



Dynamic Effects and Sectoral Asymmetry of GDP and Wages on National Zakat Revenue in Indonesia

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ABSTRACT

Several studies have examined the macroeconomic factors influencing zakat revenue; however, these studies have not yet identified which business sectors make the most significant contribution and which do not. The aim of this study is to examine the extent of each business sector's contribution to zakat revenue. This study utilises panel data regression with EGLS estimation. Data sources were obtained from the Central Statistics Agency (BPS) in the form of GDP and sectoral wage data, as well as from the National Zakat Agency (BAZNAZ) in the form of zakat revenue from 2015 to 2024. The results show that GDP and wages have a positive effect on zakat revenue in the current year, but a negative effect in the previous year; furthermore, past effects whether from GDP, wages or zakat revenue influence revenue in the current year. Of the 17 business sectors, Eight of these had a positive impact including gas supply, water treatment, and social and health services whilst nine had a negative impact, including industry, agriculture, trade and construction. The novelty of this study lies in the use of sectoral GDP and sectoral wages to identify the role of each sector in national zakat revenue. The findings of this study contribute to policy-making by suggesting that a more targeted zakat collection strategy is required, tailored to the characteristics of each sector, in order to increase national zakat revenue. Further research is recommended to include variables directly related to the characteristics of each sector in order to obtain more comprehensive results.

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1. Introduction

Indonesia is a country with abundant resources, both in terms of natural resources and human resources. These resources contribute to economic growth, which in turn leads to increased income, reduced poverty, and an improvement in the Human Development Index (HDI) (Sayifullah, 2021). Furthermore, in Indonesia, zakat plays an important role in the economy, serving as a vital instrument for promoting a country's development; this has been the case since the era of the caliphate.(El Ashfahany et al., 2023). Zakat revenue in Indonesia has continued to increase every year over the past 10 years; this increase has made a significant contribution to reducing poverty and boosting economic growth in every province (Runtiningsih, et al., 2026). In addition, zakat also plays a role in reducing income inequality and broadening the distribution of wealth. Figure 1 shows zakat revenue over the past 10 years:

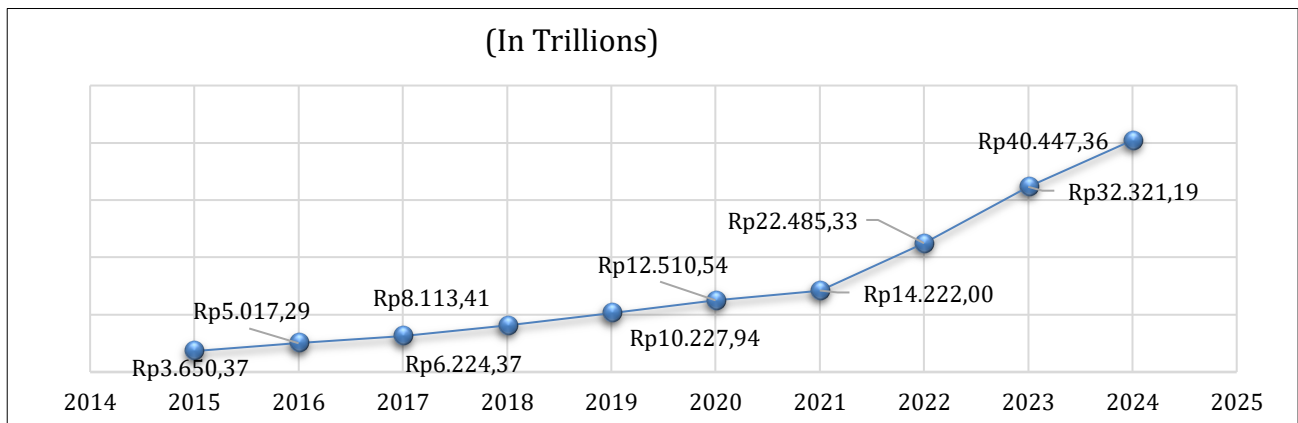


Figure 1. Indonesia's Zakat Revenue from 2015 to 2024

Source: National Zakat Agency (BAZNAS), data processed

Figure 1 shows how the collection of zakat by BAZNAS has seen a significant increase in revenue over the past 10 years. Zakat revenue has increased by 36.79 trillion, with an average annual revenue of 15.5 trillion. Various studies provide ample evidence of how zakat significantly influences economic growth (Purwanti, 2020; Badriyah & Munandar, 2021; Qoyyim & Widuhung, 2020). and household income in reducing poverty rates (Nurviliza, 2024; Mawardi, et al., 2023; Munandar, et al., 2020). However, we do not yet know how economic growth and household income themselves influence zakat collection in Indonesia.

An interesting phenomenon occurred in 2020, when zakat revenue continued to grow by 2% even as economic growth was negative at 2%. We can see this in Figure 2, which shows economic growth over the past 10 years in terms of Gross Domestic Product (GDP), which has continued to show positive growth even though economic growth turned negative in 2020.

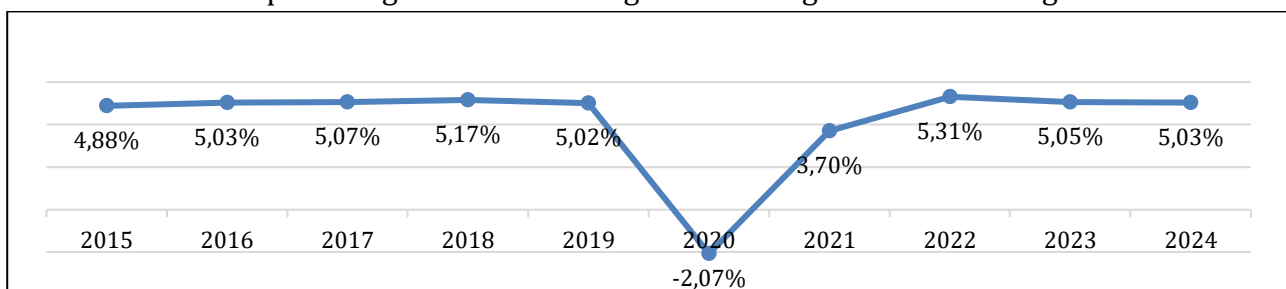


Figure 2: Economic Growth at Current Prices, 2015–2024

Source: Central Bureau of Statistics (processed data)

Figure 2 shows that Indonesia's economic growth over the past 10 years increased by 0.5 percentage points, from 4.88% in 2015 to 5.03% in 2024. Thus, the average growth rate over the past 10 years was 4.21% per year, which means that economic growth falls into the "slow" category for a developing country. (World Bank, 2017). The highest economic growth occurred in 2022, driven by rising prices and increased demand for goods and services in the wake of the COVID-19 pandemic. Interestingly, despite the economic downturn, zakat revenue continued to rise. This economic growth will be realized when zakat succeeds in reducing poverty rates (Harahap et al., 2023). according to Ben Jedidia & Guerbouj (2021) To eradicate poverty, zakat must serve to redistribute income and meet consumption needs, thereby boosting economic growth. The same is true of the research findings El Ashfahany (2023) which states that zakat can boost economic growth and that this applies to all Muslim countries.

On the other hand, GDP by economic sector contributes differently to economic growth. Data from the Central Statistics Agency (BPS) shows variations in GDP growth across 17 economic sectors in 2024, as illustrated in Figure 3.

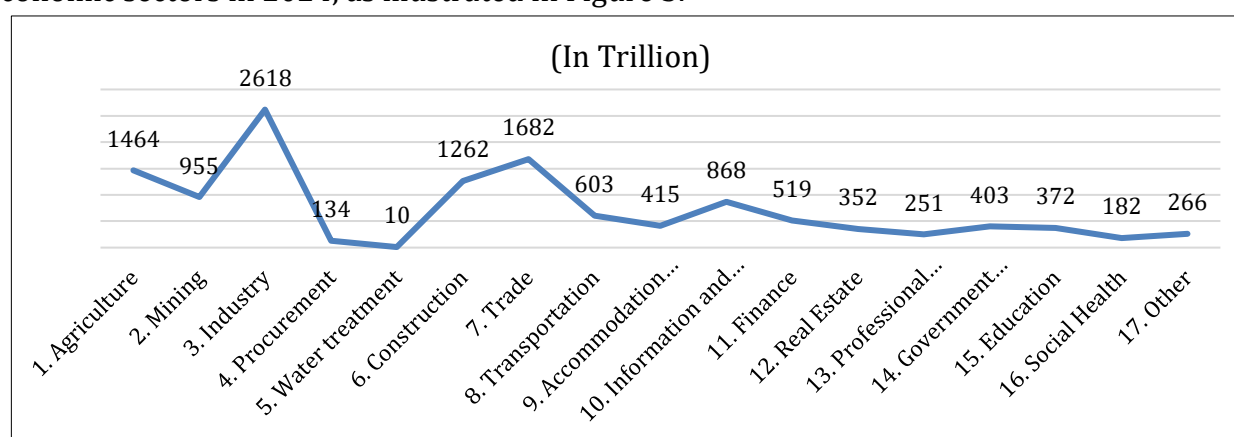


Figure 3. GDP by Economic Sector, 2024

Source: Central Statistics Agency (BPS) processed data

Figure 3 illustrates the contribution of 17 economic sectors to economic growth. From Figure 3, we can see that the industrial, trade, and agricultural sectors are the largest contributors to GDP in 2024, making these three sectors the main drivers of economic growth. The high level of contribution these sectors provide warrants special attention in every government policy. On the other hand, the water treatment or management, social and health, education, and professional services sectors contribute only a small portion to GDP.

The income of people working in 17 different business sectors results in varying wage growth; the amount of wages received will determine the extent of wages' contribution to economic growth and the zakat paid. Based on 2024 BPS data, the wages received by workers by business sector are shown in Figure 4. In Figure 4, we can see the average wages received by workers by economic sector. The financial, mining, and procurement sectors have the highest average wages, ranging from approximately Rp. 4.7 million to Rp. 5.1 million, while the agriculture, service provision, and education sectors have lower wages, ranging from approximately Rp. 2.2 million to Rp. 2.8 million. This wage disparity is inversely proportional to GDP growth by economic sector, as shown in Figure 3. The industrial, agricultural, and trade sectors which are the largest contributors to GDP receive significantly lower wages. Conversely, the financial, mining, and procurement sectors, which contribute little to economic growth, receive significantly higher wages than other sectors.

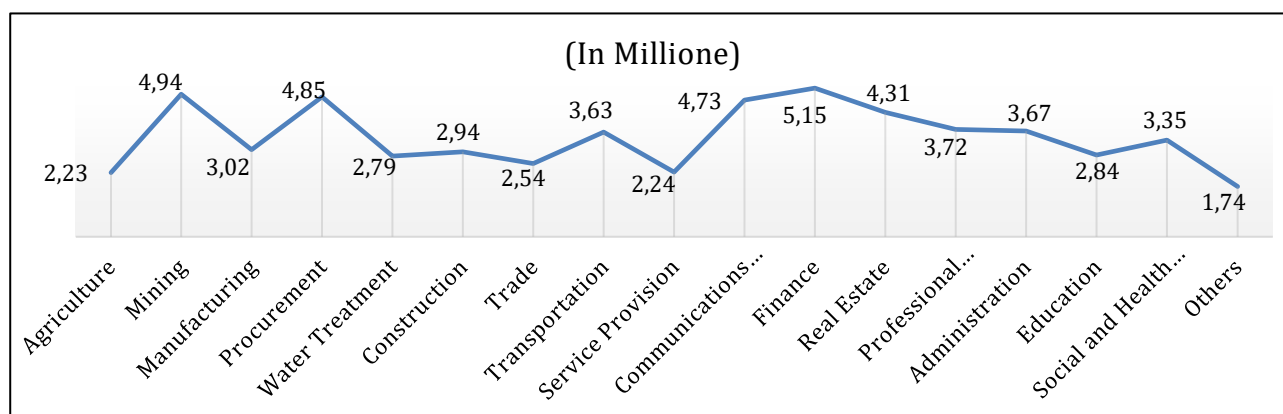


Figure 4. Average worker wages by industry sector, 2024

Source: Central Statistics Agency (BPS) processed data

Although there are studies that examine macroeconomic indicators and their role in relation to zakat, these studies predominantly treat zakat as a predictor of economic growth, such as the study conducted by Tambunan et al. (2019). In his study, using the VECM model, he found that zakat has both short-term and long-term effects on economic growth. The same is true of the study Harahap (2023) shows that zakat has an impact on economic growth. In contrast to the findings of the study Wiranatakusuma & Habibullah (2024) which uses the ARDL approach to compare the effects of zakat on economic growth in Indonesia and Malaysia, finding that zakat has no significant impact on economic growth in either the short or long term.

There have also been several studies conducted on the relationship between economic growth and wages and zakat revenue, such as the one conducted by Juliarty et al. (2025) using the ARDL approach, it was found that GDP and the Consumer Price Index (CPI) have a positive effect on the increase in zakat revenue. Although this study uses the CPI as an indicator of economic capacity, this variable only reflects changes in the public's purchasing power; the exclusion of the wage variable means that the public's economic capacity in terms of income which influences purchasing power cannot be measured.

Yanti & Parlina (2022) multiple regression analysis shows that aggregate GDP and per capita GDP have a significant but negative effect, while the Regional Minimum Wage (UMK) has a positive and significant effect on zakat revenue. Although this study uses GDP and wages as predictors of zakat, However, a limitation lies in the fact that the GDP used is aggregate in nature; that is, the existing economic growth does not reflect the distribution across different occupational groups, which tend to vary. Furthermore, the differing results between GDP and the Regional Minimum Wage (UMK) regarding zakat revenue indicate an inconsistency with the theory that economic growth is followed by wage increases, which in turn lead to an increase in zakat revenue.

Different results were shown by the study Muslih (2024) using the REM model on panel data, it was found that GDP and wages do not affect zakat revenue in the 34 provinces. However, this study focuses more on zakat growth, which has the potential to create a base effect where figures may appear high or low simply because they are compared to previous revenue levels. Furthermore, the differing results shown by this study reflect the continued existence of empirical inconsistencies regarding the variables used in relation to zakat revenue. In line with the study Zubaidah & Munawar (2021) using a multiple linear regression analysis, the results show that GDP per capita and inflation have no effect on zakat revenue.

The differences between the current study and previous research lie in several aspects. First, while previous studies used GDP per capita and aggregate GDP to examine economic growth and some researchers even used them as proxies for income. However, in this study, the researcher uses GDP broken down by 17 business sectors to provide a more in-depth picture of the impact on each sector. Second, while previous studies used the Regional Minimum Wage (UMR) or Provincial Minimum Wage (UMP) to measure wage levels, this study uses actual wages received by sector across the 17 business sectors. This sector-based wage approach will provide more realistic information on the actual wages received in each sector. Second, while previous studies focused on measuring zakat growth, this study focuses on zakat revenue. The researchers used zakat revenue because it provides a more accurate picture as empirical evidence of how economic growth and wages influence the zakat revenue collected in Indonesia.

There have been studies examining the impact of wages on zakat. According to Pertiwi (2020) Zakat revenue is determined by the public's income and their trust in the institutions that manage it. Communities characterized by high incomes and a strong sense of religiosity will contribute more to zakat revenue (Adilla et al., 2021). However, some studies have shown conflicting results, such as the study conducted by Tho'in & Marimin (2019). The level of a muzaki's income will not lead to an increase in zakat if the public lacks education and guidance regarding zakat. Income will also not affect zakat if those obligated to pay zakat do not have a deep faith in their religion (Windiasari, 2025). The same applies, according to Pospos (2018) which states that the services provided by zakat institutions have a greater influence on the willingness to pay zakat than income level.

There is a research gap regarding the relationship between wages and zakat, as in Pertiwi (2020); Tho'in & Marimin (2019); Pospos (2018); Adilla et al. (2021) and Windiasari (2025) which focus more on individual income and wages which merely reflect personal economic capacity and thus do not yet reflect the characteristics and conditions of each business sector. In addition, previous research has also been dominated by behavioral factors such as literacy, knowledge, etc., and has therefore been unable to capture changes occurring at the macroeconomic level. Finally, all studies treat income as either an aggregate or individual value but do not distinguish the primary sources based on each business sector, which has distinct characteristics in terms of wages, productivity, and so on.

The differences between the current study and previous research particularly regarding the role of wages in zakat income include the following: First, the researchers focused more on economic sectors as units of analysis rather than on individual members of the public. Second, the researchers focused more on sectoral production capacity and sectoral wages rather than on individual wages or behavior. Third, the researchers focused more on actual zakat income rather than on the willingness to pay zakat. Based on the research gaps outlined above, it is evident that the existing gap stems from the inability of previous studies to confirm how a sector-based economic structure influences zakat revenue in Indonesia. The use of aggregate GDP and policy-based wages has not been able to explain the extent of production capacity and wages received by economic sector. This situation has also resulted in an inability to identify which sectors contribute most to zakat revenue.

The novelty of this study lies in its macroeconomic approach based on economic sectors, which integrates sectoral GDP as an indicator of production and sectoral wages as an indicator of income distribution across 17 economic sectors. The integration of these two indicators is

used to explain their impact on zakat revenue in Indonesia. Additionally, this approach is used to identify which sectors are the primary contributors to zakat revenue. The objective of this study is to determine the impact of GDP and wages across 17 business sectors and to assess the magnitude of the effects generated by these two variables on zakat revenue in each respective sector. This will help identify which business sectors serve as the primary sources of zakat revenue and vice versa. Furthermore, this study is also expected to serve as a benchmark for policymakers in managing sources of zakat revenue across various economic sectors.

The contributions of this study are, first, to provide a broader body of literature on the economics of zakat one that is not limited to aggregate growth and wages but can also be examined from a sectoral perspective. Second, this study will provide more representative results by offering up-to-date information on GDP and wages by sector, as opposed to aggregate GDP and the regional minimum wage (UMP/UMK). Third, the findings of this study can serve as a basis for formulating policies or strategies to maximize the potential of zakat in sectors where its contribution is still minimal.

2. Literature Review

Solow's Theory of Economic Growth

Solow's theory of economic growth focuses on four factors: Y (output), K (capital), L (labor), and A (knowledge/technology). These factors form the production equation model:

$$Y_t = f(K, L, A)_t \dots \dots \dots (1)$$

is a variable not included in the production function, so the quantity of output will change as the variables labor, capital, and technology change. The first assumption of the Solow model states that the production function is the result of capital and labor—that is, adding K and L while keeping technology A constant—which yields the following equation:

$$F(cK, cAL) = cF(K, AL) \dots \dots \dots (2)$$

The Solow model operates under two assumptions. First, that the economy is sufficiently large such that when capital or labor is doubled, the output will increase by no more than twofold. The second assumption is that factors other than capital, labor, and knowledge are not significant in a large economy. Consequently, capital in the form of machinery is not considered important in this model. In this theory, the economy is determined by capital and labor, while technology serves only as a complement to production. This means that even without technological instruments, workers can still increase production, thereby generating a function:

$$y_t = f(K) \dots \dots \dots (3)$$

Equation 3 illustrates that capital Y_t represents the output produced by each unit of labor K , meaning that a one-unit increase in capital per worker will increase output by one unit. However, as more capital is used, the marginal product of capital rises and then gradually declines.

Furthermore, the Solow model accounts for changes in production by assuming that capital, labor, and knowledge evolve; in this model, these factors are assumed to grow positively.

$$L(t) = nL(t) \dots \dots \dots (4)$$

$$A(t) = gA(t) \dots \dots \dots (5)$$

Equations 4 and 5 above show that the constant growth rate of the labor force L is equal to the growth rate nL , and similarly, the growth rate A is equal to the growth rate gA . The output generated from labor production is divided partly for consumption and partly for investment; the output used for investment s will generate one unit of new capital, while existing capital will depreciate by δ , resulting in the equation

$$\dot{K}(t) = sY(t) - \delta K(t) \dots \dots \dots (6)$$

Equation 6 shows that new capital $\dot{K}$ is the result of output generated by investment minus capital depreciation.

After Solow presented a model in which all three inputs grow constantly and in tandem, he went on to develop a model in which labor (L) and knowledge (A) are constant but capital (K) changes. This change yields an equation

$$\dot{K}(t) = sf(k(t)) - (n + g + \delta) K(t) \dots \dots \dots (7)$$

Equation 7 shows that $sf(k(t))$ represents the output generated, which is then used for savings to purchase other assets in order to increase production; however, uncertain economic conditions do not guarantee that capital will continue to grow, as companies will face depreciation, rising labor costs, and the need to keep up with technological advancements $(n + g + \delta) K(t)$. This leads to the conclusion that changes in a company's capital result from the difference between incoming investment and budgeted capital that has not been spent.

Wage Differentiation Theory

According to the theory proposed by Borjas (2016) the real labor market is always confronted with wage differentials. The reason for these differences is that workers possess varying skill levels, while employers differ in the benefits they provide. The idea proposed by Adam Smith in 1779 suggests that wage differences serve as a counterbalance to non-wage-based work. Borjas (2016) identifies why wages are always different. By using several instruments such as:

First, occupational risks: when faced with risks, workers will consider their safety and wages. By using a utility function, we can determine which choice a worker will make. Workers will weigh the risk against the wage; they will refuse the job if the wage received is smaller than the risk involved. They will then consider accepting or rejecting the job if the risk is commensurate with the wage received, but will accept it if the wage is greater than the risk involved. In addition to job risks, which are a choice for the worker themselves, there is also the aspect of job capabilities in providing a comfortable work environment. Enhancing comfort in safe job types is not too difficult, but for high-risk job types, it is very difficult to provide work comfort compared to safety. Therefore, to achieve this balance, employers will increase wages in accordance with the risks involved; this balance is referred to as the Hedonic Wage.

Third, there are regulations regarding workplace safety. According to Borjas (2016) the enactment of workplace safety laws can reduce workers' welfare and lead to wage disparities, as these laws restrict high-risk production, causing companies to limit risky productivity. Although these restrictions improve worker safety, they also reduce job profitability. When profits decline, yet workplace safety improves due to reduced work risks, this results in workers receiving lower wages. Fourth, work exemptions: The number of work hour exemptions reduces productive working hours and ultimately leads to a decrease in workers' income. Workers will still receive higher wages with more work exemptions if their initial wages are significantly higher than the average wages of other workers; however, this

phenomenon applies specifically to those with high skills and human capital who work in specialized sectors. According to the human capital theory proposed by Becker (1994), the amount of human capital or the length of schooling a worker has received increases their quality and income.

Fifth health benefits, companies typically offer employees a choice between higher wages and health benefits. Employees are faced with two options: accepting a higher wage without health coverage, or accepting a lower wage in exchange for health coverage. Consequently, employee satisfaction is determined by this choice. Workers who choose to have their health benefits converted into cash will receive a higher wage than workers who have both health coverage and wages, provided this choice is made by workers at the same wage level. However, for workers in the private or key sectors, companies will offer high wages accompanied by more substantial health benefits; this applies to workers with specialized skills and specific job titles.

The Theory of Social Finance and Development

Poverty and unemployment are issues faced by all nations, whether developed, developing, or underdeveloped. Unequal income distribution is one of the causes of economic inequality. Zakat serves as a key instrument in Islamic economics, and its contribution to poverty alleviation is its primary role. Zakat distribution can be carried out in the form of cash, goods, or services. Manan (2000) outlines the reasons why zakat, as a form of income redistribution, is necessary. First, public goods distributed fairly to the community will improve public services. Second, individuals with high incomes will distribute a portion of their income to the poor to increase their consumption budget.

Figure 6 shows the zakat budget line for the recipient. The recipient initially has budget line A at Y_0 , resulting in consumption constraints at G_0 and health constraints at E_0 . When receiving zakat from the muzaki, the budget line shifts to line B at Y_1Y_2 . If the mustahik prioritizes consumption over education or health, the consumption level shifts to line G_1 and the budget for education remains at E_0 ; however, if the mustahik prioritizes health and education, the consumption level shifts to line G_0 and the budget for health shifts to E_1 . In macroeconomics, consumption is crucial for measuring economic performance because it has a positive relationship: when consumption increases, economic growth also increases, and vice versa.

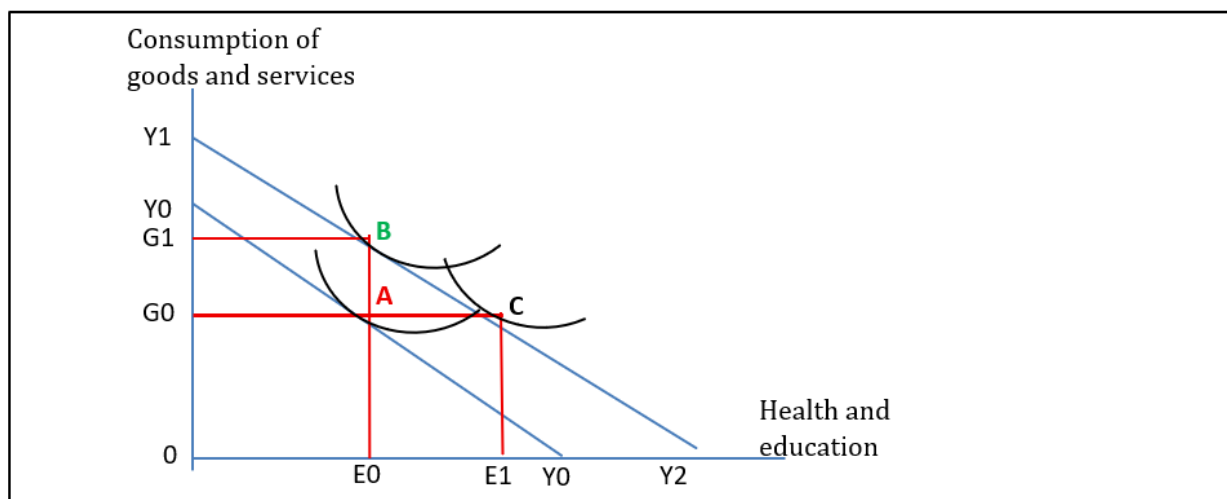


Figure 6: Budget Line Curve for Mustahiq
Source: Mahri et al. (2021)

The potential of zakat to effectively address the challenges faced by the conventional economy. Productive zakat initiatives serve not only as a solution but also as a driving force for a self-reliant and equitable economy in the real sector, encompassing trade, services, and agriculture. The explanation of zakat as a solution in the macroeconomy is further elaborated as follows: First, poverty alleviation; the role of zakat in alleviating poverty is as a redistribution of wealth from the muzaki to the mustahik. Ahmed, (2004) explains that zakat will significantly contribute to economic growth in the form of business capital and significantly contribute to human capital development. In fact Hassan & Khan (2019) suggest that zakat and waqf need to be integrated through the financial sector to increase the purchasing power and productivity of the mustahik, as well as through the provision of business capital loans without profit-sharing to financial institutions. Thus, Chapra in 1985 explains that the function of zakat is to reduce the muzaki's excess consumption and to serve as a medium for income transfer from the muzaki to the mustahik. Second, reducing the level of Unemployment: As a fiscal instrument, zakat plays a role in reducing unemployment. According to Atah et al. (2018) reducing unemployment can be achieved by social finance institutions and zakat through the provision of business capital, Raies (2020) adds that, in addition to providing business capital, collected zakat can also be used to fund educational programs for beneficiaries, enabling them to obtain higher education and secure employment in the future.

The optimization of Islamic social finance institutions is carried out through several bodies, such as the National Zakat Agency (BAZNAS) and the Indonesian Waqf Board (BWI). Law No. 23 of 2011 regulates the management of zakat, covering zakat collection agencies from the national to the local level. BAZNAS is tasked with overseeing and ensuring that zakat management is in accordance with sharia, trustworthy, beneficial, fair, accountable, and integrated. To assist in implementing beneficial development programs, Islamic social finance institutions have established strategic research centers as a foundation for policy-making. These research and academic centers function to investigate and analyze various issues faced by the community, ensuring that the policies adopted are effective and well-targeted. Zakat, which accounts for 3.4% of GDP, plays a crucial and significant role in the economy (Sudibyo, 2018). If this substantial potential is effectively harnessed, it can have an even greater impact on eradicating poverty, unemployment, and low economic growth. The Indonesian Waqf Board (BWI) functions as the manager of waqf assets, whether in the form of assets or other holdings. Waqf plays a role in economic growth, and productive waqf is one of them. The proceeds from waqf funds received by the BWI are subsequently managed to generate additional profits or benefits; these profits are then used for social purposes such as the construction of public facilities, reducing poverty rates, lowering unemployment rates, and funding education for underprivileged families (Maulana, 2025).

Research Hypothesis

Based on the problem background and research gap discussed in the introduction, the following research framework has been formulated:

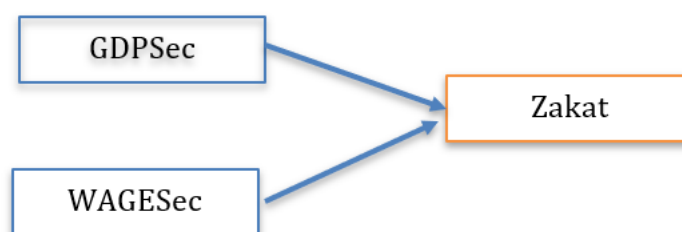


Figure 7. Conceptual Framework

Based on the conceptual framework, previous research, and the theories presented above, the following research hypotheses have been formulated:

H01 : The level of workers' wages by economic sector has effect on the increase in zakat revenue in Indonesia

H02 : GDP by economic sector contribute to the increase in zakat revenue in Indonesia

3. Research Method

This study employs a quantitative method using a panel data regression approach, whilst the model specification for establishing the relationship between the independent and dependent variables utilises Panel Estimated Generalised Least Squares (EGLS). EGLS was selected for model estimation not only because it is capable of addressing heteroscedasticity and serial correlation in the model's error terms, but also to obtain better estimation results for panel data, which may exhibit cross-sectional variation. (Gujarati & Porter, 2009). This study utilises secondary data sourced from the Central Statistics Agency (BPS) and the National Zakat Agency (BAZNAS). Based on their type, the data used in the variables (GDPSec) represent economic growth across 17 business sectors, measured by sectoral GDP; (WAGESec) represents workers' income across 17 business sectors, measured using average sectoral wages; and (Zakat) represents zakat revenue over the last 10 years, namely from 2015 to 2024. The data were then converted into logarithmic values. The data collection technique employed in this study involved selecting data based on requirements, data type, the appropriate number of years, and the number of cross-sectional observations.

The analytical techniques used in the panel data regression for this study were carried out using EViews 12, according to Kalton & Ducan (1985) The panel data was used for research requiring results for each component or sub-data set in order to identify the changes that have occurred. The stages of data analysis carried out include: 1) conducting a Root Test on each variable used (GDPSec, WAGESec and Zakat) to avoid spurious regression; 2) conducting a cointegration test to determine whether the time series data used has a long-run relationship; 3) conducting model selection tests for CEM, FEM and REM; 4) Conducting classical assumption tests. The model forms used in this study are as follows:

$$Zakat_{it} = \alpha + \beta_1 GDPSec_{1it} + \beta_2 WAGESec_{2it} + \varepsilon_{it} \dots \dots \dots (8)$$

4. Results and Discussion

Results

Based on the results of the root test using the Levin, Lin & Chu method, it was found that all variables both dependent and independent are stationary at the data level. Similarly, the cointegration test using the Pedroni cointegration test revealed that three of the four statistics

namely ADF, PP and V showed a probability value of < 0.05 , which means that the data are cointegrated or exhibit a long-run relationship. As shown in Table 1.

Table 1. Root Test and Cointegration

Variabel	Statistic	Prob.**	Result
Zakat	-5.06612	0.0000	Stasioner-Level
GDPSec	-3.50492	0.0002	Stasioner-Level
WAGESec	-18.0808	0.0000	Stasioner-Level
Pedroni Cointegration Test (ADF)	-2.212287	0.0010	Terkointegrasi

Source: Processed Eviews data

Furthermore, the results of the panel model selection indicate that the Fixed Effects Model (FEM) was selected; this is because two out of three tests—namely the Cow, Hausman and LM tests identified the FEM as the best model with a p-value of < 0.05 . In addition, statistical criteria such as the average model error and model fit indicate that the FEM has a smaller error and a higher model fit compared to the other models.

Table 2. Model Tests

Model	Statistic	Prob.	Result
Cow Test	290.523479	0.0000	FEM
Hausman Test	683.006736	0.0000	FEM
LM Test	0.115442	0.7340	CEM

Source: Eviews 12, processed data

Based on the results of the model selection, the Fixed Effects Model was selected and will be estimated next. In the initial analysis, the first model which utilised only the variables GDPSec, WAGESec and ZAKAT failed to capture the economic realities that have unfolded between the past and the present. Consequently, in this new model, the researcher has included lagged independent variables, namely WAGESec(-1) and PDBSec(-1), to capture the potential delayed effects of current economic changes, the results of which may become apparent in the subsequent period. In contrast, the variable ZAKAT(-1) is treated as an interaction term with WAGESec(-2) and PDBSec(-2), rather than as an independent variable. The purpose of the ZAKAT(-1) variable is to determine whether the influence of WAGESec and PDBSec from two years ago on current zakat revenue is also influenced by the previous year's zakat revenue. Following adjustments to the FEM model, the results of the estimation produced a new model as shown in Table 3.

Tabel 3. Estimation Results

Variable	Coefficient		Prob.	
	Fixed	Random	Fixed	Random
C	-1.722428	-1.080177	0.1748	0.1089
WAGESec	0.242047	0.019326	0.0153	0.0017
GDPSec	0.917096	0.444387	0.0003	0.0445
WAGESec (-1)	-0.070886	-0.048330	0.4439	0.6024
GDPSec (-1)	-0.705883	-0.856756	0.0067	0.0003
WAGESec (-2)*ZAKAT(-1)	0.065881	0.069614	0.0002	0.0000
GDPSec (-2)*ZAKAT(-1)	0.083107	0.101572	0.0001	0.0000

Sumber: Eviews 12 processed data

Having established that the best model is as shown in Table 3, the results of the classical assumption tests indicate that this model passes the normality and heteroscedasticity tests with a Prob value > 0.05 , whilst the Durbin-Watson statistic for autocorrelation is close to 2, as shown in Table 4.

Table 4. Results of the Classical Assumptions Test

Classical Assumptions Test	Probability	Durbin Watson	Result
Normalitas	0.0786	-	Ok
Heteroskedastisitas	0.9962	-	Ok
Autokorelasi	-	2.3937	Ok

Source: EvIEWS 12, processed data

Meanwhile, the multicollinearity test revealed that several independent variables exhibited a fairly high correlation, particularly between lagged variables and interaction terms namely >80 such as WAGESec with WAGESec(-1), GDPSec with GDPSec(-1) and GDPSec(-2). This correlation occurs in the lagged forms of the independent variables, not in the independent variables themselves. This means that this correlation is not a problem with the independent variables, but rather the result of the same variable at different points in time, thereby creating a close relationship between the past and present values of that variable. Therefore, according to Gujarati & Porter (2009) Although the model shows signs of multicollinearity, this does not result in biased estimates; this is a consequence of the dynamic model, which analyses the role of variables over time. If the lagged variables or lagged interactions were removed, this would result in very high autocorrelation, leading to spurious regression results and a biased model. The same applies to the heteroscedasticity test: as this model uses EGLS, according to Gujarati (2012) This model can be used to eliminate problems of heteroscedasticity or autocorrelation, thereby automatically ensuring the model is free from heteroscedasticity. Furthermore, the model is considered robust and reliable, as evidenced by an R^2 value of 97 per cent and a low standard error of 0.046.

The results of the tests at each stage produced the best model, which is presented in the form of Equation 2.

$$\begin{aligned} \text{ZAKAT} = & -1.7224 + 0.2420 * \text{WAGESec} + 0.9171 * \text{GDPSec} - 0.0709 * \\ & \text{WAGESec}(-1) - 0.7059 * \text{GDPSec}(-1) + 0.0659 * \text{WAGESec}(-2) * \\ & \text{ZAKAT}(-1) + 0.0831 * \text{GDPSec}(-2) * \text{ZAKAT}(-1) + [\text{CX} = \text{F}] \dots \dots \dots (2) \end{aligned}$$

Discussion

The Effect of Wages on Zakat

The results of the estimation show that wages in the current year have a significant impact on zakat revenue, with a β coefficient of 0.2420 and a p-value of 0.0153. This means that every 1 per cent increase in wages will increase zakat revenue by 0.2420 per cent. To illustrate this economically, we can use Equation 3, where.

$$\frac{\beta}{100} \times \frac{\sum_{i=1}^n \text{Zakat}_i}{n} \dots \dots \dots (3)$$

Or

$$\frac{0,2420}{100} \times \frac{1552 \text{ trillion}}{10 \text{ Year}} = 375,6 \text{ billion}$$

Equation 3 illustrates the economic impact of a 1 per cent increase in wages on the amount of zakat revenue received; the figure of Rp 155.2 trillion represents the cumulative zakat revenue over the last 10 years, with an average annual zakat revenue of 15.52 trillion, as explained in Figure 1. The effect of the increase in the current year represents the aggregate response to wage rises across 17 business sectors. This result is consistent with Durohman et al. (2023) which indicates that individuals who have a balance between income, employment and education are more likely to pay zakat. However, this study differs from current research, particularly in terms of its focus on the unit of analysis; if Durohman et al. (2023) Previously,

research emphasised individual economic characteristics such as education, occupation and income status as factors influencing an individual's willingness to pay zakat; however, researchers now focus more on changes in the economic structure that affect zakat revenue at the business sector level, with changes in sectoral wages thus serving as a measure of the public's ability to pay zakat.

The findings of this study also differ from those of Fahmi & Nur (2018) which indicates that education is a key factor in donors' willingness to pay zakat, compared with income, particularly amongst those engaged in trade. Research by Fahmi & Nur (2018) Fahmi & Nur (2018) focuses more on analysing individual characteristics, such as psychological and behavioural factors, in relation to the willingness to pay zakat. Although this study is almost similar to Durohman et al. (2023) However, Durohman's approach differs in that it focuses more on the economic status associated with individuals rather than on individual character traits.

Whilst the two previous studies emphasised aspects of individuality, this researcher has focused more on the aggregate economic capacity of the community within specific business sectors; this is because the aim of this study is to determine the sectoral impact of wages and GDP on zakat revenue, rather than to examine decisions or willingness to pay zakat. As the analysis in this study focuses on zakat revenue at the aggregate sectoral level, the variable WAGESec is taken in this context as a reflection of the community's economic capacity, which is subject to fluctuations. Although, as explained in the theory outlined previously, the focus is more on education, as described. Borjas (2016) However, the aim of the theory is to explain its impact on people's income; therefore, the researcher analysed the WAGESec variable—representing the income generated from education—in relation to potential zakat income, rather than analysing the impact of education itself on zakat.

In contrast to the previous year, where an increase in wages actually had a negative effect on zakat income during the current period. The resulting coefficient value was -0.07088 at a probability level of 0.4439. Although the value of the WAGESec(-1) variable is negative, the result is not statistically significant; consequently, there is no empirical evidence to suggest that last year's increase in income caused a decrease in current zakat revenue. Thus, this study indicates that changes in wages occurring in the previous year do not show a consistent relationship with zakat revenue.

Other results show that a 1 per cent increase in wages two years ago would lead to an increase in zakat revenue for the current year of 0.065881, equivalent to Rp 10.2 billion. The impact will be greater if zakat revenue in the previous year was also high; conversely, if one of the variables is low, the impact will be smaller. This indicates that zakat revenue is also influenced by previous zakat revenue. These findings are consistent with Fatimah et al. (2019) which found evidence that income from the previous two years would have a positive impact on current zakat income. In contrast to Damanik & Nasution (2023) which indicates that there is no significant effect. The differences in results shown by Damanik & Nasution (2023) This is because the research conducted in 2022 and the two preceding years coincided with the COVID-19 pandemic and a period of economic transition, meaning that wages did not affect zakat income with the same time lag. Meanwhile, the results Fatimah et al. (2019) and this research was carried out during a period of relative economic stability, thus demonstrating a positive impact.

The Effect of GDP on Zakat Income

Economic growth in the business sector makes a positive and significant contribution to zakat revenue of 0.917096; this means that for every 1 per cent increase in GDP equivalent to 6.04 trillion zakat revenue will increase by 0.00917, equivalent to Rp 1.42 trillion. The findings of this study are consistent with Diniati (2021) which shows that economic growth has a positive impact on zakat collection in the short term but a negative one in the long term. The similarity with current research lies in the role of national income output in enhancing aggregate economic capacity, but Diniati (2021) distinguishing between short-term and long-term effects using the ECM approach. Consequently, the research results yield coefficient values that represent the dynamics towards long-term equilibrium, which is subject to continuous adjustment. Conversely, the researcher analysed sectoral income output in terms of its role in relation to zakat revenue without distinguishing between the long and short term; consequently, the resulting coefficient values represent changes in sectoral GDP and their impact on zakat over time. Similarly, in the study Almeyda & Rusgianto (2023) Using a multiple linear regression model shows that GDP has a positive and significant effect on zakat revenue; although this study is consistent with this finding, it focuses more on aggregate GDP and the use of general macroeconomic indicators such as inflation, exchange rates and population size, meaning that the results do not yet provide clear information on how economic changes affect productivity in each sector economic, Yuliadi (2010) It should be noted that economic growth does not always occur evenly across every business sector; as the characteristics of each sector differ, the extent of their contribution to the total amount of zakat revenue will not be the same.

Therefore, to obtain more objective results regarding the impact of economic growth, in this study the researcher uses total output in each business sector to identify which sector has the greatest potential to increase national zakat revenue. GDP by business sector allows for the direct identification of sectors that have a direct relationship with the income of zakat payers, as each sector has different income distribution characteristics (BPS, 2017). Of the 17 business sectors, there are several that have a direct effect on the income of zakat payers, such as trade, accommodation, business services, transport and others. Owing to these characteristics, this regression yields positive and significant results, as demonstrated by the research findings outlined previously and confirmed through various tests. Furthermore, the increasingly modern, digital-based zakat collection system makes it easier for zakat payers to calculate their zakat and make payments in real time.

In the previous year, GDP yielded results that differed from the estimates for the current year; whilst in the current year GDP had a positive and significant impact on the increase in zakat revenue, in the previous year the growth in GDP across economic sectors resulted in low zakat revenue for the current year. Specifically, for every 1 per cent increase in GDP, zakat revenue in the current year amounts to 0.705883, equivalent to Rp 109 million. This low level of zakat revenue occurs in the context of the potential zakat revenue that should have been realised in the current year as a result of the previous year's economic growth. This phenomenon may occur for several reasons. Firstly, the effect of GDP growth tends to be felt by large companies, resulting in an uneven distribution of income compared to that of individual workers; consequently, the zakat potential arising from GDP growth is not reflected in an increase in the number of zakat payers. This phenomenon is supported by Zubaidah & Munawar (2021) which indicates that macroeconomic variables do not influence the increase in zakat revenue in Indonesia, as they account for only 36 per cent of the variation.

On the other hand, zakat revenue for the current year is also influenced by the level of zakat revenue in the previous year and the GDP level two years prior. The estimation results show that this influence has a positive and significant impact on zakat revenue of 0.083107, equivalent to 12.9 M. Although this result is relatively low, it suggests that the effect of GDP growth by economic sector is inelastic; in other words, zakat revenue is more responsive to changes in GDP in the current year or the previous year than to changes in the GDP of the year before last. An increase in GDP will be followed by a rise in average consumption by both the muzaki and the mustahiq (Rachmah et al., 2023).

Zakat Revenue Across Business Sectors

Based on estimates of the impact of GDP by economic sector and wages on zakat revenue in Indonesia, it is evident that the effects on each economic sector vary.

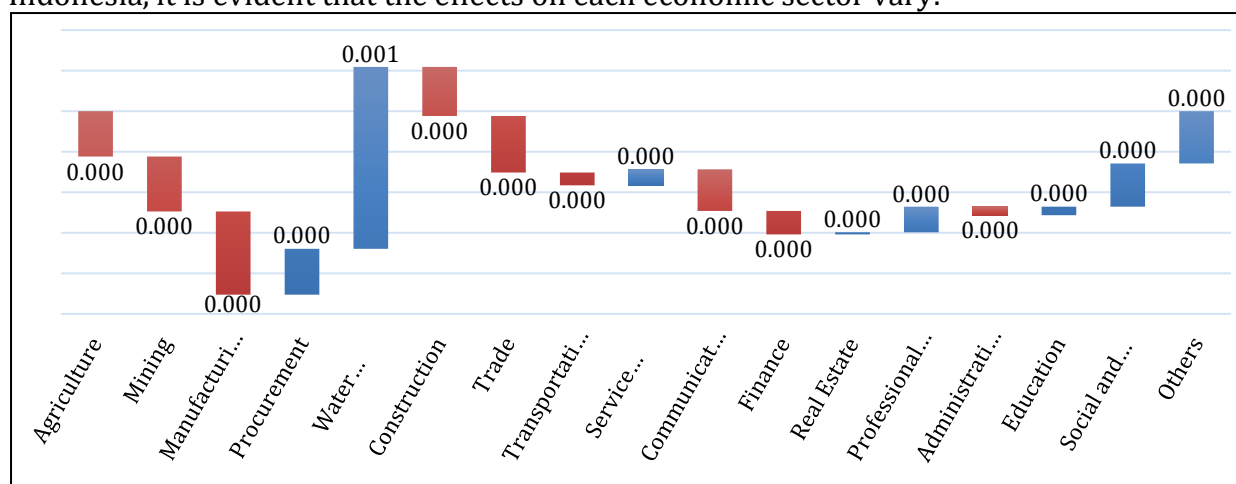


Figure 4. Cross-sectional Effect of Zakat on 17 Economic Sectors

Source: Eviews 12 (data processed)

Figure 4. Shows the results of a panel data regression model using the EGLS approach, which indicates that the effects of GDP and wages on zakat revenue yield different results. In the agricultural sector, the effect tends to be negative, or zakat revenue is relatively low. This is because the variables of wages and GDP do not directly impact this sector and tend to be more prevalent in the formal sector than in agriculture. Given that agriculture in Indonesia is dominated by family-run and small-scale farming, the influence of wages and GDP on this sector does not necessarily lead to an increase in the sector's revenue. In fact, Romli et al. (2016) This indicates that the increase in labour demand in the industrial sector has led to a decline in the agricultural sector's contribution to national income, as measured by aggregate household income. Technological modernisation has ensured that productivity continues to rise, even as the contribution of the labour force declines.

Although the industrial sector employs a large proportion of the workforce, zakat revenue in this sector remains negative, with a value of -0.411 the highest recorded despite the fact that industry is a major contributor to GDP, accounting for around 19–20 per cent of GDP (Pramesworo, 2026). However, this sector is capital-intensive and concentrated amongst capital owners, so it does not have a direct impact on the community. Furthermore, the concentration of industry in a few regions leads to an uneven distribution of income across the regions; although there is high employment, the income earned is used to meet basic needs, so the amount available for zakat is very limited. In fact, Muchtar & Widiastuti (2022) shows that GDP has a negative impact on zakat revenue in several ASEAN countries.

The mining sector has a negative value of -0.270; like other capital-intensive industries, this sector does not require as much labour as the industrial sector, and so it ranks as the fifth-largest contributor to GDP despite its limited workforce. According to Bank Indonesia, from 2011 to 2024, the mining sector employed only 1,733,523 people out of a total workforce of 144.64 million representing just 1.2 per cent of the workforce but it offers the highest wages. Rifa'i et al (2025). This means that although wages in the mining sector are among the highest, income distribution is concentrated in certain sectors and does not automatically increase the income of the wider population (Pelzl & Poelhekke, 2021). Consequently, although there has been an increase in GDP in this sector, the aggregate potential for individual zakat has not increased.

Similarly, in the trade sector, which has a negative value of -0.277, this figure does not imply that the trade sector reduces zakat revenue in the same way as other sectors with negative values; rather, the zakat collected from this sector remains low despite changes in GDP and sectoral wages, including the lag from the previous year. This phenomenon occurs because the trade sector is dominated by MSMEs, which in 2024 accounted for 99 per cent of the total (Nurlinda, 2024). Although, the majority of business owners have limited incomes and therefore do not yet meet the nisab requirement of 85 grams of gold (Monoarfa et al., 2026). The high number of MSME actors contributes to the sector's high GDP contribution. However, the high GDP in this sector is influenced by the number of transactions, which does not always reflect the income received by the traders. This causes the sector's aggregate wages to be low, as shown in Figure 3. This is reinforced by a 2022 report from BPS on Indonesia's trade profile, which indicates that the trade sector is dominated by the informal trade sector, which still uses simple record-keeping and administration, thus preventing zakat calculations from being performed optimally.

The construction sector shows a value of -0.243 as an effect of GDP, wages and lags in a regression model. The low zakat income in this sector is related to the characteristics of the construction system, which is still project-based and dependent on government and private sector activities. In fact Berg (2017) It indicates that contract-based workers in particular have unstable incomes. The non-continuous employment system in this sector means that the earnings of both workers and employers do not always keep pace with the value added generated by the construction sector, so the value added produced by this sector does not directly increase the number of potential taxpayers. Indeed, in 2024, the BPS showed that the labour force in Indonesia, particularly in the construction sector, employed 8.42 million people. Although the wages received are relatively high, at around Rp. 3 million, the nature of their work is contractual, temporary and daily, meaning they have not yet reached the zakat threshold.

Finally, there is the transport sector with a value of -0.064, the information and communication sector at -0.206, and the financial services sector at -0.114, which have negative values for national zakat income. The negative values produced after GDP and wages are controlled for in the lag model mean that the low zakat income from these three sectors is the result of different characteristics of the business sectors and their operators. The income of the transport services sector is determined by the level of demand for transport services, including shipping, general services, and logistics. The transport services sector is determined by the number of effective working days, public holidays, and the level of public mobility. Meanwhile,

in the shipping and logistics transport sector, according to Kantari et al. (2021) influenced by the purchasing power of the community, which affects the demand for goods across various regions. Consequently, the income generated in this sector is largely determined by external factors. This situation causes the income of prospective zakat payers to be unstable, resulting in low potential zakat revenue. In contrast, the information and communication sector tends to be high, but is dominated by digital economy actors such as freelancers, platform-based entrepreneurs and content creators. Research Dwiputrianti et al. (2025) It explains that in developing countries, although the communications sector employs a large number of workers, the wages received are low. This low wage level naturally limits the potential for zakat to be received sustainably.

The financial sector has the highest average wage compared to other sectors, despite its GDP output being relatively low when compared to agriculture, industry and construction. The high wages and low GDP produced reflect that this sector is supported more by asset growth, banking and capital market activities, rather than by productivity and the number of workers. Although the potential to be a taxpayer is high, the decision to pay income tax is not only due to economic factors but according to Kasri & Sosianti, (2023) kepercayaan terhadap LAZ, kesadaran diri atas kewajiban dan tingkat literasi zakat memberikan pengaruh terhadap pembayaran zakat. Temuan ini menunjukkan bahwa rendahnya pendapatan zakat pada sektor keuangan bukan karena rendahnya potensi yang ada namun belum maksimalnya transformasi dari potensi menjadi realisasi pendapatan zakat.

The EGLS estimation results also show a positive impact after GDP and wages were included in the regression model. For example, the water treatment sector, with a value of 0.896, emerged as the sector with the highest effect value. These results do not imply that the water treatment sector is capable of directly increasing zakat revenue; rather, this effect is a response to the sector's own characteristics, as explained by the Central Statistics Agency (BPS), where water treatment whether in the form of water supply, waste management, sewage treatment, or recycling is a sector closely linked to the basic utilities of the community in improving health and productivity. When the public's health and productivity improve, this leads to an increase in income; thus, from an economic perspective, this sector represents significant potential for new zakat payers, whether in their capacity as formal sector workers or as employers. Based on previous data, although this business sector's contribution to GDP is relatively low, it has a significant indirect effect on national zakat revenue through its impact on health and productivity. On the other hand, according to Pramesworo (2026) The services sector is a business sector that accounts for more than 40 per cent of Indonesia's GDP. On the other hand, the electricity and gas supply sector has a value of 0.227; the factor contributing to this sector's high value is the relatively stable level of demand from both businesses and households across all levels. The continuously rising demand across all economic activities such as industry, trade and services has led to employment at all levels and across various regions, thereby creating income distribution (Hutabarat & Shields, 2024). cc (Siswantoro & Ikhwan, 2024). The health and social services provided are capable of boosting income and fostering sustainable economic growth in the long term (Prasetya et al., 2025). Lastly, there is the professional services sector, which has a cross-sectional value of 0.124; this sector is dominated by professional activities carried out by individuals or in groups. What distinguishes this sector is its workforce: it is predominantly made up of workers with higher education, specialised skills and better

financial literacy. Consequently, workers in this sector tend to have more stable incomes; this factor plays a significant role in the high value of the professional services sector.

Conclusion

The GDP by economic sector and wages in each sector play a role in increasing national zakat revenue, particularly in the current year; however, past effects may contribute to low zakat revenue in the current year. Furthermore, current zakat revenue is also influenced by the interaction between the GDP by economic sector and wages over the past two years and the previous year's zakat revenue. In this study, the lag effects from the past are used as an interaction variable to examine whether these past effects have an influence on current zakat revenue.

The effects of GDP and wage variables in each business sector on zakat revenue were met with differing responses across the 17 business sectors. Of the 17 business sectors, eight were found to have a positive response to zakat revenue, whilst the other nine had a negative response. Business sectors with a high positive response include water treatment, procurement, social and health services, and others; sectors with a high negative response include industry, agriculture, mining, construction and trade. These differences indicate that service-based sectors are more responsive to high zakat revenue compared to trade sectors. The trade sector is predominantly made up of the informal sector, which is characterised by fluctuating income and is profit- and investment-oriented. In contrast, the service sector exhibits a stable and easily observable income pattern, particularly amongst workers in the formal sector. This research could be further developed by incorporating the characteristics of each sector and including microeconomic variables to obtain more specific results.

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