence of correlation in the model, employ the Lagrange Multiplier (LM) test. The presence of autocorrelation can be determined by examining the Chi-Square probability value (). If the Chi-Square Probability value () is higher than α = 0.05, it indicates the absence of autocorrelation (Basuki and Prawoto, 2015).

c. Heteroscedasticity Test

The Heteroscedasticity Test is conducted to assess whether there is a disparity in the variance of the residuals between different observations in the regression model. The Breusch-Pagan test was employed to assess heteroscedasticity in this study. If the value of the chi-square probability is greater than the significance level α = 0.05, then it indicates the presence of heteroscedasticity in the model (Basuki and Prawoto, 2015).

ARDL model estimation and Cointegration Bound test

The study utilized cointegration tests to determine the existence of a persistent relationship between variables (Basuki & Prawoto, 2015). The ARDL model utilizes limit tests to assess the presence of long-term connections. The assessment of the results obtained from the Bounds test was performed by examining the value of the F-statistic. According to the research conducted by Zaretta and Yovita (2019), if the F-statistic value exceeds the critical value at significance levels of 10%, 5%, 2.5%, and 1%, with a lower bound value of I (0) and an upper limit value of I (1), it can be inferred that there is cointegration in the long-term relationship.

Furthermore, the Error Correction Model (ECM) was employed to ascertain the short-term and long-term equilibria inside the given Autoregressive Distributed Lag (ARDL) model. The coefficient of the Error Correction Term (ECT) in the Error Correction Model (ECM) signifies the rate at which the variables will converge towards the long-term equilibrium. To establish its credibility, the co-integrated variables must exhibit error correction term (ECT) coefficients that are both statistically significant and negative, as highlighted by Ozturk and Acaravci (2010).

The current study utilized the Autoregressive Distributed Lag (ARDL) model to investigate the correlation between the Gini index, inflation, zakat distribution, and economic progress. The ARDL model can be expressed in the following general form:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta y_{t-1} + \sum_{i=0}^{n} \delta_1 \Delta y_{t-1} + \delta_1 y_{t-1} + \delta_2 x_{t-1} + e_t \dots\dots\dots\dots\dots\dots (2)$$

Where:

β_t, δ_t : Coefficient of short-term

φ_1, φ_2 : Coefficient of long-term

e_t : *error term*

ARDL model short-term equation is as follows:

$$\sum_{i=1}^{n} \beta_1 \Delta y_{t-1} + \sum_{i=0}^{n} \delta_1 \Delta y_{t-1} \text{...} (3)$$

ARDL model long-term equation is as follows:

$$\delta_1 y_{t-1} + \delta_2 x_{t-1} \text{...} (4)$$

Stability test
This study utilized stability tests to evaluate the consistency of coefficients over both brief and extended timeframes. The stability testing was conducted using the CUSUM and CUSUMQ methods, which include calculating the cumulative sum of recursive residuals and the cumulative sum of the square of recursive residuals, respectively. According to Zaretta & Yovita (2019), if the CUSUM line remains inside the upper and lower boundaries at a significance level of 5%, it can be inferred that the model estimates are stable.

Estimating the short term and long term based on the selected ARDL model
An error correction model (ECM) is employed to achieve equilibrium in both the short-term and long-term within the chosen ARDL model. The ECT coefficient indicates the speed at which the variables reach equilibrium. It is considered legitimate if the cointegrating variables are accompanied by a statistically significant Error Correction Term (ECT) coefficient, which has a negative sign (Ozturk and Caravci, 2010).

4. Results and Discussion
Results
a. Data Stationarity Test
The study employed the Autoregressive Distributed Lag (ARDL) model and conducted unit root tests to evaluate the stationarity of the variables at the I (0) level and first difference I (1), while ensuring that no variables displayed stationarity at the second difference I (2) (Pesaran et al., 2001). The outcomes of the unit root test, namely the Augmented Dickey-Fuller test, as presented in Table 2, demonstrate that certain variables did not meet the test criteria at the required level. Therefore, it was necessary to conduct further testing at the first difference level to confirm that all variables achieved stationarity at this level. The ARDL model was considered appropriate because of the discrepancy in stationarity.

Table 1.Stationarity test results

Variable	Indonesia		Variable	Malaysia	
	Level	First Difference		Level	First Difference
	Prob	Prob		Prob	Prob
EGID	0.0317	0.0009	EGMY	0.0003	0.0058
GIID	0.1113	0.0113	GIMY	0.3458	0.0001
INFID	0.0185	0.0001	INFMY	0.0262	0.0002
LNDZID	0.0000	0.0000	LNDZMY	0.8832	0.0000

Note* EG (Economic growth), Gi (Gini index), INF (Inflation), LNDZ (Distribution Zakat Funds in logarithm form), ID (Indonesia), MY (Malaysia).
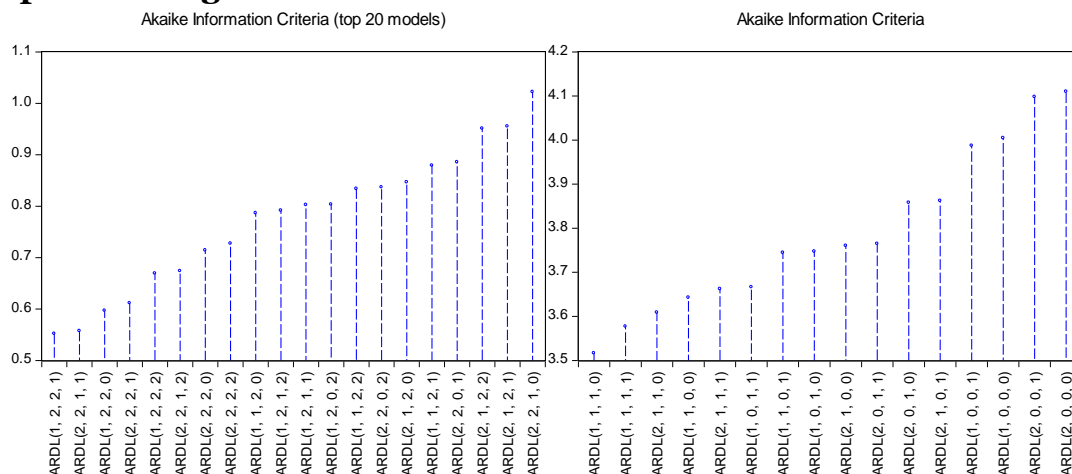Source: Author's calculation

b. Optimum Lag Test

Figure 2. Optimum lag selection of Indonesia (left) and Malaysia (right)
Source: Author's calculation

Figure 2 (left) illustrates a collection of 20-time delays assessed using the AIC criterion. The optimal lag selection outcome was found by the AIC criteria, namely by identifying the lag with the lowest value. The ARDL model to be estimated followed the generic form specified by equations 3 and 5.

$$Y_t = \beta_1 Y_{t-1} + \beta_2 X_{1t} + \beta_3 X_{1t-1} + \beta_4 X_{1t-2} + \beta_5 X_{2t} + \beta_6 X_{2t-1} + \beta_7 X_{2t-2} + \beta_8 logX_{3t} + \beta_9 logX_{3t-1} + e_t \dots\dots\dots(5)$$

In the occurrence of Malaysia, as depicted in Figure 1 (right), the ARDL model (Eq. 2) to be evaluated assumed the following general form:

$$Y_t = \beta_1 Y_{t-1} + \beta_2 X_{1t} + \beta_3 X_{1t-1} + \beta_5 X_{2t} + \beta_6 X_{2t-1 +} \beta_8 logX_{3t} + e_t \dots\dots\dots\dots(6)$$

c. Classical Assumption Test

Figure 3 displays the results of the normality test performed on the Indonesian dataset, indicating a Jarque-Bera probability (JB) of 0.986110. The Jarque-Bera probability (JB) for Malaysia in Figure 4 was recorded as 0.891725. Therefore, it may be deduced that the research data followed a normal distribution, as indicated by the Jarque-Bera probabilities exceeding the significance level of $\alpha = 0.05$ (Basuki & Prawoto, 2015).
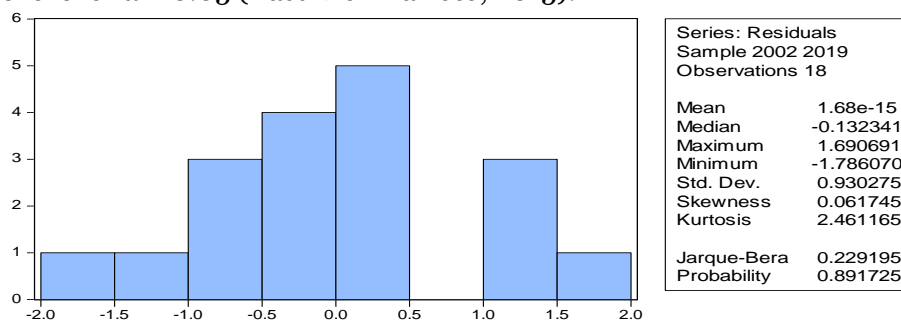

Figure 3. Normality test of Indonesia
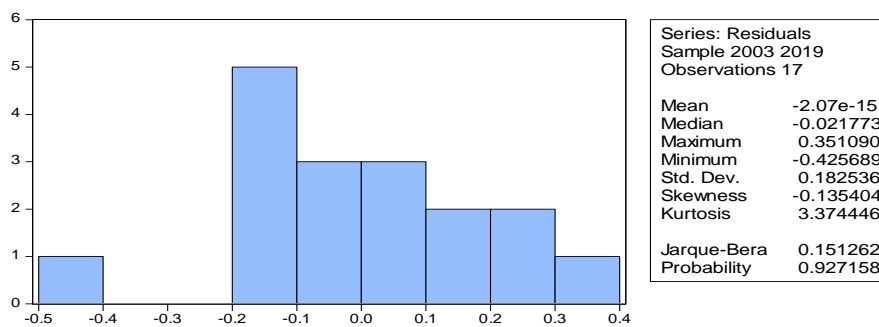Source: Author's Calculation

Figure 4. Normality test of Malaysia
Source: Author's Calculation

Based on the information presented in Table 3, the Chi-Square probability for Indonesia was observed to be 0.1544, whereas the Chi-Square probabilities for Malaysia were recorded as 0.3432. Based on the statistical analysis conducted by Basuki and Prawoto (2015), it can be inferred that the observed probabilities, exceeding the predetermined threshold of α = 0.05, provided evidence to support the absence of autocorrelation in the research.

Table 3. Autocorrelation test results

	Indonesia	Malaysia
Prob. Chi-Square (2)	0.1544	0.3432

Source: Author's calculation

By applying data from Table 4, the Chi-Square probabilities (9) for Indonesia and Malaysia were 0.4456 and 0.3387, respectively. It is worth noting that both probabilities exceeded the predetermined significance level of α = 0.05. This finding suggests that the study model demonstrated homoscedasticity, referring to constant variance in the data (Basuki & Prawoto, 2015).

Table 4. Heteroscedasticity test results

	Indonesia	Malaysia
Prob. Chi-Square (9)	0.4456	0.3387

Source: Author's calculation

d. ARDL Model Estimation, Cointegration Bound test, and estimating short-long term relationship

The findings from the cointegration analysis conducted using the Bounds Test, as presented in Table 5, indicated that the F-statistic for Indonesia was 4.915270, whereas Malaysia's was 9.701845. Both F-statistic values exceeded the lower and upper boundaries at a significance threshold of α = 0.05. Based on the findings of Zaretta and Yovita (2019), it may be inferred that a sustained correlation existed between the variables.

Table 5. Bounds test

Indonesia			Malaysia		
T-test	Value	k	*T-test*	Value	K
F-test	4.915270	3	*F-test*	9.701845	3
Sign.	I (0) *Lower Bounds*	I (1) *Upper Bounds*	Sign.	I (0) *Lower Bounds*	I (1) *Upper Bounds*
10%	2.72	3.77	10%	2.72	3.77
5%	3.23	4.35	5%	3.23	4.35
2,50%	3.69	4.89	2,50%	3.69	4.89
1%	4.29	5.61	1%	4.29	5.61

Source: Author's calculation

Table 6 displays the outcomes of the short-term regression analysis conducted for Indonesia. These results can be expressed mathematically in the following equation:

$$GDP_t = 0.288572\ X_{1t} + 0.077727\ X_{2t} - 0.338068\ X_{3t} - e_t \dots\dots\dots(7)$$

Table 6. Indonesia's short-term regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GIID)	0.288572	0.100078	2.883481	0.0163
D(INFID)	0.077727	0.031328	2.481098	0.0325
D(LNDZID)	-0.338068	0.234552	-1.441333	0.1801
CointEq (-1)	-0.836842	0.231628	-3.612873	0.0047

Note: GI* (Gini index), INF* (inflation), LNDZ* (distribution zakat funds), CointEq (-1) * (error correction term).
Source: Author's calculation

In the investigation, the coefficient for the Error Correction Term was -0.836842. It indicates the model would undergo correction in the presence of a short-run error and ultimately converge back to its long-run equilibrium at approximately 9.6 months, rounded to 10 months.

The equation representing the findings of the short-run regression test for Malaysia, as presented in Table 7, is as follows:

$$GDP_t = 0.764956\ X_{1t} - 0.082905\ X_{2t} - 0.190204\ X_{3t} - e_t \dots\dots\dots(8)$$

Table 7. Malaysia's short-term regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GIMY)	0.764956	0.251352	3.043.362	0.0112
D(INFMY)	-0.082905	0.279422	-0.296701	0.7722
D(LNDZMY)	0.190204	0.827920	0.229737	0.8225
CointEq (-1)	-0.826955	0.173771	-4.758.867	0.0006

Note: GI* (Gini index), INF* (inflation), LNDZ* (distribution zakat funds), CointEq (-1) * (error correction term).
Source: Author's calculation

The investigation revealed a coefficient of -0.826955 for the Error Correction Term. It indicates that in the presence of a short-term error, the model would adjust and restore its long-run equilibrium within approximately 9.6 months or rounded to 10 months.

The equation representing the long-run estimation results for Indonesia in the ARDL model can be derived from the data presented in Table 8:

$$GDP_t = -0.019819\ X_{1t} + 0.020369\ X_{2t} + 0.000791\ X_{3t} - e_t \dots\dots\dots(9)$$

Table 8. Indonesia's long-term regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GIID	-0.019819	0.077183	-0.256780	0.8026
INFID	0.020369	0.055396	0.367693	0.7208
LNDZID	0.000791	0.138422	0.005715	0.9956
C	6.053.228	2.902.752	2.085.341	0.0636

Note: GI* (Gini index), INF* (inflation), LNDZ* (distribution zakat funds), C* constant.
Source: Author's calculation

The information in Table 9 can be used to generate the equation that represents the long-run estimation outcomes for Malaysia in the ARDL model:

$$GDP_t = 0.219704\ X_{1t} - 0.715255\ X_{2t} + 0.230005\ X_{3t} - e_t \dots\dots\dots(10)$$

Table 9. Malaysia's long-term regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GIMY	0.219704	0.400311	0.548833	0.5941
INFMY	-0.715255	0.589046	-1.214.260	0.2501
LNDZMY	0.230005	0.986638	0.233120	0.8199
C	-6.983.090	35.122.449	-0.198821	0.8460

Note: GI* (Gini index), INF* (inflation), LNDZ* (distribution zakat funds), C* constant.

Source: Author's calculation

e. Stability test

According to the findings in Figures 5 and 6, the stability tests conducted using CUSUM and CUSUMQ at a significance level of 5% demonstrated that the data tended towards stability throughout the research period. It is evident from the observation that the blue line remained within the confines of the upper and lower red boundary lines (Zaretta & Yovita, 2019).
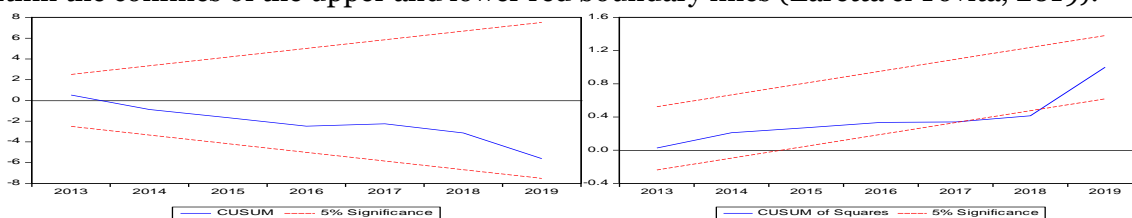

Figure 5. Indonesia's stability test
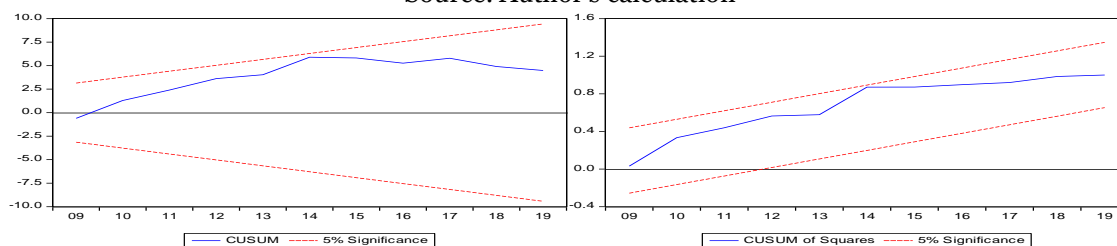
Source: Author's calculation

Figure 6. Malaysia's stability test

Source: Author's calculation

Discussion

The discussion encompasses the underlying reasoning behind the outcomes derived in the preceding sub-chapters. The arguments are formulated using current research and provide compelling justifications, including the explanation for the statistical link between independent factors and the dependent variable. Furthermore, the explanations consider the present state of zakat management in Indonesia and Malaysia, allowing for a coherent and comprehensive explanation of the statistical link in a broader context.

a. Gini index on economic growth in the short-term

The findings of this study demonstrated a strong and statistically significant association between the Gini index and economic growth in Indonesia and Malaysia, thereby confirming hypothesis H1. The findings reported in this study are consistent with the research conducted by Forbes (2000) and Sulaiman et al. (2017). Munir and Bukhari (2020) suggest that their data support the presence of a Kuznets hypothesis, which proposes a non-active U-shaped relationship. This means that income inequality in emerging countries tends to increase at first and then decrease after reaching a certain threshold. The observed trend is ascribed to the shift of workforce from the agricultural industry to more technologically sophisticated sectors, leading to an initial increase in income inequality. However, when the economy advances and workers move to different industries, there is a noticeable decrease in income disparity (Mdingi & Ho, 2021).

Furthermore, in the context of classical and neoclassical growth theories, there is a perception that income inequality contributes to the promotion of economic progress. The higher economic growth rates can be attributed to the wealthier individuals' inclination towards more savings, resulting in increased investment (Castells-Quintana & Royuela, 2017). Although wealth disparity might potentially contribute to economic progress, it is generally regarded as a negative phenomenon because it tends to hinder the economy from reaching its full potential (Baharudin et al., 2016; Joshi, 2017).

b. Inflation on economic growth in the short-term

The presence of inflation in Indonesia has a beneficial and statistically significant effect on the country's economic growth, hence confirming hypothesis H2. This finding aligns with prior research undertaken by experts such as Hidayat et al. (2014), Majumder (2016), and Umaru and Zubairu (2012). The Keynesian model demonstrates the positive relationship between moderate inflation and economic growth, suggesting that inflation can potentially have beneficial effects by promoting increased productivity. Demand-pull inflation can result in a modest rise in prices, which encourages enterprises to raise their production and improve their profitability. Producers and merchants are motivated to increase production and sales because of the low and stable inflation rates, as inflation is known to lead to higher prices and profits. As stated by Hidayat et al. (2014), this occurrence leads to an increase in overall demand, finally resulting in enhancements in economic performance and growth.

Nevertheless, the research on Malaysia did not support Hypothesis 2, as it demonstrated that inflation had a negative effect on economic growth in Malaysia, albeit this effect was statistically insignificant. The Keynesian hypothesis highlights the crucial role of the rise in aggregate demand as the primary driver of demand-pull inflation. The Malaysian economy is highly reliant on domestic spending. Government measures, such as enacting tax cuts and giving monetary aid, play a vital role in maintaining the stability of aggregate demand for consumption. While inflation can have adverse effects on the economy, too low inflation rates can lead to stagnation or economic recession. Therefore, the key objective for the country is to determine a growth rate that is consistent with maintaining stable inflation rates (Ardiyansyah, 2017; Mallik & Chowdhury, 2001). In summary, elevated inflation leads to a lack of clarity in pricing, which in turn diminishes consumer expenditure, decreases demand, and undermines economic expansion (Bonsu & Muzindutsi, 2017; Rahman, 2015). According to Ahmad (2022), keeping inflation at a consistent level below 10% can promote commerce and economic well-being. On the other hand, a significant increase in inflation could have a negative impact on commerce and hinder economic advancement.

c. Distribution of zakat fund on economic growth in the short-term

Based on the findings of this study, it may be inferred that the distribution of zakat monies did not have a statistically significant impact on the economic growth of Indonesia. Consequently, hypothesis H3 is invalidated. This finding offers a divergent viewpoint from the study conducted by Anggraini (2016), which argued that zakat had a significant influence on economic growth. However, the current analysis aligns with the research undertaken by Mustopa (2020), Ridlo and Setyani (2020), Setyani (2019), Tambunan (2016), and Zahro (2017) since they all reached the same conclusion that zakat does not have a significant influence on economic development. The limited impact on zakat might be ascribed to its decentralized allocation by individuals, circumventing zakat agencies. As a result, this method does not produce significant impacts on economic growth (Ridlo & Setyani, 2020). Other scholarly examinations have concluded that the lack of considerable influence can be related

to the uneven distribution of zakat, which is primarily focused in large urban areas. Furthermore, Tambunan (2016) states that despite Indonesia's substantial Muslim population within the ASEAN region, the zakat variable has not successfully increased the country's GDP. The failure to fully utilize the potential of zakat is attributable to this.

Similarly, it can be noted that the allocation of zakat in Malaysia had minimal influence on the country's overall economic expansion. The study conducted by Saad and Abdullah (2014) found that the distribution of zakat in Malaysia did not have a significant effect on the rate of economic growth. The reason for this result can be ascribed to the allocation of zakat predominantly focusing on fisabilillah, which relates to religious purposes, rather than giving priority to aiding needy and underprivileged individuals. Directing zakat money towards the advancement of religious organizations can offer long-lasting benefits, such as facilitating educational scholarships and improving the social welfare of zakat recipients. In contrast, Suprayitno (2019) contends that zakat possesses considerable capacity as a catalyst for human development, particularly by directing zakat monies towards education and empowering human resources. Consequently, it can enhance the overall welfare of individuals who receive zakat.

d. Gini index on economic growth in the long-term

The study findings indicate that the Gini index does not exert a substantial impact on the sustained economic growth of Indonesia and Malaysia. This discovery refutes the original hypothesis (H1). Nevertheless, it is crucial to acknowledge that despite the possibility of attaining robust economic expansion, there are enduring discrepancies in development, encompassing gaps in income, geographical distribution, and sectoral imbalances, which endure in both nations. Adam Smith's theories in his influential work "The Wealth of Nations" contend that the accumulation of wealth in the hands of a small group of persons does not contribute to the overall improvement and advancement of society. Smith argued that inequality is not dependent on economic advancement, stating that riches and poverty will endure regardless of the current economic conditions. Smith hypothesized that economic growth has the capacity to improve the quality of life for all segments of society without changing the current income distribution, hence providing a solution to the problem of absolute poverty (Baum & Smith, 1992; Putri et al., 2015). Nevertheless, it is crucial to uphold a moderate degree of income inequality to alleviate detrimental impacts on a country's economy.

e. Inflation on economic growth in the long-term

The study's findings suggest that inflation did not have a significant impact on the long-term economic growth of Indonesia and Malaysia. This outcome refutes hypothesis H2 and aligns with the tenets of classical economic theory. The classical growth model, as elucidated by Adam Smith, emphasizes the crucial importance of the supply side in driving economic growth. Classical economics posits that market fluctuations are temporary occurrences that will eventually fade through market dynamics. The prevailing view is that demand and supply are intrinsically in equilibrium, preventing any occurrence of surplus output. Moreover, the ability to adjust income and pricing levels enables them to quickly respond to changes in the market. The growth model proposed by Solow and Swan in 1956 suggests that continuous economic growth is primarily influenced by scientific innovation and technological advancements, which replace investment (capital accumulation) as the main catalyst for economic expansion. The exogenous nature of technical change indicates that it is unaffected by external factors, such as inflation (Atmanti, 2017; Datta & Mukhopadhyay, 2011; Gokal & Hanif, 2001).

f. Distribution of zakat fund on economic growth in long-term

The data indicate that the allocation of zakat in Indonesia had a restricted impact on economic growth, suggesting that its complete potential had not been actualized. Therefore, hypothesis H3 was disproven. It is essential to widely spread information on the importance of zakat, specifically productive zakat, to promote a deeper comprehension among the public. Enhancing social interaction is crucial for expanding the number of muzakki (those who donate zakat), hence strengthening the country's economy. Government regulations play a crucial role in improving the effectiveness of transparent and easily accessible methods for collecting and distributing zakat to help persons in need. Moreover, it is crucial to enforce zakat as a compulsory duty, along with suitable sanctions for failure to comply, to improve its effectiveness. To maximize the potential of zakat, it is necessary to use a top-down approach, as recommended by several scholars (Asfarina et al., 2019; Beik & Qurroh, 2015; Hakim, 2016; Khasandy & Badrudin, 2019).

In Malaysia, hypothesis 3 was rejected because there was a beneficial influence of zakat distribution on economic growth, albeit it was not statistically significant. Hasan et al. (2019) found that zakat in Malaysia is primarily used to support religious institutions categorized under fisabilillah. It encompasses the allocation of scholarships to students, which enhances the enduring well-being of society. However, the utilization of zakat for business ventures is somewhat restricted in its extent (Akmar & Nasri, 2017). In their conducted study, Adnan et al. (2020) discovered that offering zakat in the form of consumptive support to mustahiq individuals may lead to a protracted dependence on zakat assistance, impeding their capacity to escape poverty. Yahaya and Ahmad (2018) argue that consumptive assistance only offers short-term remedies. Hence, it is crucial to offer efficient assistance to produce a quantifiable impact on the economy (Suprayitno, 2018).

g. Zakat management structure in Indonesia and Malaysia

The administration of Zakat in the Federal Territory of Malaysia is overseen by the Federal Territory Islamic Religious Council (MAIWP). MAIWP's institutional framework encompasses Baitulmal, which assumes the responsibility of managing zakat. MAIWP formed a subsidiary named Harta Suci Sendirian Berhad (Sdn Bhd), which is also known as the Zakat Collection Center (PPZ). PPZ functions as a privately-owned entity established by MAIWP to independently gather zakat funds. Furthermore, zakat funds are directed through MAIWP Baitulmal, which is an integral component of the government's institutional framework (Figure 7).
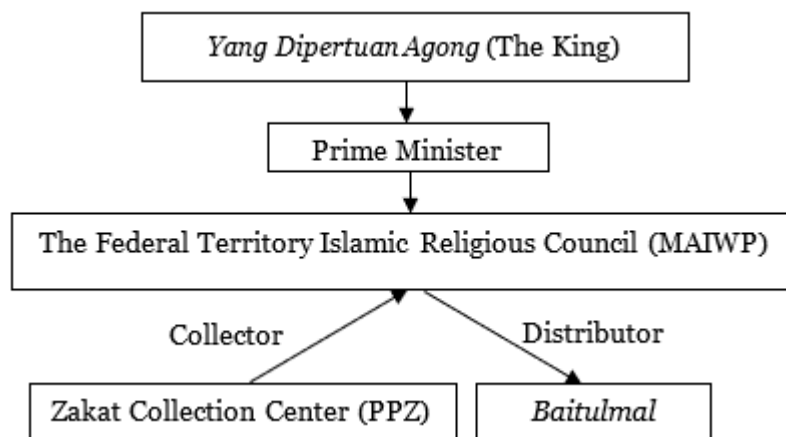

Figure 7. Zakat management in Malaysia
Source: Author's

BAZNAS is empowered to perform managerial duties, such as the collection, distribution, and utilization of zakat on a national scale. This organization is distinguished by its autonomy and responsibility to the president, which is aided through its direct affiliation with the ministry. The Provincial BAZNAS is responsible for carrying out management functions, such as the collecting, distribution, and utilization of zakat at the provincial level. The responsibility for this task is divided between BAZNAS and the Provincial Government. The Regency/City BAZNAS is responsible for the management of zakat at the Regency/City level, including activities such as the collecting, distribution, and utilization of zakat. This duty is performed under the oversight of either the province's BAZNAS or the local government of the Regency/City. Therefore, BAZNAS, Provincial BAZNAS, and Regency/City BAZNAS possess the jurisdiction to gather and allocate their individual zakat funds, as well as submit reports to the appropriate government and BAZNAS.
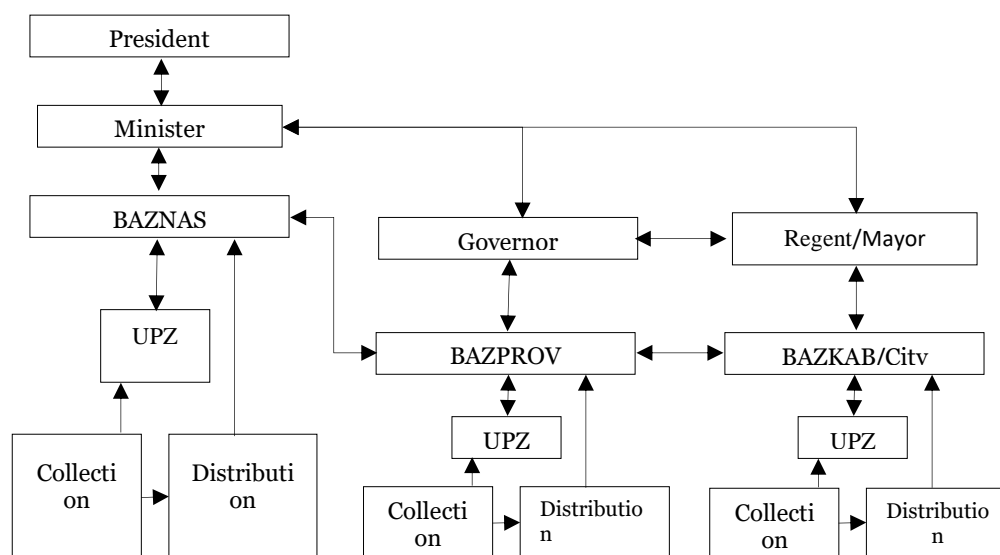

Figure 8. Management zakat in Indonesia
Source: Author's

h. Government support for zakat institutions in Indonesia and Malaysia

In contemporary Islam, the management of zakat is categorized into two distinct types: mandatory, which is a compulsory system overseen by the state and enforced through fines for individuals who fail to fulfill their zakat obligations, and voluntary, which is a system carried out willingly by government institutions and the community without any penalties. Indonesia and Malaysia, being nations with a mainly Muslim population, encounter challenges when it comes to the implementation of zakat. Nevertheless, there are notable distinctions between Indonesia and Malaysia. In Malaysia, the populace has a heightened consciousness regarding the payment of zakat, and the government actively encourages zakat contributions by offering tax incentives to those who fulfill their zakat obligations. In 1991, Malaysia successfully augmented its zakat revenue by creating a Zakat Collection Center (PPZ). Despite certain advancements in zakat infrastructure and governance, there are still some obstacles that need to be addressed to maintain effective zakat management.

Zakat is only a religious obligation for individual Muslims because the state does not completely implement Islamic law. Lack of education about zakat means that the potential of zakat is not utilized optimally. According to available estimates, the collecting of zakat in Indonesia is currently below its potential, and the distribution of zakat continues to be primarily conducted through direct individual channels, with limited impact on overall

economic growth. In Malaysia, inefficiency in the distribution of zakat funds has been a contentious issue, with funds not reaching recipients appropriately and complaints about slow bureaucracy. In managing zakat, criticism is directed at the ineffective way of distributing funds, and it is proposed to support productive product projects as an alternative. Indonesia needs to strengthen zakat organizations, strengthen regulations, education, and infrastructure, and implement intensive zakat campaigns. In Malaysia, the government supports a strong zakat center and provides tax incentives for zakat payers. It would be better if the position of BAZNAS in Indonesia is equated with that of a ministry to ensure the effectiveness of zakat collection without increasing the burden on the APBN and to provide the power to force *muzakki* to pay zakat. Therefore, interesting to further research is by emphasizing the role of government as zakat administration in promoting zakat collection and distribution in relation with economic growth. This issue is importance by observing zakat management can encourage efficiency and effectiveness in settling economic problems among zakat recipients.

3.Conclusion

Zakat functions as an economic tool in Islam and can be a significant source of income for the state, supporting the financing of many expenses. Unlike other sources of income, zakat has clear and thorough rules about how it is obtained and distributed. The state is responsible for optimizing the effectiveness of zakat institutions to efficiently mobilize and allocate zakat funds, which serve as a stimulus for economic development. Indonesia employs a grassroots strategy for the gathering of zakat, while Malaysia adopts a hierarchical approach. The results find that the allocation of zakat monies did not yield a substantial influence on the economic growth of Indonesia and Malaysia over a limited period either in the short or long run, thus refuting hypothesis 3. Hence, the research findings indicate that further investigation and integration of strategies aimed at diminishing income inequality and harnessing zakat for economic advancement are necessary to attain more favorable outcomes in both nations. As a fundamental component of Islamic finance, zakat can supposedly and substantially contribute to economic expansion and societal well-being. Therefore, there is a need to promote the professional and efficient management of zakat to enhance its collection and facilitate its effective distribution. To ensure compliance with zakat contributions and encourage participation through formal zakat organizations, it is imperative to establish robust regulatory measures in Indonesia. In the context of Malaysia, it is vital to boost the allocation of zakat towards economic activities to alleviate poverty among the underprivileged population effectively. In both nations, zakat has the potential to serve as a fiscal tool that contributes to human development and economic prosperity, provided that its allocation is effectively directed towards productive initiatives and training for recipients of zakat. The potential of Islamic economics may be enhanced, and economic development in Indonesia and Malaysia can be positively influenced by establishing collaborative efforts between the government and zakat management institutions.

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