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Dynamics of Economic Growth in West Sumatra: The Role of Digital Zakat and the Impact of Inflation through Financial Transformation

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Abstract: *Zakat is a significant source of funding with profound implications for economic growth, particularly in the West Sumatra region. However, there is an opportunity for improvement since the actual collection in the region falls below optimal standards. In recognizing the problem, Zakat Forum (FOZ) develops the idea of Digizakat, known as digital zakat, to improve its collection, and changes in the impact of inflation rates on the stability of the economy. Therefore, this study aimed to examine the potential effects of inflation and digitally collected zakat on West Sumatra's economic growth from short- and long-term perspectives. Secondary data from BAZNAS and BPS West Sumatra are used to conduct a thorough analysis of monthly digital zakat collection records from 2016 to 2020. To evaluate the impact of zakat digitization on economic growth, Vector Autoregression (VAR) method is used. The results show that inflation and the digitization of zakat have a negligible short-term impact on regional economic growth. Increased literacy, tighter government oversight, and maintenance of stable inflation rates are necessary to maximize the impact of zakat digitalization to improve economic growth and public welfare. This shows the necessity for additional efforts and the development of intricate models to comprehend the variables influencing economic growth, particularly the adjustment of zakat digitalization to obtain a substantial impact.*

Keywords: *Zakat; Digitalization; Inflation; Economic Growth*

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INTRODUCTION

Zakat is used by Islam to combat poverty and promote economic development. The term of zakat is obtained from the Arabic word zakka, which signifies clean, blessed, and good. Zakat is the fourth tenet of Islam made mandatory for only Muslims by Allah. Some of the etymological definitions include al-barkatu, an-namaa, and at-thaharu (Qardawi, 2004). The practice of giving some assets to mustahik (those who qualify for zakat), also in compliance with certain rules, is referred to as "zakat" (Hafidhuddin, 2002). Furthermore, zakat is a religious act

beneficial to the recipient (mustahik) and the giver (muzakki) (Thoin, 2017). The practice can raise aggregate demand when evaluated from a macroeconomic perspective. Therefore, investment and economic growth are increased through the satisfaction of basic requirements (Bayinah, 2017)

The primary objective of zakat is to eradicate poverty rather than aiding the poor. The practice provides the government with the best opportunity and capacity to end poverty (Kamarni & Saputra, 2022). The economic benefits include the elimination of unemployment, stabilization, expansion of the economy, reduction of the excessive income gap, and efficient resource allocation (Daud & Audu, 2011).

Many studies that examine the effects of zakat on economic growth are motivated by this assertion. In Muslim nations including Indonesia, Malaysia, Sudan, Qatar, Kuwait, and others, (Jedidia & Guerbouj, (2021); and Mohamed et al., (2019)) discovered that zakat had a significant impact on economic growth and increased GDP. It is also important to improve the collection, distribution, and usage of zakat while ensuring procedural transparency because the impact can be constrained by the collection and distribution processes. By conducting a study on the distribution, Ahmad et al., (2015) and (Taha, et al., 2017) attempted to supplement the information and discovered that the duration required for zakat to reach recipients was between one and two weeks from submission to distribution.

This suggests a slow distribution of zakat by the bureaucracy. Abidin et al., (2014) and (Taha et al., 2017) observed a lack of openness in the institutions' publication of information on zakat collection and distribution. Therefore, zakat payers have reduced faith in the institutions since certain excesses are not shown. These circumstances favor the advancement of the Digizakat concept proposed by Forum Zakat (FOZ) (Budianto, 2019). Zakat digitalization refers to the process of collecting zakat through the use of digital instruments such as transfers, e-commerce platforms, fintech, and other methods.

This technology has the potential to be a strategic instrument for achieving financial objectives, providing humanitarian benefits, and increasing efficiency (Corsini et al., 2019). The introduction of new technologies and the improvement of capital equipment will have an impact on the efficiency and efficacy of amil zakat institutions (Djaghballou et al., 2018). According to Myovella et al., (2020), digital technology contributes significantly to economic growth in OECD group of nations as well as Sub-Saharan Africa.

West Sumatra is a province where Islam is practiced by the vast majority of the population. BAZNAS West Sumatra successfully collected zakat of 239 billion IDR from 2019 to 2020. This sum is inappropriate when compared to the potential zakat, which is in trillions of dollars. Potential zakat in West Sumatra has reached 1.7 trillion IDR, and this figure is expected to increase in 2021. Islamic economic commentators attribute the poor collection to the widespread practice of Indonesians paying zakat directly or through informal institutions, leading to

underreporting. The conduct of comprehensive study is essential to understand and address this issue. However, studies on the impact of zakat in specific regions, such as West Sumatra, remain limited since most reports focus on broader scopes.

Zakat digitalization refers to the use of digital technologies to collect zakat, such as transfers, e-commerce platforms, and fintech. Rohimah (2020) and Utami (2020) discovered that this process had a considerable impact on the possibility of fund collection. According to BAZNAS data, collection through digital channels such as transfers and e-payments exceeded 279 billion IDR in 2019. This increased by 85 billion IDR in comparison to the previous year, showing a significant contribution to digital zakat collecting. According to Mubarok & Fanani (2014), the performance of amil zakat institutions can influence potential receipts. The use of technology and the improvement of capital equipment can also impact the efficiency and efficacy of amil zakat institutions (Djaghballou et al., 2018)

According to BAZNAS, the contribution of these digital platforms will expand by 30 to 35% between 2020 and 2021. (BAZNAS, 2022). Ichwan (2020) stated that collaborations such as GoPay and other digital platforms with amil zakat organizations and various mosques in Indonesia would surely drive the future management, collection, and distribution of zakat. In addition to digital wallets, quick response (QR) technology will be used to facilitate and expedite zakat payment transactions by the general population. Since millennials are particularly adept at using technology, zakat digitalization can increase and enhance the desire to make payments through faster and easier transactions. Therefore, the process has a favorable economic impact predicted to be felt in the short and long terms.

Close research shows that zakat is also influenced by macro variables, such as inflation (Afendi, 2018). In the event of rising inflation, people experience a decline in purchasing power to prioritize spending on essential needs rather than allocating funds for zakat (Hariyani et al., 2018). According to Afendi, (2018), inflation can contribute to a long-term drop in national zakat receipts. Previous research simply analyzed zakat without considering macro variables. However, inflation also needs to be considered in the collection aspect.

Zakat and digitalization have significant economic growth potential. Zakat can increase productivity and economic growth in a variety of countries (Zauro et al., 2020). However, many aspects require further examination, including receipts, digital contributions, factors influencing zakat receipts, and, the scope of zakat, which should also consider small regions, particularly West Sumatra. Therefore, this study aimed to address gaps in previous results by focusing on the impact of digital zakat on economic growth while considering macroeconomic variables, including inflation. The assessed impact is anticipated to extend beyond immediate or short-term effects, including the long-term implications of digital zakat.

RESEARCH METHODS

Vector Autoregressive (VAR) / Vector Error Correction Model (VECM) method is used to provide results linked to the influence of zakat digitalization on economic growth in West Sumatra. VECM is stationary at the first difference level model with cointegration used to estimate the effect of variables in the long and short term (Eka et al., 2019). VAR model can be used when the variables are stationary at the level and do not have cointegration.

Secondary data from BAZNAS West Sumatra province was used with time series data, including monthly information on zakat digitalization, inflation, and economic development from 2016 to 2020. Data is also obtained from the West Sumatra Central Bureau of Statistics, the Financial Services Authority (OJK), and other associated organizations.

The reason for selecting data from the particular year was due to the availability of complete digitized information at BAZNAS (National Amil Zakat Agency) in West Sumatra. In this context, comprehensive data were only accessed from 2016 to 2020.

Interpolation techniques were used to turn quarterly data from economic growth factors into monthly data for the 2016-2020 timeframe before evaluation using VAR/VECM method. Furthermore, the stages included in the estimation using VAR/VECM method are as follows:

1. Stationarity Test

The stationarity test is an important prerequisite in time series data analysis and serves as the first step in using VAR/VECM method. This test is performed to prevent erroneous regression. The data is stationary when the variance and covariance of the data at each lag remain constant across time. The unit root test is the most commonly used way for conducting the stationarity test (Widarjono, 2017). The Augmented Dickey-Fuller (ADF) test is used for unit root testing in this study.

2. Determination of Optimal Lag

Lag testing is essential because time series data is particularly sensitive to the selected duration. The optimal lag length is typically found by chance or trial and error. Considerations for lag length should strike a compromise between optimality and accounting for residual correlations and degree of freedom loss. A model with an excessively long lag loses degrees of freedom while increasing the number of estimated parameters, resulting in inefficiency. Meanwhile, the selection of a short lag can result in serial correlation. Lag determination can also be used to reduce autocorrelation in VAR system. To establish optimal testing, Akaike Information Criterion (AIC), Hannan-Quinn Criterion (HQ), Schwarz Information Criterion (SIC), and others are adopted. The model with the lowest AIC and SIC values and the highest HQ is used to determine the lag length (Beik & Fatmawwati, 2014).

3. VAR Model Stability Test

Stability testing is an important step before proceeding with additional studies. Furthermore, an absolute value of a variable less than one is said to be stable (1). The stability test is used to forecast valid Impulse Response Function (IRF) and Variance Decomposition (VD) results. IRF and VD results are considered invalid when the error correction model combined with VAR model is unstable. Therefore, stability testing is performed after identifying the best lag in VAR estimate.

4. Cointegration Test

The cointegration test is used to determine the linear combination of variables' stationarity. A data set is considered to be cointegrated when the residual values are at a level or less than the critical test value, which is 1%, 5%, or 10%. An equation is used to calculate the residual values in a regression with stationary data.

5. Granger Causality Test

The Granger causality test determines and evaluates the use of time series data for prediction. This test is designed to investigate the causality relationships among variables in a regression and the four possibilities developed are:

- Causality relationship in which X affects Y
- Causality relationship in which Y affects X
- Bidirectional causality occurs when X and Y influence each other.
- Variables X and Y do not affect one another (no causality relationship)

The purpose of this Granger causality test is to determine when the variables are related in a one-way or two-way fashion.

6. Empirical VAR/VECM Model

VECM is a VAR (limited VAR model) derivative in which non-stationary data at the level are restrained and show cointegration (Beik & Fatmawwati, 2014). Standard statistical theory is used to estimate VAR model parameters using the Ordinary Least Square (OLS) approach when all data at the level is stationary. The general VAR model (p) in this study can be expressed as follows when there are M variables, T observations, and order P (Juanda & Junaidi, 2013):

$$Y_t = A_0 + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + ApY_{1-p} + v_t \quad \ldots\ldots (1)$$

VECM technique is used when the variables in Y_t are not stationary at the level and there is cointegration. Therefore, the research model is built on Juanda and Junaidi (2013) broad VECM model:

$$\Delta Y_t = A_0 + \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + \Pi Y_{t-1} + v_t \quad \ldots\ldots (2)$$

Where, Y_t denotes the dependent variable (economic growth) and, Y_{t-i} is the independent factors (digital zakat and inflation). Δ signifies the difference operator, A_0 is a constant and, ΠY_{t-1} represents the long-term coefficient, while, Γ_i is the short-term coefficients.

Based on the generic model, VAR model used is as follows:

$$PE_t = A_0 + A_1 ZKT_{t-1} + A_2 INFL_{t-2} + \cdots + ApY_{1-p} + v_t \quad (3)$$

$$ZKT_t = A_0 + A_1 PE_{t-1} + A_2 INFL_{t-2} + \cdots + ApY_{1-p} + v_t \quad (4)$$

$$INFL_t = A_0 + A_1 PE_{t-1} + A_2 ZKT_{t-2} + \cdots + ApY_{1-p} + v_t \quad (5)$$

Meanwhile, VECM model is expressed as follows:

$$\Delta PE_t = A_0 + \Gamma_1 \Delta ZKT_{t-1} + \Gamma_2 \Delta INFL_{t-2} + \Pi Y_{t-1} + v_t \quad (6)$$

Notation:
- PE: Economic Growth
- ZKT: Digital Zakat
- INFL: Inflation

7. Impulse Response Function (IRF)

Impulse Response Function (IRF) is a test used to assess the effect of other variables through time or in the future. IRF aims to precisely observe the effect of individual shocks on a variable. Furthermore, it is used to track k-period forward expectations of predicting errors induced by changes in other variables (Firdaus, 2011).

8. Variance Decomposition (VD)

In the event of changes in VAR system, VD model predicts or estimates the percentage contribution of other variables (Juanda and Junaidi, 2013). In addition, it represents the proportion of each shock that occurs now and in the future.

RESULTS AND DISCUSSION

Stationarity Test Results (Unit Root Test)

Stationary test is one of the critical analyses that must be performed on time series data. The data is said to be stationary when the average value and variance are constant without systematic change at any period. Augmented Dickey-Fuller (ADF) test method was used for the stationary test and the result at the level for each variable are as follows:

Table 1. Stationary Test Results (Unit Root Test) Level

Variable	ADF Test Statistic	MacKinnon 1%	MacKinnon 5%	MacKinnon 10%	Prob	Description
PE	-3.313582	-3.562669	-2.918778	-2.597285	0.0192	Stationer
ZKT	-5.571113	-3.546099	-2.911730	-2.593551	0.0000	Stationer
INF	-7.716992	-3.546099	-2.911730	-2.593551	0.0000	Stationer

Source: Data Processing Results (2023)

Table 1 shows test results, where all variables are stationary at the level. This requirement is shown by comparing ADF t-statistic value to the MacKinnon and its probability at 1%, 5%, and 10% less than 0.05. In this test, inflation (INF), economic growth (PE), and zakat digitalization (ZKT) variables are stationary.

Therefore, the variables investigated are steady and devoid of unit root issues. Based on the results, VAR estimate is appropriate since the variables are stationary at the level without cointegration test.

Optimal Lag Determination Results

Optimal lag can be found using Schwartz Bayesian Criteria (SBC), Akaike Information Criteria (AIC), and Human Quinn (HQ) or other information criteria where a good model has the lowest value of information criteria (Gujarati, 2004). The Table below shows the results of determining ideal lag:

Table 2. Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-205.5922	NA	0.395166	7.585169	7.694660	7.627510
1	-167.2197	71.16352	0.135908	6.517079	6.955042*	6.686443
2	-152.5381	25.62607*	0.110915*	6.310475*	7.076911	6.606862*
3	-145.0747	12.21286	0.118243	6.366351	7.461260	6.789761
4	-137.8089	11.09677	0.127852	6.429415	7.852797	6.979848
5	-127.1208	15.15770	0.123230	6.368029	8.119883	7.045485

Source: Data Processing Results (2023)

Table 2 shows that lag 2 represents the optimal latency, as evidenced by the highest number of indications (*) in the second lag row. In addition to the symbol (*), AIC and HQ values at lag 2 are the least. Due to the situation, lag 2 is the best latency for testing the variables in this study.

VAR Model Stability Testing Results

Stability testing is critical for VAR/VECM method of analysis. This test determines whether the model has stabilized at the previously calculated optimum lag level. Furthermore, the test is required to generate an accurate IRF and VD analysis. AR root table and graph tests can be used to determine stability. The model produced is stable when the value in AR root table test is less than 1 and the graph test shows no points outside the abbreviation. Stability testing yielded the following results:

Table 3. Stability Test Results

Root	Modulus
0.656428 - 0.485460i	0.816437
0.656428 + 0.485460i	0.816437
0.060728 - 0.331596i	0.337111
0.060728 + 0.331596i	0.337111
0.275642	0.275642
-0.198540	0.198540
No root lies outside the unit circle.	
VAR satisfies the stability condition.	

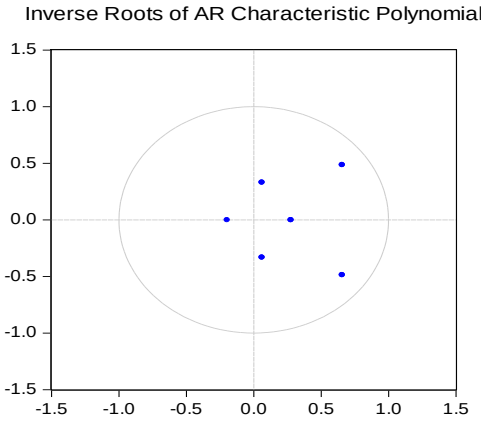

Figure 1. AR Root Graph
Source: Data processing results, 2023

According to the table and figure above, the modulus value of the model in AR root table test is not larger than 1, and there are no points from the circle in the graph. Therefore, the model is stable at the optimal lag, and IRF and VD evaluations are correct.

Granger Causality Test Results

The Granger causality test determines the presence or absence of reciprocal link in each variable. In addition, the test determines the significant effects of one variable on the causal relationship with another. This is because of the potential to become an exogenous or endogenous variable. In this study, Pairwise Granger Causality Tests are used with a 5% significant threshold, as shown below:

Table 4. Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
INFL does not Granger Cause ZKT	58	1.92923	0.1553
ZKT does not Granger Cause INFL		1.23885	0.2980
PE does not Granger Cause ZKT	58	0.03480	0.9658
ZKT does not Granger Cause PE		3.08337	0.0541
PE does not Granger Cause INFL	58	1.28784	0.2844
INFL does not Granger Cause PE		0.82388	0.4443

Source: Data processing results, 2023

Variables with a causal link have a probability value of less than 0.05, or 5%, according to the table above. The above Granger causality test results show the reciprocal relationship of each variable:

1. ZKT has a statistically negligible effect on PE with a probability value of 0.0541 or greater than 0.05, implying acceptance of the null hypothesis. PE has a statistically insignificant effect on ZKT with a probability of 0.9658, showing the acceptance of the null hypothesis. Therefore, there is no causal relationship between the two variables of ZKT and PE.
2. The impact of INFL on PE is statistically inconsequential since the variables have no effect with a probability greater than 0.05, specifically 0.2844 and

0.4443. Therefore, there is no evidence of a causal relationship between INFL and PE variables.

3. INFL variable has no statistically significant effect on ZKT with a probability greater than 0.05. Even though ZKT does not affect INFL, the null hypothesis is accepted since the probability value is greater than 0.05. Therefore, it is possible to conclude that ZKT and INFL variables have no causal link.

Vector Autoregressive (VAR) Estimation Results

The estimation of VAR is dependent on a predefined lag length. In this study, the lag length used is lag 2, as determined through the optimum test. Meanwhile, the outcomes of VAR estimation performed are shown below:

Table 5. VAR Estimation Results

	PE	**INFL**	**ZKT**
PE(-1)	1.302485	-0.042106	-0.103883
	(0.12207)	(0.10239)	(0.27364)
	[10.6696]	[-0.41123]	[-0.37963]
PE(-2)	-0.640748	0.117587	0.087460
	(0.12414)	(0.10412)	(0.27827)
	[-5.16153]	[1.12933]	[0.31430]
INFL(-1)	-0.142458	0.311717	-0.653935
	(0.16284)	(0.13658)	(0.36503)
	[-0.87482]	[2.28223]	[-1.79145]
INFL(-2)	0.020518	-0.111122	-0.116907
	(0.17127)	(0.14365)	(0.38393)
	[0.11979]	[-0.77354]	[-0.30450]
ZKT(-1)	0.025528	0.069946	-0.102787
	(0.06481)	(0.05436)	(0.14529)
	[0.39387]	[1.28667]	[-0.70748]
ZKT(-2)	-0.131664	-0.012923	0.038820
	(0.06019)	(0.05049)	(0.13493)
	[-2.18729]	[-0.25595]	[0.28770]
C	2.590994	-1.090138	21.92662
	(1.87691)	(1.57426)	(4.20732)
	[1.38046]	[-0.69248]	[5.21154]
R-squared	0.768207	0.177273	0.074225
Adj. R-squared	0.740937	0.080482	-0.034689
Sum sq. resids	15.75265	11.08200	79.15476
S.E. equation	0.555766	0.466148	1.245815
F-statistic	28.17058	1.831496	0.681500
Log likelihood	-44.49884	-34.29993	-91.31633
Akaike AIC	1.775822	1.424136	3.390218

Schwarz SC	2.024496	1.672810	3.638892
Mean dependent	1.256811	0.223103	20.43166
S.D. dependent	1.091915	0.486120	1.224753
Determinant resid covariance (dof adj.)		0.086494	
Determinant resid covariance		0.058804	
Log likelihood		-164.7227	
Akaike information criterion		6.404232	
Schwarz criterion		7.150254	

Source: Data Processing Results 2023
**1% Significance = 2.39123*
5% significance = 1.67109
10% significance = 1.29607

Based on VAR estimation results, zakat digitalization, and inflation variables have no effect on economic growth in lags 1 and 2. This is seen by the t-statistic value less than t-table at 1%, 5%, and 10% significance levels. The t-statistic value for INFL (-1) and ZKT (-1) is [-0.87482] t-table [1.67109] and [0.39387] t-table [1.67109], respectively. Meanwhile, INFL has a substantial association with zakat digitalization at lag 1, as stated by the t-statistic value being bigger than the t-table, specifically [-1.79145] > [1.67109]. The R2 value of the data is 0.768207, indicating that the independent factors explain 76% of economic growth, while variables outside the model explain the remaining 24%.

Impulse Response Function (IRF) Analysis
IRF analysis is a common method because parameter predictions in VAR or VECM models are difficult to comprehend (Gujarati, 2004). Furthermore, it summarizes the short and long-term impact of a shock to a variable in the future. This study investigates the response of PE to shocks caused by zakat (ZKT), digitalization, and inflation (INFL). The results of IRF analysis are represented in the graph below:

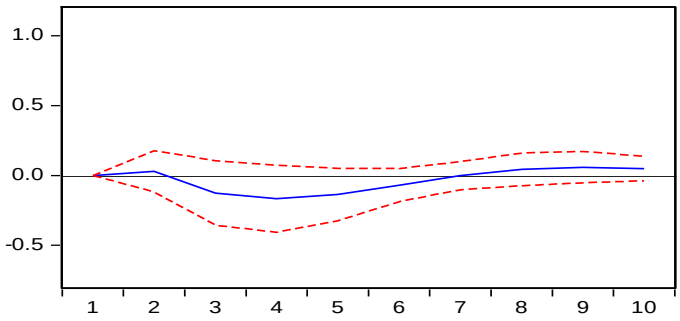

Figure 2. PE Response to ZKT Shocks
Source: Data Processing Results (2023)

According to IRF data, the shock to ZKT responds favorably by PE or improves economic growth by 0.025 points in periods 1 and 2. Meanwhile, between periods 3 and 6, shocks to the variable have a negative impact on PE. Shocks to zakat

digitalization have a favorable effect on economic development from periods 7 to 10.

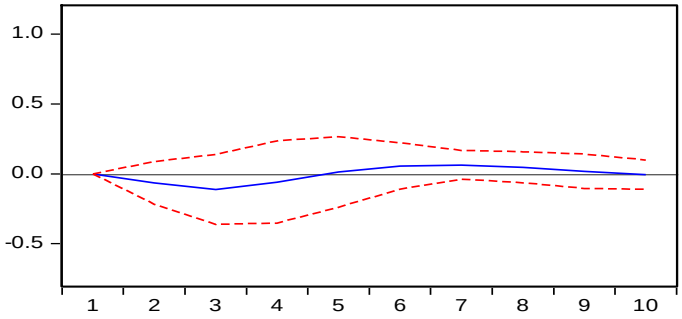

Figure 3. PE Response to INFL Shocks
Source: Data Processing Results (2023)

The response of PE to the shock of INFL is depicted in the graph above. Shocks to INFL have a detrimental influence on PE from periods 1 to 4. This shows that inflationary pressures dampen the expansion of PE. Furthermore, INFL has a positive effect on economic growth from periods 5 to 10.

Variance Decomposition (VD) Analysis

The objective of VD analysis is to quantify the significance or magnitude of a shock's contribution to variance or changes in VAR, SVAR, or VECM system. The purpose is to determine the influence of zakat digitization and inflation on economic growth in West Sumatra as evaluated by GRDP. The following are the results of variance decomposition testing projected across ten periods to obtain long-term analysis:

Table 6. Result of Variance Decomposition Analysis of PE of West Sumatera

Period	S.E.	PE	ZKT	INFL
1	0.555766	100.0000	0.000000	0.000000
2	0.909575	99.39147	0.080433	0.528097
3	1.132254	97.39223	1.408239	1.199527
4	1.208505	95.57749	3.193785	1.228724
5	1.218273	94.39084	4.373564	1.235594
6	1.232291	93.99124	4.566560	1.442197
7	1.261059	94.00484	4.360713	1.634443
8	1.284020	93.96888	4.335711	1.695413
9	1.292339	93.81725	4.494362	1.688393
10	1.293388	93.68634	4.623280	1.690377

Source: Data Processing Results (2023)

The results of variance decomposition testing of PE due to shocks from other variables are shown in Table 6. Meanwhile, PE offers a significant contribution and the variable is unaffected by others. During the second period, zakat digitalization

and inflation factors affect PE by 0.08% and 0.52%. During the ten periods, the influence of PE on the variable decreases, as evidenced by the fifth and tenth periods providing 94.39% and 93.68%, with the rest influenced by zakat digitalization and inflation.

From periods 2 to 10, digitalization of Zakat variable has an increasing impact. The contribution of digitalization of zakat to PE is 0.08%, 4.37%, and 4.62% in periods 2, 5, and 10, respectively. Meanwhile, the inflation variable influences PE in period 2 by 0.52%. Inflation tends to increase from periods 2 to 10 but the effect only ranges from 1.19% to 1.69%.

Table 7. Variance Decomposition Analysis Results of ZKT

Period	S.E.	PE	ZKT	INFL
1	1.245815	16.19366	83.80634	0.000000
2	1.289192	15.14357	79.31719	5.539232
3	1.293954	15.03297	78.73566	6.231377
4	1.294028	15.04146	78.72686	6.231679
5	1.294509	15.09001	78.67028	6.239702
6	1.294911	15.13973	78.62240	6.237875
7	1.295105	15.16237	78.60139	6.236241
8	1.295143	15.16476	78.59936	6.235878
9	1.295159	15.16555	78.59845	6.235999
10	1.295207	15.17134	78.59264	6.236025

Source: Data Processing Results (2023)

The results of variance decomposition testing of zakat digitalization due to shock from other factors are shown in Table 7. The table shows that the impact of PE is bigger than inflation on Zakat digitalization.

In the first period, PE affects zakat digitalization by 16.19%, while inflation does not affect the variable. However, from periods 2 to 10, the contribution of PE to digitalization of zakat reduces to 15.17% in the 10th period. Inflation contributes to zakat digitalization variable in period 2 at 5.53% and increases to 6.23% in period 3. Furthermore, the contribution averages 6.23% from periods 4 to 10.

Table 8. Variance Decomposition Results of INFL

Period	S.E.	PE	ZKT	INFL
1	0.466148	0.674305	0.249682	99.07601
2	0.500743	2.560877	3.237301	94.20182
3	0.502000	2.801773	3.221229	93.97700
4	0.508150	4.767473	3.143742	92.08878
5	0.514614	7.030805	3.090157	89.87904
6	0.518049	8.140362	3.149065	88.71057
7	0.518809	8.300881	3.248216	88.45090
8	0.519021	8.321529	3.290379	88.38809
9	0.519738	8.551953	3.284482	88.16356
10	0.520573	8.826808	3.278285	87.89491

Source: Data Processing Results (2023)

The variance decomposition testing of inflation factors due to shocks from other variables is shown in the table above. PE and digitalization of zakat do not affect inflation. The shocks in PE and digitalization of zakat contribute to inflation in period 1 at 0.67% and 0.25%, respectively. PE tends to increase from periods 2 to 10, with a contribution of 7.03% and 8.82%. From period 2 to 10, zakat digitalization increases with minor contributions of 3.23% and 3.27.

Interpretation of Data Analysis Results

Relationship between Digitalization of Zakat and Economic Growth

According to VAR and IRF analyses, zakat digitalization has a beneficial influence on economic growth. Therefore, a change in the variable increases West Sumatra's economic growth. The digitization of zakat has increased collection every month over the last five years. However, the results of VAR and IRF analyses suggest that the variable does not affect economic growth. This is shown by VAR analysis with a t-statistic value less than the t-table. IRF research also shows that the effect of zakat digitalization is favorable but not large in the medium term and the shocks have a negative impact on economic growth. However, shocks to the variable render a favorable effect on economic growth in the long term. According to the results, the quantity of zakat collected, both cash and digital, is limited in comparison to the potential. From 2019 to 2020, the collection of cash and digital zakat attained only 14% of the existing potential of 239 billion and the potential is worth 1.7 trillion dollars (BAZNAS, 2021). This also makes the impact on economic growth inconsequential since the contribution remains limited to other industries.

The results are consistent with Rohmaniyah, (2022), where there are barriers to technology access and adoption in rural and remote areas despite the potential for digitalizing zakat to improve its effectiveness, efficiency, and outreach. This limits the ability of digitalized zakat to have a meaningful impact on economic growth. Furthermore, a lack of public trust in amil zakat organizations and management is a hindrance impeding economic progress. Despite digitalization's improvements in openness and accountability, the continually low level of public confidence remains a restriction (Fitriyah et al., 2016). Inadequate infrastructure, such as poor and inconsistent internet connections can also obstruct the successful implementation of digitalized zakat. The ability to impact economic growth will be limited in the absence of suitable infrastructure (Rohmaniyah, 2022)

Zakat digitalization is a relatively recent idea still subject to refining. According to the Director of Empowerment at the Indonesia Zakat Initiative (IZI), zakat payments through digital platforms have only reached 40% of the population in Indonesia (Sudiana, 2019). Collaboration between amil zakat institutions, Islamic financial institutions, the government, and the community is required for the process. A lack of cooperation among these groups can impede the proper implementation, resulting in a negligible influence on economic growth (Rohmaniyah, 2022). Government restrictions on the execution of digitalization are limited in the sphere of Islamic banking (Nurhasanah & Rahmatullah, 2020; Tajudin et al., 2020). In 2016 and 2020, digital platforms provided 1% and 24% of zakat

collections in Indonesia (Beik & Arsyianti, 2016). Despite the increase, the amount remains small and has reduced impact on Indonesian economic growth, particularly in West Sumatra.

Inflation's Relationship with Economic Growth

INFL has a negative but small influence on economic growth in the first lag. Therefore, a change in inflation decreases economic growth but has a long-term positive effect on the variable. According to IRF analysis, the effect of inflation on PE is negative in periods 1 to 4 of economic growth. This suggests that an increase in inflation will slow economic growth in West Sumatra Province. The results follow research by Bawa and Abdullahi (2012), who investigated the relationship between inflation and economic growth in Nigeria. This study uses quarterly data from 1981 to 2009, where inflation has a detrimental impact on Nigerian economic growth. Furthermore, NGOC (2020) research on the long-term impact of inflation, particularly from 1990 to 2017, shows a detrimental impact of the variable on Vietnam's economic growth.

In the long-term, inflation benefits West Sumatra's economic growth from periods 5 to 10. This variable is beneficial for the economy and increases growth. Mild inflation also enables producers to expand output and act as an economic stimulus. This is consistent with the findings of Wilantari et al. (2020), where inflation has a long-term beneficial influence on economic growth. According to the result, a slight increase in inflation creates a push for producers to raise output. Ardiansyah (2017) found that conditions with an increase in prices followed by high amount of producers and purchasing power have a favorable impact on economic growth. According to Khan et al., (2006), the inflation level with a favorable influence on industrialized and developing countries is 1-3% and 11-12%, respectively. This variable has a detrimental influence on economic growth when the level is exceeded. Therefore, maintaining price stability is critical to increase economic growth.

CONCLUSION

In conclusion, this study was carried out to examine the impact of zakat digitalization and inflation on economic growth in West Sumatra using monthly data from 2016 to 2020. VAR method was used to determine the long-term and short-term influence of the factors. According to the analysis, zakat digitalization has a minimal influence on economic growth. IRF showed that the digitalization of Zakat had a favorable long-term impact. Meanwhile, digitalization of zakat did not experience a substantial impact on economic growth. The rate of growth in zakat payment using digital technologies did not approach 50% and inflation had a negative influence on the economy. Mild inflation stimulated the economy through the enthusiasm of producers to increase output production. In the long-term, continual inflation had an impact on reducing economic growth. Therefore, mild inflation of not more than 10% positively influenced economic growth. Subsequent studies were recommended to add the required variables in analyzing the impact of digitalization. Several analyses should be conducted on elements to improve digital

almsgiving, resulting in improved utilization and acceptance of almsgiving in the future.

Recommendation

In terms of zakat collection, digitalization is tremendously useful. However, the use is limited, and the government's digitalization regulations must be strengthened with public literacy in paying zakat through digital platforms. BAZNAS must develop mutually integrated digital platforms, websites, and mobile applications, as well as collaborate with other commercial and social digital platforms. Digitalization of zakat must be continued to expand the potential for profits, impacting economic growth through the welfare of mustahik. The government is expected to keep mild and stable inflation steady since these types are beneficial to the economy.

In subsequent studies, the data used will be updated to the latest available year, covering 2021 to 2023. This is carried out to observe the recent impact of zakat digitalization and inflation on the economic growth of West Sumatra to obtain comprehensive results.

REFERENCES

Abidin, S., Al Jaffri Saad, R., & Mohd Muhaiyuddin, N. M. (2014). Evaluating Corporate Reporting on the Internet: The Case of Zakat Institutions in Malaysia. *Jurnal Pengurusan*, *42*, 19–29. https://doi.org/10.17576/pengurusan-2014-42-02

Ahmad, R. A. R., Othman, A. M. A., & Salleh, M. S. (2015). Assessing the Satisfaction Level of Zakat Recipients Towards Zakat Management. *Procedia Economics and Finance*, *31*, 140–151. https://doi.org/10.1016/S2212-5671(15)01141-7

Afendi, A. (2018). The Influence of Macroeconomic Variables on the Amount of Zakat Revenue at the National Amil Zakat Agency (Baznas) Center in 2012-2016. *Muqtasid: Journal of Economics and Islamic Banking*, *9*(1), 54–69.

Ardiansyah. (2017). The effect of inflation on economic growth in Indonesia. *Journal of Economic Education (JUPE)*, *5*(3).

Badan Amil Zakat Nasional (BAZNAS). (2019). National Zakat Statistics 2019

Badan Amil Zakat Nasional (BAZNAS). (2022). National Zakat Statistics 2022

Bawa, S., & Abdullahi, I. S. (2012). Threshold effect of inflation on economic growth in Nigeria. *Baznas*, 3(1), 43-63.

Bayinah, N. A. (2017). Role of Zakat as Social Finance Catalyst to Islamic Banking and Economic Growth. *International Journal of Zakat*, *2*(2), 55–70. https://doi.org/10.37706/ijaz.v2i2.25

Beik, I. S., & Arsyianti, L. D. (2016). MEASURING ZAKAT IMPACT ON POVERTY AND WELFARE USING CIBEST MODEL. *Journal of Islamic Monetary Economics and Finance*, *1*(2), 141–160. https://doi.org/10.21098/jimf.v1i2.524

Beik, I. S., & Fatmawwati, S. W. (2014). The Effect of the International Sharia Stock Price Index and Macroeconomic Variables on the Jakarta Islamic Index. Al- Istiqhad: Journal of Sharia Economics. *Al- Istiqhad: Journal of Sharia Economics*, *6*(2), 155–178.

Ben Jedidia, K., & Guerbouj, K. (2021). Effects of zakat on the economic growth in selected Islamic countries: empirical evidence. *International Journal of Development Issues*, *20*(1), 126–142. https://doi.org/10.1108/IJDI-05-2020-0100

Budianto, A. (2019). *World Zakat Forum 2019 in Bandung*. Media Online Sindonews.Com.

Corsini, L., Aranda-Jan, C. B., & Moultrie, J. (2019). Using digital fabrication tools to provide humanitarian and development aid in low-resource settings. *Technology in Society*, *58*, 101117. https://doi.org/10.1016/j.techsoc.2019.02.003

Daud, M. & Maiyaki Ahmad Audu. (2011). The economic significance of the zakah system: An exploratory analysis of its fiscal characteristics. *Elixir Finance*, *36*(3085–3090).

Djaghballou, C.-E., Djaghballou, M., Larbani, M., & Mohamad, A. (2018). Efficiency and productivity performance of *zakat* funds in Algeria. *International Journal of Islamic and Middle Eastern Finance and Management*, *11*(3), 474–494. https://doi.org/10.1108/IMEFM-07-2017-0185

Eka, H., Maruto, P., & Basuki, U. (2019). Analysis of the Effect of Investment and Budget Deficit on Growth in Indonesia. *Diponegoro Journal of Economics*, 1(1), 67.

Fitriyah, F., Alim, M.N., &Zuhdi, R. (2016). Analysis of Accounting Treatment at Amil Zakat Institutions Based on Psak No. 45 concerning Financial Reporting of Non-Profit Organizations (Case Study at Baitul Maal Hidayatullah Surabaya).

Firdaus, M. (2011). Econometric Applications for Panel Data and Time Series. Bogor (ID), IPB Press.

Gujarati, D. (2004). Basic econometrics fourth (4th) edition. *Magraw Hill Inc*, New York, 109.

Hafidhuddin. D. (2002). *Zakat dalam Perekonomian Modern*. Gema Insani.

Hariyani, H. F., Zuhroh, I., & Malik, N. (2018). Macroeconomic variable shocks to zis revenue in the central baznas. *In National Seminar and Call for Paper III Faculty of Economics* , 167–179.

Ichwan, A. (2020). The influence of the technology acceptance model on the decision of muzakki to pay zakat through fintech gopay. *Jurnal Ilmiah Ekonomi Islam*, *6*(2). https://doi.org/10.29040/jiei.v6i2.1011

Jedidia, K. B., & Guerbouj, K. (2020). Effects of zakat on the economic growth in selected Islamic countries: empirical evidence. *International Journal of Development Issues*.

Juanda B, Junaidi. (2013). Time Series Econometrics: Theory and Applications. Bogor (ID): IPB Press

Kamarni, N., & Saputra, Y. (2022). Penyaluran Dana Zakat Produktif dalam Meningkatkan Kesejahteraan Mustahik Kota Padang (Model Cibest Baznas Kota Padang). *Taraadin : Jurnal Ekonomi Dan Bisnis Islam*, *1*(2), 121. https://doi.org/10.24853/trd.1.2.121-133

Kasri, R. A., &Yuniar, A. M. (2021). Determinants of digital zakat payments: lessons from Indonesian experience. *Journal of Islamic Accounting and Business Research*, 12(3), 362-379.

Khan, M. S., Senhadji, A. S., & Smith, B. D. (2006). Inflation and Financial Depth. *Macroeconomic Dynamics*, *10*(2), 165–182. https://doi.org/10.1017/S1365100506050152

Mohamed, A. S. Bin, Ibrahim, A. A. Bin, Zaidi, N. S. B., & Kamaruzaman, M. N. Bin. (2019). Does Zakat Significantly Impact on Economic Growth in Selangor, Malaysia? *International Journal of Academic Research in Business and Social Sciences*, *9*(6). https://doi.org/10.6007/IJARBSS/v9-i6/6033

Mubarok, A., & Fanani, B. (2014). National zakat fund collection (Potential, realization and important role of zakat management organizations). . *Permana: Journal of Taxation, Management, and Accounti*, *5*(2).

Myovella, G., Karacuka, M., & Haucap, J. (2020). Digitalization and economic growth: A comparative analysis of Sub-Saharan Africa and OECD economies. *Telecommunications Policy*, *44*(2), 101856. https://doi.org/10.1016/j.telpol.2019.101856

NGOC, B. H. (2020). The Asymmetric Effect of Inflation on Economic Growth in Vietnam: Evidence by Nonlinear ARDL Approach. *The Journal of Asian Finance, Economics and Business*, *7*(2), 143–149. https://doi.org/10.13106/jafeb.2020.vol7.no2.143

Nurhasanah, N., & Rahmatullah, I. (2020). Financial Technology and the Legal Protection of Personal Data: The Case of Malaysia and Indonesia. *Al-Risalah: Forum Kajian Hukum Dan Sosial Kemasyarakatan*, *20*(2), 197–214. https://doi.org/10.30631/al-risalah.v20i2.602

Qardawi Y. (2004). *Hukum Zakat: Studi komparatif Mengenai Status dan Filsafat Zakat Berdasarkan Qur'an dan Hadis* (Cet.1). Bogor : Universal Law Publishing.

Qoyyim, S. H., & Widuhung, S. D. (2020). Analysis of the Distribution Strategy of Zakat, Infaq, Sadaqah (ZIS) Funds and Inflation Rate on Economic Growth in Indonesia in the 2015-2019 Period. *Journal of Al Azhar Indonesia Social Science Series*, 1 (2), 53-62.

Rachinger, M., Rauter, R., Müller, C., Vorraber, W., &Schirgi, E. (2018). Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management*

Rohimah, C. (2020). The Effect of Digital Zakat and Cash Zakat on Zakat Collection at Baznas Banten Province. *Thesis. Faculty of Economics and Islamic Business,* Sultan Maulana Hasanuddin State Islamic University Banten.

Rohmaniyah, W. (2022). Optimizing Digital Zakat through Strengthening the Zakat Ecosystem in Indonesia. *Al-Huquq: Journal of Indonesian Islamic Economic Law*, *3*(2), 232–246. https://doi.org/10.19105/alhuquq.v3i2.5743

Salleh, M. C. M., & Chowdhury, M. A. M. (2020, October). Technology Adoption among Zakat Institutions in Malaysia. *In International Conference of Zakat* (pp. 1-14).

Sudiana, N. (2019). Amil Zakat Easy Going: Zakat Thoughts and Initiatives in Era 4.0. Jakarta Timur: IZI press.

Taha, R., Zulkifli, M. F., & Nor, M. (2017). Zakat Distribution In The East Coast: Recipients' View. *Pertanika J. Soc. Sci. & Hum*, *25*, 255–266.

Taha, Rhosaiza, Mohd.Nor, Mohd. Nazli, Embong, Mohd Rodzi, Zulkifli, & Muhammad Faris. (2017). Zakat fund in Malaysia: where does it all go? /. *Management & Accounting Review (MAR)*, *16*(1), 137–166.

Tajudin, M., Omar, R., Smedlund, A., & Aziz, R. P. (2020). Financing with heart and intelligence: augmenting intimacy and sustainability through islamic fintech. *International Journal of Advanced Science and Technology*, 29(9 Special Issue), 1638-1664.

Thoin. M. (2017). Implementation of Corporate Social Responsibility. *Islamic Economics and Business*, *2*(2).

Umaru, A., & Zubairu, A. A. (2012). Effect of inflation on the growth and development of the Nigerian economy (An empirical analysis*). International Journal of Business and Social Science*, 3(10).

Utami P. (2020). The Effect of Digitalization of Zakat Payment on the Potential for Zakat Revenue at the National Amil Zakat Agency (Baznas) Center. *Masters Thesi*s, UIN Raden Intan Lampung.

Widarjono, A. (2017). Introductory Econometrics and its Applications Accompanied by Eviews Guide. Yogyakarta: UPP STIM YKPN.

Wilantari, R. N., Oktaviana, F., Santoso, E., & Yunitasari, D. (2020). Uncertainty in China's Economic Policy and Indonesia's Economic Growth. BISMA: *Journal of Business and Management,* 14(2), 147-154.

Zauro, N. A., Zauro, N. A., Saad, R. A. J., & Sawandi, N. (2020). Enhancing socio-economic justice and financial inclusion in Nigeria. *Journal of Islamic Accounting and Business Research*, *11*(3), 555–572. https://doi.org/10.1108/JIABR-11-2016-0134