

## SOCIO-ECONOMIC IMPACT OF CHARITY IN THE FORM OF ZAKAT AND ITS DETERMINANTS: A PROPENSITY SCORE MATCHING (PSM) APPROACH

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### Abstract

*This study examines the impact of Zakat participation on household consumption, warm glow, trust on charitable and government institutions, economic activity and inequality reduction in Pakistan. Employing propensity score matching (PSM) with different matching techniques based on data collected through a household survey. We employed probit regression to estimate covariates and propensity scores, followed by PSM to analyze the average treatment effect on the treated (ATT). The probit regression results show that gender, marital status, residential house ownership, trust in charity organizations, and total family income are significant predictors of Zakat compliance. The PSM results indicate a statistically significant positive effect of Zakat participation on total household consumption, satisfaction, economic activity inequality reduction, suggesting that Zakat plays a decisive role in stimulating local economic activity and potentially reducing poverty. Results also show distrust towards charitable organizations and government institutions that would diminish the role of Zakat in sustainable economic development and poverty reduction in the long run. This research contributes to the understanding of Zakat's socio-economic implications and aligns with Sustainable Development Goals (SDGs), emphasizing the role of partnerships in achieving poverty reduction and inequality reduction.*

**Keywords:** Zakat, Inequality, Poverty Reduction, Economic Activity, Propensity Score Matching, SDGs, Pakistan

### 1. Introduction

Zakat, the mandatory charity in Islam, is a third pillar of Islam and essential part of its economic system, devised to redistribute wealth and alleviate poverty to maintain social justice in society (Said et al., 2023). It is counted as the most efficient and tested instrument to fight poverty, income inequality and all its redundant penalty (Shaharuddin et al., 2018) in society and used to trim down the accumulation of wealth, to confirm the equitable redistribution of wealth for poverty elevation in society and to attain social justice and prosperity (Al-Qaradawi, 2009). Regarding Islamic financial views, Zakat is an automatic mechanism for circulating wealth and preventing its concentration in the hands of a few. So, distribution of Zakat to the needy and low income groups, improves their purchasing power, preceding to boost up the demand for goods and services which stimulates production and investment and creates job opportunities and plays a vital role to poverty eradication (Mohsin, 2020).

As is an act of religious obligation it drives not only the in spiritual manners but also has the socio-economic attributes for individuals and society (Qaradawi, 1999). The gains obtained from giving Zakat is categorized into individual and societal level, at individual level, charity from private wealth reduces the tendency of greed (Qaradawi, 1999 and Bakar & Rashid, 2010). It indicates that awareness of one's religious obligation regarding Zakat is more likely to give Zakat (Jaafar et al., 2011). It also pays off in its socio- economic roles as well as socioeconomic declaration of justice and humanity, a sign of Islamic brotherhood, instrument of unity among the

Muslims' societies, a tool of diminishing the gap between rich and poor (Arsal et al., 2022; Bahri, et al., 2021).

Zakat can be a powerful tool for managing global challenges associated with the United Nations' Sustainable Development Goals (SDGs), (Luthfi et al., 2024); one (poverty alleviation), two (zero hunger), four (quality education), eight (economic development), ten (reduces inequalities) and seventeen (partnership for the goals). Zakat intrinsically focuses on wealth redistribution and acts as a social reformer of society (Thompson et al., 2019). Zakat as immediate financial support ensures the basic needs of deprived communities, reducing acute income inequalities in vulnerable societies, not only uplifting the living standards but also reduces income inequality by shifting wealth to marginalized people and empowers them to be financially self-independent (Abdullah & Chee, 2010).

Now a days, Zakat has evolved its role from reactive to productive and brings a lot more advantages (Yayuli et al., 2021; Hakim et al., 2021). As a fiscal tool, Zakat helps to manage the financial problem and income inequalities within low-income societies (Mardiasmo, 2013; Athief et al., 2022). In Islamic finances, Zakat acts like a tax function and plays the essential role for fiscal management (Ammani et al., 2014; Faridi, 1983; Metwally, 1997) in Muslim countries. But Zakat's role in social protection is based on the relationship between governance and its efficiency (Wahab & Rahman, 2011; Abioye et al., 2013; Fadilah, 2013; Mubtadi & Susilowati, 2018; Ghani et al., 2018), good governance would lead to enhance Zakat compliance behavior among Zakat payers (Muhammad & Saad 2016) otherwise can act adversely.

According to the World Bank's report "Poverty Projections for Pakistan in 2024 by Barriga et al.,(2024), reaching a rate of 25.3%, with the 7% increment in recent years (Pakistan Bureau of Statistics, 2024). Pakistan, a country with acute income inequality and significant poverty ratio, Zakat plays a key role in socio-economic welfare and development (Ibrahim, 2015). But Zakat institution is losing trust of Zakat payers (Adinugroho et al., 2024) ; in Muslim countries including Pakistan, Zakat payers' transfers about 10% amount of their saving balances into current accounts before the month of Ramadan to avoid deduction of Zakat due to trust deficit. People are also reluctant to disclose their wealth and prefer to as an interpersonal deed (Idris and Ayob, 2001; Ahmad et al., 2006; Wahid et al., 2010) due to fear attaining tax repercussions (Maidugu, 2003).

This study aims to analyze the determinants of Zakat and its impact of Zakat and its contribution to the reduction of income inequalities and provide empirical support for its efficacy in accelerating household welfare and poverty reduction regarding achieving SDGs 2030.

## 2. Literature Review

Prior studies address the concerns of low Zakat compliance by comprehending the role of Zakat as an institution and its compliance rate among Muslims (Mustafa et al.,2013). Empirical studies on Zakat in literature are mostly based on factors affecting Zakat giving patrons and its implications highlight the mixed results in its compliance. Sulaeman et al., (2020) indicates the positively significant impact of Zakat on household consumption among its recipients in Indonesia. In reference to providing basic needs like food, education and healthcare facilities, Zakat plays an essential role as echoed in Saputra & Sutopo's findings in 2024. Kahf (1999) also emphasizes the role of Zakat in income redistribution and stimulating the providence of social justice while Ibrahim (2011) and Nasruddin & Romli (2011) just highlight what the earlier studies have proposed, role of Zakat in the conventional economies.

Schacter (1999) argues that the competence of Zakat institutions is an essential ingredient of its performance. The warm glow is the mediating factor that helps the behavioral progress of the donor toward Zakat compliance (Ajzen, 1991). Warm glow act as a rationale for behaving “pro-socially” (Benabou and Tirole, 2006; Carpenter, 2021), although religious beliefs are usually perceived as catalyzing power in Zakat compliance along with several other components (Muda et al., 2009). Several studies have been conducted to specify the factors that play a vital role in Zakat compliance in (Muda et al., 2009; Sapangi et al., 2011; Heikal and Khaddafi, 2014).

Carpenter et al., (2022) estimations indicate that maintaining the level of people's warm glow is primary motive to fulfill their religious obligation toward Zakat. Mohsin (2020) in his study of welfare evaluation indicates that warm glow is the one factor among several other factors that are involved in the decision-making process to give Zakat or not, but religious and social commitments also played a vital role in Zakat compliance. According to Al-Qaradawi (1999) redistribution of wealth among less privileged class is key factor to reduce poverty, because Zakat is not only an act of fulfilling the religious duty that is based on spiritual aspects but incorporates the socioeconomic involvement of individuals towards their society. There are significant correlations between Zakat compliance and religiosity, people who are keener to perform their religious duties, show more inclination to pay Zakat (Mokhtari et al., 2021; Bin-Nashwan et al., 2019; Mukhibad et al., 2019). Khamis et al., 2014 suggest a model of Zakat compliance based on economic theory of consumer behavior and theory of expected utility, consisting of those factors which stimulate the people's behavior towards Zakat compliance. Ibrahim, (2015) study the problems regarding the realization of Zakat compliance approach among people and government that is fitting in the Nigerian circumstances. The previous studies on establishing the relationship between performance and governance competence (Fadilah, 2013); governance and effectiveness of a government (Wahab and Rahman, 2011; Mubtadi and Susilowati, 2018); along with trust of Zakat payers on governance (Abioye, 2013; Ghani et al., 2018) determines the level of Zakat compliance in a society regarding Zakat compliance and its valuable impact in underprivileged Muslim societies successfully like Pakistan, Indonesia, Malaysia and many others (Saad et al., 2016).

Previous work on Zakat compliance shows more interest in Zakat and its various perspectives for financial upgradation in marginal societies (Karim et al., 2022) and their attitude towards Zakat (Adiwijaya, 2010; Uyob, 2020; Adiwijaya & Suprianto, 2020; Bahri et al., 2021). They observe significantly positive attitude toward Zakat paying and eager to pay Zakat individually (Muhammad et al., 2016). According to Muneeza and Nadwi (2019) the means of collecting Zakat on governmental level, technological upgradation plays a vital role in potential of Zakat's collection in India. They recommend that the innovative means of collection such as mobile applications, rice ATMs, applications of block chain technology along with using artificial intelligence to get Zakat compliance data can play effectively role in managing Zakat activities (Muneeza & Nadwi 2019).

Rehman et al., (2021) uncovers a significantly positive behavior of the moral, injunctive and descriptive norms and their past activities re to ensure Zakat compliance on employment income, results indicate negatively weak but significant impact on the deduction of Zakat on employment income. The repute of Zakat collecting institutions plays a vital role in Zakat compliance (Jayanto & Munawaroh, 2019). If these institutions have good repute, transparency in Zakat collections and fairness in its distribution process leads to people towards Zakat compliance.

Muthaher & Wahyundaru (2023), uses the loyalty and trust improvement model regarding Zakat's payment, loyalty toward governmental institutions, charitable organizations regarding Zakat payments. Many economists consider Zakat as the most efficient and tested instrument poverty eradication (Ibrahim, 2015). Qaradawi (2009) establishes that Zakat can avoid wealth concentration in few hands with the redistribution of wealth, also helps in poverty reduction, improve social protection along with economic prosperity; because proper management and execution of Zakat stimulates Zakat compliance among Zakat givers (Salman & Mujahidin, 2022). Andam & Osama (2019) establish the positive attitude towards the associations between moral and descriptive norms regarding Zakat compliance. So, regarding previous literature Zakat compliance has multifaceted impact on socioeconomic indicator of a society based on taking Zakat as an obligatory charity in Islam.

### 3.Methodology:

#### 3.1. Data:

The data has been collected by a household survey with the help of structured questionnaire, conducted in three largest cities of Pakistan with respect to their population i.e. Karachi, Lahore and Faisalabad which generate more than 50% of Pakistan's GDP. Purposive and snowball sampling techniques has been used, to all the target population of Karachi Lahore, and Faisalabad in Pakistan. The selection of area for the survey is based on the size of population which would be the true representative of the whole country. The formula of Yamane (1967) has been used to determine the sample size that is 500.

$$n = \frac{z^2 P(1-P)N}{z^2 P(1-P) + Ne^2}$$

#### 3.2. Theoretical framework and empirical specification:

This study ties up on the theoretic structure of Islamic economics, in which Zakat is a fundamental part of its financial regulation and put its impact on socioeconomic indicators of a society. Regarding this, Zakat provides an inbuilt mechanism of Islam for wealth redistribution, generating economic stability and social equity. Multifaceted theoretical background relating with various socioeconomic and behavioral theories that help in integrate the effectiveness of Zakat, its compliance and impact on society. The microeconomic theory of consumers' behavior assumes that consumers are rational in their decisions making, people make their choices based on their preferences which maximize their utility. In the perspective of Zakat, individuals' decision to comply with Zakat's obligations or not, based on various factors like their wealth, income, religious beliefs and trust on public and private Zakat collecting institutions.

The effect of Zakat on society can be evaluated by Keynesian consumption function, which indicates that individuals' consumption is a function of their disposable income. By enhancing the disposable income of Zakat's recipients, can accelerate aggregate demand along with multiplier effect, generate economic activity that helps in achieving Sustainable Development Goals (SDGs) by indorsing income redistribution and reducing income inequality, nurturing collaboration among civil society, government institutions and the private sector. As we know, charity deals with tangible as well as intangible outcomes that offer direct or indirect giving from people or different organizations. In appearance charity is totally against the individual's rational behavior with respect to utility theory of neoclassical economists. It deals as a paradox of consumer behavior regarding maximizing his utility where people consume less to give money to someone else

(Bracewell Milnes, 1990) that is against the Pareto's optimal state in his theory of welfare but relate with Pareto's efficiency.

The donor's decision to choose whether to donate or not is effectively described by a random utility model (Cascetta & Cascetta, 1985), employed in different situations. According to this model, the individual's choice to give or not is based on the predictable utility of the individual's welfare indicators like total family income, per capita income, consumption, trust in government and charitable organizations for poverty eradication and employment through charity (Kleemann et al., 2014). The decision to donate is direct to a binary choice in which donors alter the net perceived utility of participants against non-participants. As a part of Zakat compliance can be reflected as a standard binary choice decision that is in-built human behavior, to maximize the relevant utility function (Khamis et al., 2014).

Let  $Z_{i1}^*$  as expected utility of a Zakat payer and  $Z_{i0}^*$  of non-payer  $i(i=1,2,\dots,N)$  of sampled population N.  $Z_i^* = Z_{i1}^* - Z$  indicates the difference between Zakat givers and non-givers expecting utilities. Utility does not measurable, we can only perceive it as for participation  $Z_i$ , where  $Z_i \in \{0, 1\}$ .  $Z_i$  is used as a dummy variable where  $Z_i = 1$  for paying Zakat and  $Z_i = 0$  for non-paying. The decision to compliance of Zakat is modeled as

$$\begin{aligned} Z_i^* &= X_i' \alpha + \epsilon_{D_i} & (1) \\ Z_i &= 1 \quad \text{if} \quad Z_i^* > 0 \\ Z_i &= 0 \quad \text{if} \quad Z_i^* \leq 0 \end{aligned}$$

Where  $Z_i^*$  indicates 1 for Zakat payer and 0 for non-payer, being a dummy variable, it depends on the set of observed variables  $X$ ; unobserved components that influence the decision to compliance of Zakat and measure error sum up as error term  $\epsilon_{Z_i}$  with zero mean and constant variance  $\sigma_Z^2$ .

Probability of Zakat compliance

$$\begin{aligned} \Pr(Z_i = 1 | X_i) &= \Pr(Z_{i1}^* > Z_{i0}^*) & (2) \\ &= \Pr(Z_i^* > 0) \\ &= \Pr(X_i' \alpha + \epsilon_{Z_i} > 0) \\ &= \Pr(\epsilon_{Z_i} > -X_i' \alpha) \\ &= F(-X_i' \alpha) \end{aligned}$$

F for cumulative distribution function of  $\epsilon_Z$ .

Compliance of Zakat is not the only concern, also interested in analyzing its impact on giver's consumption, satisfaction, trust on charitable organizations and government institutions, impact on society, reduced income inequality and generation of economic activity. The association between compliance of Zakat and outcome variables Y shows as

$$Y_{zi} = f(X_i; Z_i) \quad (3)$$

Here X is a set of independent variables, and Z is a dummy for compliance of Zakat. If  $Y_{zi}$  is the outcome variable of respondent I, the function of the compliance decision Z, Y takes two ways  $Y_{0i}$  and  $Y_{1i}$ . In measuring its impact magnitude, selection bias creates problems for empirical analysis. If treatment is non-random, untreated may differ systematically due to self-selection into treatment and at best average treatment effect on the treatment can be estimated as follows:

$$\tau_{ATT} = E[Y_1 | Z = 1] - E[Y_0 | Z = 1] \quad (4)$$

Here  $\tau$  is the impact of Zakat's compliance in ATT,  $E[.]$  signifies the expected value of Zakat givers. To account for randomization, we use quasi-experimental techniques to correct the selection bias in estimating treatment effects. Selection bias that is due to observables can be controlled by using different regression methods. According to our theoretical framework, we are enabled to apply the empirical strategy for the evaluation of the impact by employing propensity score matching technique to avoid the problem of selection bias (Zwane et al., 2022).

The treatment (impact of Zakat compliance) is non-random in nature, and the obligation of Zakat compliance is determined only by givers 'choice. To avoid the problem of selection bias, and for the robustness of in the results, propensity score matching (PSM) method is employed to measure the impact (Zwane et al., 2022) of Zakat compliance that is based on certain common traits of Zakat givers and non-givers with the help of their propensity scores (PS). It is the probability of being treated, based on observable characteristics of treated. Furthermore, in the estimation of PS, we used explanatory variables as observable. Similar PS of participant of zakat compliance and nonparticipants are matched to find their true counterfactual (Bryson et al., 2002; Pan & Bai, 2015). Outcome variables' testation has been taken by zakat compliance with the help of "Psmatch2" for precise analysis. The neighbor, radius, caliper and kernel matching methods have been employed to get Average Treatment Effect on the Treated (ATT) (Becker & Ichino, 2002). Therefore, the ATT (s) for Zakat compliance can thus be given as:

$$\tau_{ATT} = E\{Y_{1i} - Y_{0i} | \text{Zakat compliance}_i = 1\} \quad (5)$$

$$\tau_{ATT} = E[E\{Y_{1i} - Y_{0i} | \text{Zakat compliance}_i = 1, p(X_i)\}] \quad (6)$$

Where  $X_i$  denotes the vector of outcome variables,  $X_{1i}$  signifies the way linked with treatment group, whereas  $X_{0i}$  leads to control group.

Zakat compliance

$$\begin{aligned}
 &= \alpha_0 + \beta_1 \text{edu}_i + \beta_2 \text{Age}_i + \beta_3 \text{gender}_i + \beta_4 \text{Marital status}_i + \beta_5 \text{famsys}_i \\
 &+ \beta_6 \text{No fammem}_i + \beta_7 \text{ownedhouse}_i + \beta_8 \text{location}_i + \beta_9 \text{chorg}_i \\
 &+ \beta_{10} \text{welorg}_i + \beta_{11} \text{land}_i + \beta_{12} \text{fixeddeposit}_i + \beta_{13} \text{bankacount}_i \\
 &+ \beta_{14} \text{Purityofwealth}_i + \beta_{15} \text{Religiousobliga} + \beta_{16} \text{Preftgivelumpsum}_i \\
 &+ \beta_{17} \text{Preftgivspecperson}_i + \beta_{18} \text{PreftgivRamadan} + \beta_{19} \text{Taxfiler}_i \\
 &+ \beta_{20} \text{Tofaminc}_i + \varepsilon_i
 \end{aligned}$$

We use the inbuilt PSM model that analyzes probit model to estimate the probability of Zakat compliance, its covariates and at the same time its impact on outcome variable. This decision to Zakat compliance depends on some common observable characteristics of the household such as household size, age, gender, and education level (Kikulwe et al., 2014) but rather from selected cities of Pakistan i.e. Karachi, Lahore and Faisalabad; self-select to adopt, therefore adopters and nonadopters may be systemically different from each other. Modeling Zakat compliance. Zakat compliance is a choice as well as a religious obligation and thus the PSM fits this study.

$$ATT = E[E[Y_{1i} | Z_i = 1, P(X_i)] - E[Y_{0i} | Z_i = 0, P(X_i)] | Z_i = 1] \quad (7)$$

#### 4. Empirical results and discussion:

Description of variables and their statistical summary as below in table.1 regarding demographic and socioeconomic traits of respondents, in the perspective of examining the Zakat compliance.

Zakat compliance can play a substantial role in the existing economic scenario, influencing both individual assistance and general economic aspects. The variables provided, particularly those linked to charitable organizations and individual charitable giving, bid a rich perspective for understanding these effects. Here, we investigate the economic perspective of charity, supported by existing literature. Table:1 presents descriptive statistics of the dataset, likely related to socioeconomic factors and charitable giving. The average education level of the sample population is 12.48 years, with a standard deviation of 4.15 years. Which indicates that educated people are more inclined towards charity. As they understand their moral and social responsibility.

Respondents' average age is 37.71 years, having 11.47 years as dispersion. Gender has been taken as a binary variable (0 or 1). The mean of 0.412 suggests that roughly 41.2% of the sample are males and 58.8% women; means that women are more inclined toward charitable giving rather than men. Marital Status is another binary variable. A mean of 0.764 suggests that 76.4% of the sample falls in married category and 23.6% in non-married.

It is stated in the Table 1 that the 54.6% of the sample people live in a nuclear family system. The average number of family members is 4.95 and 66.2% of the sample lives in their own house. Whereas 89% of the sample lives in urban areas and 11% in rural areas. 52.8% and 38% of respondents said that they had charitable and welfare organizations in their vicinity. 39% of the sample population own land, 65.5% of people have their accounts in banks but only 17.6% have fixed deposit. While 91.2% of respondents think Zakat is a tool of purifying wealth (Barkat), 70.2% give to fulfill their religious duty, and 56.4% of the sampled population is in favor of paying Zakat in a lumpsum. 52.8 % prefer to give Zakat in the month of Ramadan while 71.2% of people said that they are tax filer, and 55.4% respondents are willing to give Zakat to specific person. The average family income of respondents is RS.144697 with a dispersion of RS.90363.70.

**TABLE: 1** Variables and their description used in the analysis

Variables	Description	Sample mean	Std. dev.
Zakat compliance	Respondent pays Zakat (yes =1, no=0)	0.498	0.5005
Gender	Respondent's gender (female =1, otherwise =0)	.412	.4927
Age	Respondents' age (in years)	37.714	11.47
Edu	Respondents' education (in years)	12.484	4.1541
Civil status	Respondents' civil status (married =1, otherwise =0)	.764	.425
Fammem	Number of family members	4.954	2.8334
Famsys	Respondents' family type (Nuclear =1, otherwise = 0)	.546	.4984
Location	Respondents' living place (Live in city = 1, otherwise = 0)	.89	.3132
Ownedhouse	1 if respondents owned a house, 0 otherwise	0.662	0.4735
Bankaccou	1 if respondents have a bank account, 0 otherwise	.656	.47
Fixeddepo	1 if respondents' have a Fixed deposit, 0 otherwise	.176	.3312
Charorg	Presence of charitable organization in the vicinity =1, otherwise = 0	.528	.4997
welfarorg	Presence of welfare organization in the vicinity =1, otherwise = 0	0.38	0.4858
Land	Ownership of land (yes =1, no=0)	0.39	0.4882
Purityofwealth	Give Zakat for Purity of wealth (yes =1, no=0)	0.921	.2836
Religiousobliga	Give Zakat due to religious obligation (yes =1, no=0)	0.702	0.4578
Preftgivelumpsum	Prefer to give a lumpsum (yes =1, no=0)	0.564	0.4964
Preftgivspecperson	Prefer to give Zakat to a specific person (yes =1, no=0)	0.554	0.4977
PreftgivRamadan	Prefer to give Zakat in Ramadan (yes =1, no=0)	0.528	0.4997
Taxfiler	Respondents is a filer (yes =1, no=0)	0.712	0.4533
Tofaminc	Respondent's total family income (in rupee)	144697	90363.70

TABLE.2 Covariates of Zakat giver/donor:

Covariates	Coefficients	Std.Err	Probability
Edu	.0181	(.0157)	0.250
Age	.0034	(.0078)	.668
Gender	.4470	(.1654)	0.007***
Civil status	1.1556	(.1926)	0.000***
Famsys	-.2275	(.1384)	0.100
Fammem	-.1473	(.0347)	0.000***
Ownedhouse	.5723	(.1547)	0.000***
Location	-.4791	(.2549)	0.060*
Charorg	.3935	(.1688)	0.020**
welfarorg	-.0372	(.1813)	0.838
Land	.5089	(.1572)	0.001***
Fixeddepo	.2933	(.2049)	0.152
Bankaccou	-.0806	(.1701)	0.636
Purityofwealth	.2946	(.2573)	0.252
Religiousobliga	.3696	(.1882)	0.050**
Preftgivelumpsum	-.4166	(.1751)	0.017**
Preftgivspecperson	.0176	(.1422)	0.901
PreftgivRamadan	.4096	(.1344)	0.002***
Taxfiler	-.0311	(.1474)	0.833
Tofaminc	2.76e-06	(8.90e-07)	0.002***
Cons	-1.8486	(.4991)	0.000***
Chi-square	178.89***		
P value	0.0000		
Pseudo R2	0.2581		
Log likelihood ratio	-257.1259		

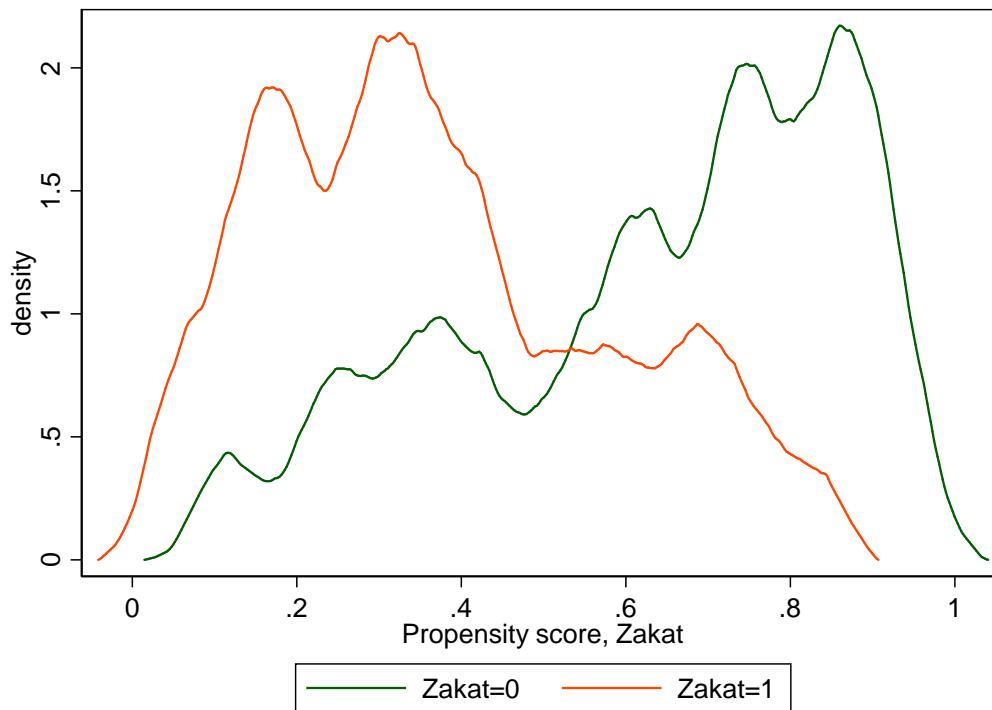
Significance at \*10%, \*\*5% and \*\*\*1%

Propensity scores matching results in table.2 consisted of covariate of Zakat compliance and ATT of outcome variables, psmatch2 technique uses probit models for covariates' analysis, for estimating the impact of covariate on Zakat, marginal values have also been taken.

Table.2 shows that educated respondents are more inclined towards Zakat compliance, which means the addition of every year in education increases the awareness of Zakat compliance (0.018) but not statistically significant. Aged people are slightly (0.003) more likely to give Zakat but not significantly as we know Zakat is an obligatory charity in Islam binding on those who have specific amount of wealth. Gender plays a highly significant role in Zakat giving, 44.7% are more likely to pay Zakat if respondent is a male, due to the socioeconomic norms and culture of our society that males are financially more stable than females, and aware of their responsibility towards society. Married people are significantly more inclined to give Zakat, because they are more financially stable and aware of its moral and social responsibility to pay back their societies. Individuals who live either in nuclear or joint families are less likely to donate as compared to those in joint families but not statistically significant. This could be due to variations in resources, support systems, and social norms within families.

Larger families are less likely to give Zakat and show highly significant relationship with Zakat compliance, most likely due to the fulfillment of several financial responsibilities in limited resources. They might have inadequate resources for charitable giving due to increased economic responsibilities such as struggling to meet their demands with household income. Respondent with owned house also the indication of financial stability, shows significantly 57.23% likelihood to pay Zakat if a person has own house. Although insignificant, negative coefficient suggests that people living in cities are 47.91% less likely to pay Zakat, due to the unnecessary expenditure on luxuries or living in high-cost areas reduce their savings. The presence of charitable organizations in the vicinity helps to give awareness regarding people's socioeconomic problems, 39.35% more likely to pay Zakat to the underprivileged people of their communities. Land leads to prosperity and economic stability, so people who have land are 50.89% more likely towards compliance with Zakat. Either to pay back to society or to fulfill the will of Allah.

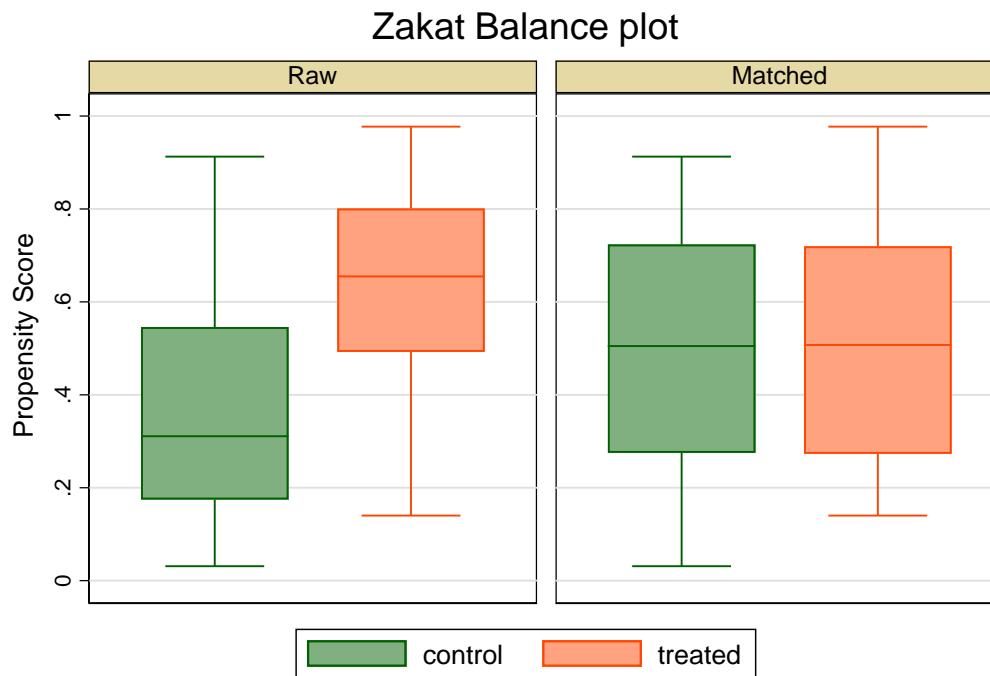
Mostly people are more inclined to fulfill their religious duties either based on worships or financial obligations. 36.96% more likely to pay Zakat as a religious obligation. Results show people are 40.96% more likely to give Zakat in the month Ramadan, to get more blessings of Allah to help needy. Mostly people are used to giving Zakat in bits and bytes, according to their ease, significantly 41.66% less likely to give Zakat in a lumpsum, reflecting conventional financial strategies for obligatory expenditure like Zakat compliance and maintaining it part wise financial assistance. Results reflect respondent with bank account, fixed deposit along with taking Zakat as a wealth purifier and show no significance relevance to Zakat compliance because Zakat becomes an obligation only for those who have specified amount of wealth. The 0.2581 value of pseud R<sup>2</sup> specifies the goodness of fit with decency, model is statistically fit, significant values of probability and chi square also indicates its fitness. So, Zakat as an obligatory charity or tax of Islam, compulsory for a tax filer or to give self-specified persons.



**Figure.1** Propensity score plot of participants and non-participants

Balancing conditions are necessary in the propensity score matching, balancing of the confounding factors before testing the results. Figure.1 shows the comparison of PS score distributions of zakat givers (1) and non-givers (0). Usually, it is used to get information about matching propensity score for assessing the balance between zakat givers and non-givers before or after matching

In figure.2 boxplot shows the propensity scores of Zakat givers and non-givers before and after matching, the balance between zakat givers and non-givers after matching will give significant results of PSM otherwise givers and non-givers are not true counterfactual of each other, biasness is present.



**Figure.2** Covariates balance plot

The average treatment effect in table.3 of Zakat giving on giver's total consumption increases significantly from RS. 21836.27 to RS. 37687.57 after fulfilling their Zakat obligations, with the highly significant effect observed under kernel, radius, caliper and neighbor matching techniques based on their propensity score. It relates with Kashif et al., (2018) findings that Zakat givers often felt more happiness and spiritual satisfaction after fulfilling their religious obligation.

**Table 3.** Total consumption of Zakat giver/donor

Methods	ATT	Std. Err	t value
kernel	27067.4524	9114.7970	2.97***
Radius	37687.5571	5756.5504	6.55***
Caliper (.1)	23442.6908	10257.9902	2.29**
Neighbor (2)	21836.2651	9656.1369	2.26**

This spiritual satisfaction can lead to higher intrinsic motivation to spend more, thereby increasing their total consumption and theoretically Zakat becomes the part of respondents' consumption and utility functions as well as recipients; Herianingrum et al. (2024) explore that Zakat does not only help recipients but also increases the productivity of donors.

**Table.4** Consumptions without Zakat of Zakat giver/donor

Methods	ATT	Std. Err	t value
kernel	15175.0829	8990.1753	1.69*
Radius	25795.1876	5557.1216	4.64***

Caliper (.1)	11550.3213	10147.418	1.14
Neighbor (2)	9943.8956	9538.5905	1.04

Positively significant Average Treatment Effect (ATT) in table.4 of Zakat giving on the consumption of the Zakat givers without Zakat giving indicates although giver's consumption is more than non-giver under the radius and kernel matching range from RS.15175.08 to RS.25795.19. but this difference of ATT between givers and nongivers is quite less than the ATT of givers' consumption with Zakat that ranges from RS. 21836.27 to RS. 37687.57. This is because of the giver's consumption function which is based on their consumption plus Zakat giving. Ben Jedia and Guerbouj (2021) find that higher socio-economic conditions are associated with more willingness to pay Zakat, indicating that wealthier respondents or Zakat givers may maintain higher consumption levels even without giving Zakat as compared to nongivers.

**Table.5** Satisfaction of Zakat giver/donor

Methods	ATT	Std. Err	t value
kernel	.2181	.0612	3.57***
Radius	.2861	.0237	12.09***
Caliper (.1)	.2088	.0750	2.79***
Neighbor (2)	.2149	.0684	3.14***

Table.5 indicates that paying Zakat leads to enhance giver's satisfaction, with the highest effect observed under radius matching; ATT of Zakat giving ranges 21.49% to 28.61% increment in givers 'satisfaction that leads to rise in their utility (Kashif et al., 2018). As we discuss in the theoretical background that respondents' utility function is a combination of actual and virtual utility. Virtual utility leads to the level of satisfaction of the givers which they get from the fulfillment of their religious obligation, under the psychological theory of warm glow.

**Table.6** Trust on charity organizations of Zakat giver/donor

Methods	ATT	Std. Err	t value
kernel	-.1288	.0619	-2.08
Radius	-.0585	.0332	-1.76*
Caliper (.1)	-.1285	.0705	-1.82*
Neighbor (2)	-.1466	.0672	-2.18**

Table.6 results indicate that Zakat giving may reduce trust in charity organizations, with the significantly negative ATT reveals the givers' mistrust on charitable organization to give their Zakat; lies between 5.85% to 14.66% under various forms of matching. Trust is the essential indicator for Zakat compliance, either on individual or institution (Bin-Nashwan et al., 2021) that's why people prefer to give Zakat to individuals. Economically, if Zakat is given to institutions collectively it would help to empower the needy financially by generating employment on a permanent basis. However, inadequate distribution methods or mismanagement can erode public confidence, as highlighted by Bin-Nashwan et al. (2021). Spillover effect of weak distribution systems or mishandling can shatter donors' trust on charity organizations, as reveals by Bin-Nashwan et al. (2021). This may induce donors to avoid formal institutions and distribute Zakat confidentially within their societies.

**Table.7** Trust on governmental institutions of Zakat giver/donor

Methods	ATT	Std. Err	t value
kernel	-.2291	.0674	-3.40***
Radius	-.1601	.0350	-4.58***
Caliper (.1)	-.2410	.0782	-3.08***
Neighbor (2)	.0782	.0730	-2.89***

Results in table.7 highlight a mounting crisis of confidence in governments' capability to manage Zakat money efficiently and transparently, Oladimeji et al., (2013) point out that political intervention, absence of transparency, and ineffective governance methods ruin trust among Zakat givers. The table displays highly significant ATT values but negatively, from 7.82% to 24.10% under the kernel, radius, caliper and neighbor matching techniques of propensity score matching analysis. It leads to Zakat payers' distrust towards government's Zakat managing institutions to pay their Zakat. Due to mistrust in government systems, many donors prefer to distribute their Zakat directly to beneficiaries (The Express Tribune), 2025). There is another fact regarding not to pay governments because of the division of arguments among religious scholars whether Zakat should pay directly to beneficiaries or to the state. Most of them in favor of direct deliverance of Zakat to the needy when state-managed arrangements fail to meet Islamic standards of fairness and effectiveness. (Sawmar et al., 2021).

**Table.8** Reduction in income inequality

Methods	ATT	Std. Err	t value
kernel	0.0705	.0552	1.28
Radius	0.2335	.0292	8.00***
Caliper (.1)	0.0602	.0725	0.83
Neighbor (2)	0.0904	.0642	1.41

Table.8 suggests the significance of Zakat to reduce income inequalities has come only under radius matching, about 23.35% ATT indicates that most people are giving Zakat to decrease income disparities. These outcomes establish a significantly positive impact of Zakat on reducing income inequalities by redistributing wealth from high-income groups to low-income households, mostly when it manages effectively through institutional mechanisms. Beyond addressing immediate financial needs, Zakat fosters long-term socio-economic development by empowering marginalized groups and promoting social justice and creates a more equitable society (Ur Rehman et al., 2021). Zakat can also line up with Sustainable Development Goals, specifically SDG 8 for decent work and economic growth and SDG 10 reduced inequalities.

**Table.9** Zakat generates economic activity

Methods	ATT	Std. Err	t value
kernel	0.1040	.0591	1.76*
Radius	0.2122	.0344	6.17***
Caliper (.1)	0.1365	.0776	1.76*
Neighbor (2)	0.1185	0.0681	1.74*

The results in table.9 highlight the positively significant role of Zakat in generating economic activity, with varying levels of impact ranges from 10.40% to 21.22% under different matching methods, the strongest effect comes from radius matching technique in PSM. Zakat expenditures are the part of Zakat payer's consumption function directly and indirectly recipients' consumption. According to Keynesian consumption theory low-income groups have greater marginal propensity to consume, so when Zakat becomes part of recipient's income, it enables increasing demand that would lead to generate economic activity (kamal et al., 2024). Aggregate demand always stimulates production and investment in economy (Ben Jedia & Guerbouj, 2021) that is empirically proven fact.

### 5. Conclusion:

This study sought to examine the factors that influence Zakat compliance and its impact on welfare (consumption and satisfaction) trust on charity organizations and governmental institutions, regarding Zakat payers and impact on income inequality and economic activity generation in society. The propensity score matching technique has been adopted to examine the counterfactual effect of Zakat compliance. The finding suggests a significant positive impact on the total consumption of Zakat payer, by adding amount of Zakat in his consumption function, driven by increased disposable income, spiritual fulfillment, and trust in effective management systems. Beyond individual benefits, this increase in donor consumption contributes to broader socio-economic goals such as poverty alleviation, economic growth, and social cohesion.

The results indicate Zakat compliance significantly contributes to generating economic activity by redistributing wealth, enhancing aggregate demand, and empowering marginalized communities through productive use of funds. Beyond its immediate impact on poverty alleviation, Zakat compliance fosters long-term socio-economic development by promoting entrepreneurship, reducing income inequality, and supporting inclusive growth. The findings underline a substantial decline in Zakat payers' trust toward government-managed Zakat systems due to governance issues, lack of transparency, and political interference. This trust deficit has broader socio-economic consequences, including reduced effectiveness of formalized Zakat systems and missed opportunities for large-scale poverty alleviation initiatives. Zakat compliance significantly enhances donor satisfaction, which is crucial for sustained philanthropic engagement and community development. Zakat plays a transformative role in promoting social justice by redistributing wealth, empowering marginalized communities, and fostering social cohesion.

It realizes its potential as an engine for economic activity, efforts must focus on removing trust deficit among Zakat payers and charitable organizations and government institutions by improving their governance frameworks, promoting productive use of funds, and integrating Zakat with broader development strategies aligned with global goals like the SDGs. By addressing these challenges, Zakat compliance can continue to serve as a cornerstone for building equitable and prosperous societies. Zakat payers (muzakki) also show negative impact on their trust in charity organizations due to concerns about transparency, governance, and efficiency in fund management. Building trust is essential for maximizing the socio-economic potential of Zakat systems. The findings underline a substantial decline in Zakat payers' trust toward government-managed Zakat systems due to governance issues, lack of transparency, and political interference. This trust deficit has broader socio-economic implications, including reduced effectiveness of formalized Zakat systems and missed opportunities for large-scale poverty alleviation initiatives. By doing so, Zakat

can continue to serve as a powerful force for building equitable and inclusive societies while reinforcing donors' commitment to justice and compassion.

Policy makers should focus on enhancing transparency in Zakat institutions and exploring innovative mechanisms to maximize its dual impact on both donors (muzakki) and recipients (mustahik). By addressing these challenges, Zakat can continue to serve as a cornerstone for sustainable development in Muslim societies worldwide.

## 6. References:

Abdullah, D., & Chee, K. (2010). Islamic finance. Marshall Cavendish International (Asia).

Adinugroho, M., binti Azmi, N. F., Zuhdi, U., Hakiki, S., & Abdullah, A. R. (2024). Analysis of Zakat Management Efficiency Levels in Two Asian Countries (Studies In Indonesia And Malaysia). *Revista de Gestão Social e Ambiental*, 18(5), 1-18.

Adiwijaya, Z. A. (2010). Pengaruh Transparansi Informasi, dan Akuntabilitas BAZIS Terhadap Kepuasan, dan Loyalitas Muzaki Menunaikan Zakat, Infak, dan Shadaqah pada BAZIS DKI Jakarta (Doctoral dissertation, UNIVERSITAS AIRLANGGA).

Adiwijaya, Z. A., & Suprianto, E. (2020). Good governance of zakat institutions: A literature review. *Journal of Southwest Jiaotong University*, 55(2), 1-7.

Ahmad, S. J. (2006). From principles to practice: exploring corporate social responsibility in Pakistan. *Journal of corporate citizenship*, (24), 115-129.

Ahmed, T. A., & Al-Qaradawi, A. Y. (2009). Molecular phylogeny of Qatari date palm genotypes using simple sequence repeats markers. *Biotechnology*, 8(1), 126-131.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.

Alam, A., Ratnasari, R. T., Habibi, B., & Athief, F. H. N. (2022). A sharia economic collaboration model and its positive impact on developing of poor villages: A study in Indonesia. *Public and Municipal Finance*, 11(1), 101-112.

al-Qaradawi, Y. (1999). Islam and Modernity.

Ammani, S. A., Abba, S. A., & Dandago, K. I. (2014). Zakah on employment income in Muslims majority states of Nigeria: Any cause for alarm?. *Procedia-Social and Behavioral Sciences*, 164, 305-314.

Andam, A. C., & Osman, A. Z. (2019). Determinants of intention to give Zakat on employment income: Experience from Marawi City, Philippines. *Journal of Islamic Accounting and Business Research*, 10(4), 528-545.

Arsal, M., Ulfah, K., & Muchran, M. (2022). Amanah as a value in zakat management accounting. *Imanensi: Jurnal Ekonomi, Manajemen, Dan Akuntansi Islam*, 7(2), 13-20.

Bahri, E. S., Suhaeti, A., & Nasution, N. (2021). Trust, Religiousity, Income, Quality of Accounting Information, and Muzaki Decision to Pay Zakat. *Jurnal Akuntansi Dan Keuangan Islam*, 9(1, April), 39-58.

Bakar, N. B. A., & Rashid, H. M. A. (2010). Motivations of paying zakat on income: Evidence from Malaysia. *International Journal of Economics and Finance*, 2(3), 76-84.

Barriga-Cabanillas, Oscar, Shabana Kishwar, Moritz Meyer, Muhammad Nasir, and Maria Qazi. "Poverty Projections for Pakistan." (2024).

Becker, S. O., & Ichino, A. (2002). Estimation of average treatment effects based on propensity scores. *The stata journal*, 2(4), 358-377.

Bénabou, R., & Tirole, J. (2006). Incentives and prosocial behavior. *American economic review*, 96(5), 1652-1678.

Bin-Nashwan, S. A., Abdul Jabbar, H., & Abdul Aziz, S. (2019). Do enforcement, religiosity and peer influence zakah compliance behavior?. *International Journal of Financial Research*, 10(6), 42-53.

Bin-Nashwan, S. A., Abdul-Jabbar, H., Dziegielewski, S. F., & Aziz, S. A. (2021). Moderating effect of perceived behavioral control on Islamic tax (zakah) compliance behavior among businessmen in Yemen. *Journal of Social Service Research*, 47(2), 292-302.

Bracewell-Milnes, B. (1990). An end to income tax?. *Intertax*, 18(12).

Bryson, A., Dorsett, R., & Purdon, S. (2002). The use of propensity score matching in the evaluation of active labor market policies.

Carpenter, J. (2021). The shape of warm glow: Field experimental evidence from a fundraiser. *Journal of Economic Behavior & Organization*, 191, 555-574..

Carpenter, J., Damianov, D. S., & Matthews, P. H. (2022). Auctions for Charity: the Curse of the Familiar. *International Economic Review*, 63(3), 1109-1135.

Cascetta, E., & Cascetta, E. (2009). Random utility theory. *Transportation systems analysis: models and applications*, 89-167.

Editorial (2020) Regional response and coronavirus. The Express Tribune, 17 March. Available at: <https://tribune.com.pk/story/2177415/regional-response-coronavirus> (accessed 19 October 2023)

Fadilah, S. (2013). The influence of good governance implementation to organization performance: Analysis of factors affecting. *The International Journal of Social Sciences*, 7(1), 15-33.

Faridi, F. R. (1983). Theory of fiscal policy in an Islamic State. Journal of King Abdulaziz University: *Islamic Economics*, 1(1).

Feder, G. (1999, October). Land administration reform: economic rationale and social considerations. In *UN FIG Conference on Land Tenure and Cadastral Infrastructures for Sustainable Development, Melbourne, Australia*.

Feder, M. E., & Burggren, W. W. (1985). Cutaneous gas exchange in vertebrates: design, patterns, control and implications. *Biological Reviews*, 60(1), 1-45.

Ghani, E. K., Aziz, A. A., Tajularifin, S. M., & Samargandi, N. (2018). Effect of board management and governmental model on zakat payers' trust on zakat institutions. *Global Journal Al-Thaqafah*, 73-86.

Hakim, F., Widiastuti, T., Ubaidillah, M., & Al, R. (2021). Positive effect of attitude, peer influence, and knowledge zakat on zakat compliance behavior: update In Covid 19. *Journal of Islamic Economic Laws*, 4(2), 1-16.

Heikal, M., Khaddafi, M., & Ummah, A. (2014). Influence analysis of return on assets (ROA), return on equity (ROE), net profit margin (NPM), debt to equity ratio (DER), and current ratio

(CR), against corporate profit growth in automotive in Indonesia Stock Exchange. *International Journal of Academic Research in Business and Social Sciences*, 4(12), 101.

Herianingrum, S., Supriani, I., Sukmana, R., Effendie, E., Widiastuti, T., Fauzi, Q., & Shofawati, A. (2024). Zakat as an instrument of poverty reduction in Indonesia. *Journal of Islamic Accounting and Business Research*, 15(4), 643-660.

Herianingrum, Sri, Sri Iswati, Anwar Ma'ruf, and Zakaria Bahari. "The role of Islamic economics and social institutions during the time of Covid-19." *Journal of Islamic Marketing* 15, no. 8 (2024): 2144-2162.

Ibrahim, A. (2011). Maksimalisasi zakat sebagai salah satu komponen fiskal dalam sistem ekonomi islam (utilization of zakat as a fiscal component in Islamic economic system). *Jurisprudensi Jurnal Syari'ah*, 3(1), 1-10.

Ibrahim, M. (2015). Exploring the motivational factors for corporate zakat payments. *International Journal of Management and Commerce Innovations*, 3(1), 429-436.

Jaafar, M., Abdul-Aziz, A. R., Maideen, S. A., & Mohd, S. Z. (2011). Entrepreneurship in the tourism industry: Issues in developing countries. *International Journal of Hospitality Management*, 30(4), 827-835.

Jayanto, P. Y., & Munawaroh, S. (2019). The influences of reputation, financial statement transparency, accountability, religiosity, and trust on interest in paying zakat of profession. *Jurnal Dinamika Akuntansi*, 11(1), 59-69.

Kahf, Monzer. "Zakat: Unresolved Issues in the Contemporary Fiqh." *Journal of Islamic Economics*, 2: 1 (1989), 1-22.

Kamal, S., Safarida, N., & Kassim, E. S. (2024). Investigating the role of fiqh zakat knowledge in moderating the behaviour of the Acehnese to pay zakat digitally. *Journal of Islamic Marketing*, 15(11), 3048-3083.

Karim, A. A. K., Jumarding, A., & Ahmad, A. (2022). The Role of Zakat in National Economic Transformation through Regional Economic Growth in South Sulawesi Province. *International Journal of Commerce and Finance*, 8(2), 75-98.

Kashif, M., Faisal Jamal, K., & Abdur Rehman, M. (2018). The dynamics of Zakat donation experience among Muslims: a phenomenological inquiry. *Journal of Islamic Accounting and Business Research*, 9(1), 45-58.

Keynes, J. M. (1936). The General Theory of Employment Terest and Money. *Macmillan and Company*.

Khaerunisa, S., Yayuli, Y., & Febriandika, N. R. (2021, August). Analysis of the impact of COVID-19 on the collection of ZIS funds (zakat, infaq and shodaqoh) in LAZISMU Surakarta in 2020. In Proceedings Book *The International Conference on Islamic Economics, Islamic Finance, & Islamic Law (ICIEIFIL)* (pp. 65-74).

Khamis, M. R., Mohd, R., Salleh, A. M., & Nawi, A. S. (2014). Do religious practices influence compliance behaviour of business zakat among SMEs?. *Journal of Emerging Economies and Islamic Research*, 2(2), 25-40.

Khan, M. S., & Reinhart, C. M. (1990). Private investment and economic growth in developing countries. *World development*, 18(1), 19-27.

Kikulwe, E. M., Fischer, E., & Qaim, M. (2014). Mobile money, smallholder farmers, and household welfare in Kenya. *Plos One*, 9(10), e109804.

Kleemann, L., Abdulai, A., & Buss, M. (2014). Certification and access to export markets: Adoption and return on investment of organic-certified pineapple farming in Ghana. *World Development*, 64, 79-92.

Luthfi, N., Rosyidi, P., Sukmaningrum, T., & Widiatuti, T. (2024). Bibliometric analysis of zakat research for supporting SDGs. *Deleted Journal*, 10(1), 165-189. DOI: 10.20473/jebis.v10i1.54251

Maidugu, A. A. (2003). Poverty alleviation through Islamic redistribution schemes: a case study of Zamfara zakat and endowment board. unpublished thesis (PhD), *Usmanu Danfodiyo University, Sokoto*.

Mardiasmo, M. (2013). Assessing Accountability Of Performance Measurement System And Local Government Budgetary Management. *Gadjah Mada International Journal of Business*, 4(3), 373-395.

Martin, A. M., & Peerzada, J. (2005). The expressive meaning of enhancement. *The American Journal of Bioethics*, 5(3), 25-27.

Md Idris, K., & Ayob, A. M. (2001). Attitude towards zakah on employment income: Comparing outcomes between single score and multidimensional scores. *Malaysian Management Journal*, 5(1&2), 47-63.

Metwally, M.M. "Economic Consequences in Applying Islamic Principles in Muslim Societies", *International Journal of Social Economics*, 24: 7/8/9 (1997), 941-57

Mohsin, M. I. A. (2020). A fresh view on zakah as a socio-financial tool to promote ethics, eliminate Riba and reduce poverty. *International Journal of Management and Applied Research*, 7(1), 55-71.

Mokhtari, H., Barkhan, S., Haseli, D., & Saberi, M. K. (2020). A bibliometric analysis and visualization of the Journal of Documentation: 1945–2018. *Journal of documentation*, 77(1), 69-92.

Mubtadi, N. A., & Susilowati, D. (2018). Analysis of governance and efficiency on zakat distribution: evidence from Indonesia. *International Journal of Zakat*, 3(2), 1-15.

Muda, M., Marzuki, A., & Shaharuddin, A. (2009). Factors influencing individual participation in zakat contribution: *Exploratory investigation*.

Muhammad, S. A., & Saad, R. A. J. (2016). Determinants of trust on zakat institutions and its dimensions on intention to pay zakat: A pilot study. *Journal of Advanced Research in Business and Management Studies*, 3(1), 40-46.

Mukhibad, H. (2019). The role of Sharia supervisory boards in meeting Maqasid Syariah—study on Islamic Banks in Indonesia. *European Journal of Islamic Finance*, (13).

Muneeza, A., & Nadwi, S. (2019). The potential of application of technology-based innovations for zakat administration in India. *International Journal of Zakat*, 4(2), 87-100.

Muthaher, O., & Wahyundaru, S. D. (2023). Variables determining muzakki loyalty in paying zakat. *Equilibrium*, 11(1), 123-148.

Nasruddin, A. R. (2011). Strategi Guru dalam Membina Siswa yang Bertingkah Laku Menyimpang. *Jurnal Serambi Ilmu*, 12(1), 123-141.

Oladimeji Abioye Mustafa, M., Har Sani Mohamad, M., & Akhyar Adnan, M. (2013). Antecedents of zakat payers' trust in an emerging zakat sector: an exploratory study. *Journal of Islamic Accounting and Business Research*, 4(1), 4-25.

Pakistan Bureau of Statistics (PBS) (Pakistan) (2024). Monthly Review on Price Indices (various years). Accessed 21 June 2024. Available from URL: <https://www.pbs.gov.pk/cpi>

Pan, W., & Bai, H. (Eds.). (2015). Propensity score analysis: Fundamentals and developments. *Guilford Publications*.

Said, Zafar, Prabhakar Sharma, Quach Thi Bich Nhuong, Bhaskor J. Bora, Eric Lichtfouse, Haris M. Khalid, Rafael Luque, Xuan Phuong Nguyen, and Anh Tuan Hoang. "Intelligent approaches for sustainable management and valorisation of food waste." *Bioresource Technology* 377 (2023): 128952.

Salman, K. R., & Mujahidin, M. (2022). Studies on Transparency of Financial Statements, Management of Zakat and Attitudes of Amil and Efforts to Increase Muzakki's Trust. *Al-Kharaj: Journal of Islamic Economic and Business*, 4(1), 10-22.

Sapinggi, R., Ahmad, N., & Mohamad, M. (2011, May). A study on zakah of employment income: Factors that influence academics' intention to pay zakah. In *2nd International Conference on Business and Economic Research* (2nd ICBER 2011) Proceeding (pp. 2492-2507).

Saputra, A., & Sutopo, H. (2024). The Role of Zakat in Poverty Alleviation: A Comprehensive Review of Economic Impact Assessments. *Economics Studies and Banking Journal* (DEMAND), 1(5), 242-255.

Sawmar, A. A., & Mohammed, M. O. (2021). Enhancing zakat compliance through good governance: a conceptual framework. *ISRA International Journal of Islamic Finance*, 13(1), 136-154.

Schacter, M. (1999). Means ends indicators: Performance measurement in the public sector. *Institute on Governance*.

Shaharuddin, N. A., Kassim, S., Yusof, A. M., Bakar, N. A., & Talib, N. A. C. (2018). The customer's perception towards shariah-compliant hotel in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 8(15), 109-130.

Sulaeman, S. (2020). A conceptual and empirical study on the development of the Islamic donation-based crowdfunding platform model for micro small and medium-sized enterprises (MSMEs) in times of Covid-19 pandemic in Indonesia. *Asian Journal of Islamic Management* (AJIM), 107-122.

Thompson, J. B., Spano, R., & Koenig, T. L. (2019). Back to Addams and Richmond: Was social work really a divided house in the beginning. *J. Soc. & Soc. Welfare*, 46, 3.

Ur Rehman, A., Aslam, E., & Iqbal, A. (2021). Factors influencing the intention to give zakat on employment income: evidence from the Kingdom of Saudi Arabia. *Islamic Economic Studies*, 29(1), 33-49.

Uyob, R. (2020). Current Research in Zakat Accounting Research. *International Journal of Business and Management*, 4 (2) 234-45.

Wahab, N. A., & Rahim Abdul Rahman, A. (2011). A framework to analyze the efficiency and governance of zakat institutions. *Journal of Islamic Accounting and Business Research*, 2(1), 43-62.

Wahid, H., & Kader, R. A. (2010). Localization of Malaysian zakat distribution: Perceptions of amil and zakat recipients. In Proceedings of Seventh International Conference. *The Tawhidi Epistemology: Zakat and Waqf Economy* (pp. 461-484).

Yamane, Taro, (1967). Statistics, An Introductory Analysis, 2nd ed., New York: Harper and Row.

Zainal, H., Bakar, A. A., & Saad, R. A. J. (2016). Reputation, satisfaction of zakat distribution, and service quality as determinant of stakeholder trust in zakat institutions. *International Journal of Economics and Financial Issues*, 6(7), 72-76.

Zwane, T., Biyase, M., & Rooderick, S. (2022). Assessing the impact of social grants on household welfare using propensity score matching approach. *International Journal of Development Issues*, (ahead-of-print).