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A New Paradigm for Economic Sustainability in Riau: Productive Zakat as a Mechanism for Social Development

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ABSTRACT

This study aims to analyze the impact of mustahiq independence, assess the effects of economic sustainability, and evaluate the synergy of the pentahelix model on the acceptance and utilization of productive zakat funds to enhance long-term effectiveness, efficiency, and welfare. The population consists of 28,087 recipients of BAZNAS productive zakat programs in Riau Province, employing Quota Sampling to ensure group representation. Data analysis is conducted using PLS-SEM (Partial Least Squares - Structural Equation Modeling) to assess the program's effects on economic independence and sustainability. The findings indicate that mustahiq independence, sustainability, and pentahelix synergy significantly influence productive zakat programs. However, only pentahelix synergy demonstrates a positive impact, while independence and sustainability have negative influences. This study's novelty lies in its quantitative, holistic approach to measuring independence, sustainability, and pentahelix synergy. Additionally, the development of specific indicators for these variables is a new contribution, providing a foundation for future research employing robust statistical methods to enhance accuracy and relevance in diverse contexts.

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INTRODUCTION

The issues of poverty and economic inequality remain global challenges, with 575 million people projected to still be in extreme poverty by 2030 (Unctad, 2024). Beyond economic aspects, food security and education are integral components of the poverty cycle. In Indonesia, while the Global Hunger Index has decreased from 26.0 (2000) to 17.6 (2023), the country remains the second-highest in Southeast Asia in terms of hunger (Von Grebmer et al., 2023). Income inequality exacerbates this situation, especially in rural areas, where 76.17% of the poverty line is dominated by food contributions (Ba Pusat Statistik, 2024). Various studies have highlighted that productive zakat can be a vital instrument in supporting the economic empowerment of poor communities. Research by (Ayuniyyah et al., 2022) demonstrates the success of productive zakat in increasing income and achieving fair income redistribution, while Murugani and Thamaga-Chitja (2019) emphasize the positive impact of zakat on the food security of beneficiaries (mustahiq). However, previous studies, which often employ qualitative descriptive methods, are considered less capable of comprehensively capturing long-term impacts (Herianingrum et al., 2024).

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Recent studies underscore the potential of quantitative approaches to more precisely evaluate the impact of zakat. Mawardi and Widiastuti (2021) suggest measurements focusing on business growth, economic welfare, and the quality of life of mustahiq. However, gaps remain in the implementation of zakat distribution, as seen in the "Riau Makmur" program, which exhibits uneven distribution across regions (Baznas Provinsi Riau, 2023). Previous literature suggests that the economic sustainability of mustahiq relies heavily on cross-sectoral synergy. For example, collaboration among governments, academics, private sectors, communities, and media using the penta helix approach has proven to enhance the effectiveness of empowerment programs (Kachkar and Alfares, 2022; Atmojo et al., 2023). However, earlier studies have been limited to qualitative descriptive methods without quantitatively measuring sustainability impacts (Restuningsih, 2019; Abdurrouf, 2022). Additionally, limited access to capital and insufficient mentoring for mustahiq exacerbate the economic dependency of poor communities on external aid (Vilar-Compte et al., 2021).

This study highlights the importance of adopting a quantitative approach to measure the impact of productive zakat on mustahiq independence, economic sustainability, and the effectiveness of the penta helix synergy. Indicators such as business growth, access to resources, and the quality of life of mustahiq are central to the analysis (Mawardi a d Widiastuti, 2021). For instance, the productive zakat program in Tanah Datar increased the average assets of mustahiq by 1.09 points, yet similar approaches have not been widely implemented in the operational areas of Baznas in Riau Province (Beik et al., 2019). Poverty and economic inequality remain significant challenges in Indonesia, particularly in regions like Riau Province, which face disparities in the distribution of productive zakat programs. Various empowerment programs, such as "Riau Makmur," have demonstrated success; however, their effectiveness is not yet optimal, especially in addressing the challenges of mustahiq independence and economic sustainability. Several researchers have focused on the impact of productive zakat on the economic welfare of mustahiq (Beik et al., 2019; Ayuniyyah et al., 2022) and the importance of cross-sectoral synergy in zakat management (Kachkar and Alfares, 2022). However, research exploring the measurement of economic independence, micro-enterprise sustainability, and penta helix synergy in the context of productive zakat, particularly in specific regions such as Riau Province, remains scarce. The methods used are often qualitative descriptive in nature, lacking comprehensive sustainability metrics, and they insufficiently account for the active involvement of stakeholders in program success (Restuningsih, 2019; Abdurrouf, 2022).

This study offers novelty by employing a quantitative approach to analyze the impact of productive zakat on mustahiq independence, economic sustainability, and penta helix synergy, which have rarely been explored comprehensively, especially within the context of Riau Province. By focusing on aspects such as business growth, access to resources, the quality of life of mustahiq, and the effectiveness of cross-sectoral collaboration through the penta helix approach, this research aims to provide in-depth, data-driven analysis to address the limitations of previous qualitative descriptive studies. The primary objective of this study is to identify strategies to enhance the effectiveness of productive zakat distribution, ensure the economic sustainability of mustahiq, and optimize stakeholder involvement to create more inclusive and equitable empowerment programs.

LITERATURE REVIEW

Independence (*Mustahiq*)

Independence highlights the ability of mustahiq (beneficiaries) to manage finances, make decisions, and achieve self-reliance through productive zakat, grounded in theories of intellectual independence (Cowan, 1978), emotional independence (Goleman, 2020), and behavioral autonomy (May, 1994). Previous studies indicate that productive zakat has a positive impact on economic independence (Rifuddin et al., 2022; Amaliah & Adawiyah, 2023), though challenges such as inadequate intensive assistance and limited access to financial services persist (Khumaini & Apriyanto, 2018; Restuningsih, 2019). This study addresses the research gap by developing a multidimensional measurement of independence, encompassing intellectual, emotional, behavioral, financial management, and financial access aspects. Unlike prior quantitative regression models (Larson et al., 2009; Romdhoni, 2017), this research integrates socio-psychological dimensions for a deeper analysis.

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Previous findings support the importance of skill training and access to capital (Deaton, 2005; Amaliah & Adawiyah, 2023), yet criticize uneven zakat distribution (Indra, 2018). The study aligns with trends in increasing zakat contributions (Al-Qardhawi, 1992) and introduces a novel perspective by analyzing the influence of financial service access on *mustahiq* independence, contributing strategically to the development of a sustainable independence-based empowerment concept.

Sustainability

Sustainability in the context of productive zakat emphasizes resource management that supports long-term balance between economic growth and social empowerment (Brundtland, 1987; Yunus, 2011). Sustainability focuses on long-term economic stability through effective resource allocation and individual empowerment, as elaborated by (Brundtland, 1987; Sen, 2000). The theoretical framework includes the Resource-Based View (Berney & Clark, 2007) and Human Capital Theory (Becker, 1975), (highlighting skill investment for economic productivity. Previous studies, such as Beik et al., 2019; Al Haq et al., 2021), emphasize the positive impact of productive zakat, but gaps in sustainability indicator measurement (Gangi et al., 2019) and fund distribution (Dubel & Pawłowska, 2020) remain challenges. This research integrates innovations through PAR, DAR, and AZS to assess risks, allocation effectiveness, and the impact of productive *zakat*. Prior findings validate the relevance of hypotheses, although distribution effectiveness remains debated (Nisa & HS, 2023). In the context of increasing zakat collections (Badan Pusat Statistik, 2024), this study addresses the gap by evaluating the long-term impact of productive *zakat* through more comprehensive indicators, contributing significantly to *mustahiq* empowerment and *zakat*-based economic sustainability.

Penta Helix Synergy

The Penta Helix model, involving government, academia, business, community, and media, is a collaborative approach to managing productive *zakat* funds (Carayannis & Campbell, 2010; Halibas et al., 2017). This model, an extension of the Triple Helix by (Leydesdorff, 2000), is relevant to productive *zakat* management, as highlighted by (Halibas et al., 2017; Rahman, 2020), though limitations in impact measurement and stakeholder engagement remain a research gap. Monitoring and Evaluation (M&E) methods based on the Balanced Scorecard (Kaplan & Norton, 1996) demonstrate effectiveness but require more comprehensive quantitative validation. This study integrates the Penta Helix model with M&E to address disparities in productive *zakat* distribution, as identified by (Prima, 2023; Riduwan et al., 2023). Findings from Paskaleva et al. (2021) and Sjögren Forss et al. (2021) affirm that this combination can enhance cross-sector transparency and accountability. By adopting impact indicators such as Stakeholder Participation Percentage and Performance Index (Chambers, 2011; Germann et al., 1996), this research offers a data-driven evaluation approach to optimize *zakat* utilization. Through the integration of stakeholder theory Julians and Bourne (2008) and the Penta Helix approach, this study significantly contributes to the development of fairer, more sustainable *zakat* distribution.

Productive Zakat Funds

Productive *zakat* funds aim to transform consumptive aid into economic empowerment through productive endeavors Zaenal (2020) The analysis is grounded in Kuznets' Curve Theory (1995) and the empowerment framework by Perkins dan Zimmerman (1995) emphasizing the importance of enhancing individual capacity to reduce economic disparities. Prior studies, such as (Gundogdu, 2023; Zaenal, 2023), reveal the positive impact of productive *zakat* on business growth and independence, though effectiveness varies by geographical and implementation contexts. (BAZNAS, 2024; Syauqi Beik & Pratama, 2016) use indicators like the CIBEST Welfare Index and Poverty Gap Index; however, this study broadens the approach by incorporating dimensions of resource access and life satisfaction to evaluate the sustainability of *zakat* impacts. In current contexts, integrating *zakat* with MSME empowerment and digitalization Rindjani dan Hadi (2022) is a significant trend to address economic disparities, particularly in Riau. This study fills a gap in the limited systematic evaluation methods in previous research (Nafiah, 2015; Mawardi & Widiastuti, 2021) and proposes a more holistic and relevant approach. Thus, the author concludes that the measurement of stakeholder impact can be conducted through the integration of the Penta Helix approach and Monitoring and Evaluation (M&E). This integration enables the identification of positive influences on the enhancement of the productive

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utilization of zakat by BAZNAS. Based on the explanation above, the conceptual framework for this research is as follows.

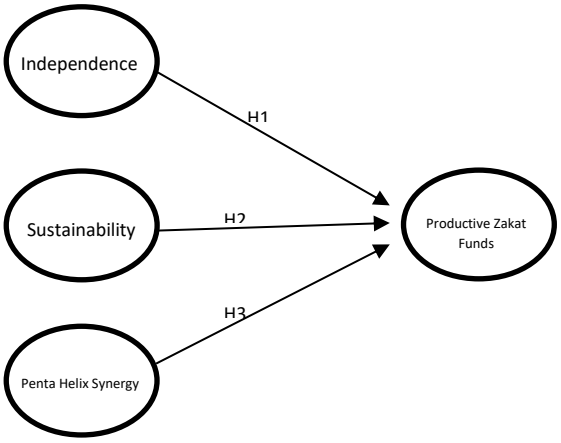

Figure 1. Conceptual Framework

METHOD

This study employs a quantitative approach with a descriptive and causal research design to measure the impact of productive zakat funds on economic independence, economic sustainability, and Penta Helix synergy in the operational areas of BAZNAS in Riau Province, Siak Regency, and Bengkalis Regency. The research population includes all recipients of productive zakat programs in these regions, with quota sampling techniques yielding 93 respondents. Primary data were collected through interviews, observations, and questionnaires using a Likert scale, while secondary data were sourced from financial and performance reports of BAZNAS. The research variables consist of Mustahiq independence, economic sustainability, and Penta Helix synergy as exogenous variables, with the effectiveness of productive zakat funds as the endogenous variable. Data analysis utilizes Partial Least Squares-Structural Equation Modeling (PLS-SEM), beginning with data preparation, measurement model development, and structural model evaluation. The research procedure encompasses planning, data collection, analysis, and result reporting, with the validity and reliability of the model tested using bootstrapping to ensure the accuracy of the findings.

RESULT AND DISCUSSION

This study involves various groups of respondents, with one of the primary characteristics analyzed being the gender of Mustahiq in the Riau Makmur Productive Zakat Program. The following table provides a detailed breakdown of the number of male and female respondents, accompanied by clear percentages for both groups, as follows.

Table 1 Distribution of Respondents by Gender in the Riau Makmur Productive Zakat Mustahiq Program

Gender	Number of Respondents	Percentage
Female	78	83.70%
Male	15	16.30%
Total	93	100%

Source: Processed Data, 2024

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Table 1 highlights the dominance of women, comprising 83.70% of the beneficiaries in the Riau Makmur Productive Zakat program, compared to men, who represent only 16.30% of the total 93 respondents. This finding indicates that women are more likely to utilize productive zakat funds, reflecting their significant role in household economics, particularly in micro and small businesses. This aligns with studies by (Bhatt, 2021) as well as Olivares and Polanco (2005) in (Marakkath, 2014) which assert that a higher proportion of women beneficiaries results in greater socio-economic impact. Furthermore, (Becker, 1975) emphasizes that enhancing women's skills through programs like zakat can substantially improve the welfare of families and communities.

Evaluation Results of the Measurement Model (Outer Model)

The evaluation of the measurement model (outer model) was conducted to assess the reliability and validity of the indicators forming the latent constructs, as outlined by (Ghozali, 2014). The outer model with reflective indicators was evaluated through confirmatory factor analysis using the MTMM (Multi-Trait-Multi-Method) approach to test convergent validity and discriminant validity. The measurement model of this study is illustrated in the figure below.

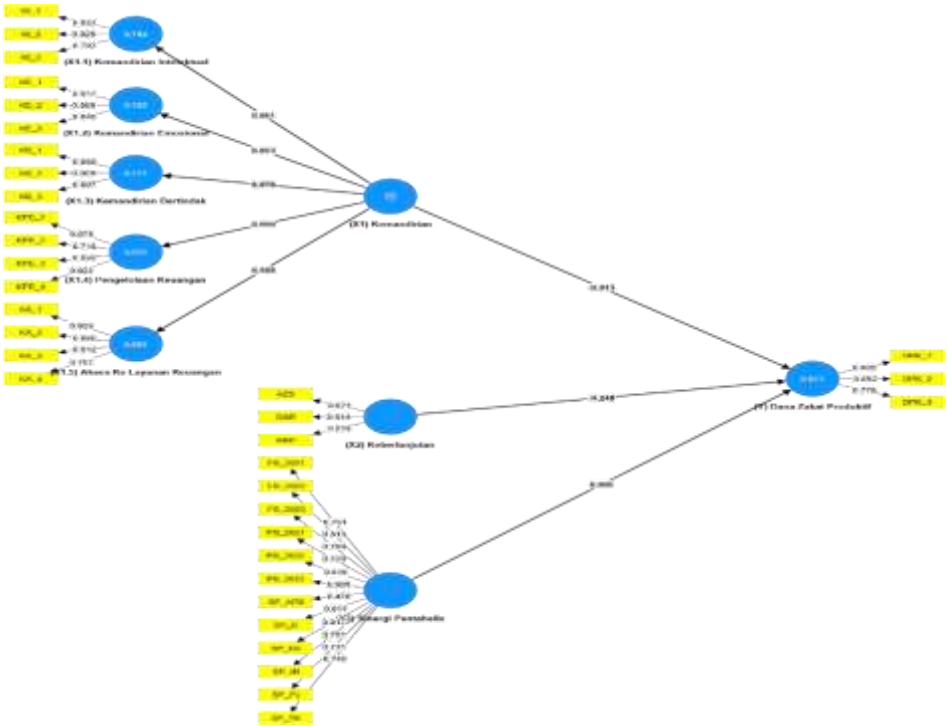

Figure 2. Outer Model

The following is a brief explanation in paragraph form for each point.

1. **Mustahiq Independence**
   The indicator of Intellectual Independence (X1.4) in financial management is the most dominant, with a loading value of 0.956, followed by the sub-indicator KPE_3 (loading 0.935), which reflects mustahiq's ability to allocate income for regular savings and long-term investments. This highlights the critical role of financial management in shaping mustahiq independence.
2. **Mustahiq Economic Welfare**
   The RRP indicator (loading 0.918) emerges as the dominant factor, indicating BAZNAS Riau Province's capability in managing the risk of mustahiq failure in utilizing productive zakat funds. This demonstrates that effective risk management significantly impacts the economic sustainability of mustahiq.
3. **Penta Helix Synergy**

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Two indicators, Impact of Zakat (SP_DZ) and Database (SP_D), both have equal loading values (0.817). SP_DZ measures zakat's contribution to improving mustahiq welfare, while SP_D ensures the accuracy of mustahiq and muzakki data for transparency and accountability. These aspects are essential in ensuring zakat's positive impact and strengthening synergy within the zakat ecosystem.

4. **Productive Zakat Funds**
   The DPK_1 indicator (loading 0.935) is the most dominant, showing that the growth of mustahiq businesses—including increased sales, profits, assets, and customer base—is the primary factor influencing the effectiveness of productive zakat funds. This underscores the importance of supporting mustahiq enterprises to maximize the impact of productive zakat.

Validity in Instrumentation

Validity refers to the degree to which an instrument accurately measures the construct it is intended to measure. In this study, construct validity was tested, which is divided into convergent validity and discriminant validity (Ghozali, 2014; Hair et al., 2017). Measurement with reflective indicators demonstrates that a change in one indicator within a construct corresponds to changes in other indicators of the same construct (or when an indicator is excluded from the model).

Table 2 Convergent Validity Test Results

Variable	Indicator	Loading	AVE	Description
Independence	KI_1	0,832	0,725	Valid
	KI_2	0,926		Valid
	KI_3	0,792		Valid
	KE_1	0,917	0,767	Valid
	KE_2	0,868		Valid
	KE_3	0,840		Valid
	KB_1	0,868	0,801	Valid
	KB_2	0,909		Valid
	KB_3	0,907		Valid
	KPE_1	0,879	0,753	Valid
	KPE_2	0,718		Valid
	KPE_3	0,935		Valid
	KPE_4	0,922		Valid
	KA_1	0,926	0,762	Valid
	KA_2	0,886		Valid
	KA_3	0,912		Valid
	KA_4	0,757		Valid
Sustainability	AZS	0,871	0,755	Valid
	DAR	0,814		Valid
	RRP	0,918		Valid
Penta Helix Synergy	FS_2021	0,751	0,575	Valid
	FS_2022	0,813		Valid
	FS_2023	0,790		Valid
	PS_2021	0,726		Valid

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	PS_2022	0,816		Valid
	PS_2023	0,805		Valid
	SP_D	0,817		Valid
	SP_DZ	0,817		Valid
	SP_IR	0,751		Valid
	SP_PJ	0,731		Valid
	SP_TK	0,740		Valid
Productive Zakat Funds	DPK_1	0,935	0,736	Valid
	DPK_2	0,852		Valid
	DPK_3	0,779		Valid

Source: Author's Data, 2024

Based on Table 2 all items within the variables meet the validity criteria, as their loading factor values exceed the minimum threshold of 0.50 (Ghozali, 2014). The results of the discriminant validity test can be assessed through the cross-loading values provided below.

Table 3 of Cross-Loading Values

Indicator	Independence	Sustainability	Penta Helix Synergy	Productive Zakat Funds
KI_1	**0,795**	0,512	0,607	0,620
KI_2	**0,759**	0,518	0,712	0,696
KI_3	**0,807**	0,478	0,546	0,372
KE_1	**0,839**	0,747	0,709	0,529
KE_2	**0,637**	0,579	0,496	0,267
KE_3	**0,743**	0,706	0,710	0,454
KB_1	**0,739**	0,450	0,614	0,404
KB_2	**0,794**	0,528	0,581	0,309
KB_3	**0,822**	0,599	0,651	0,417
KPE_1	**0,886**	0,629	0,687	0,494
KPE_2	**0,629**	0,423	0,422	0,224
KPE_3	**0,880**	0,679	0,674	0,431
KPE_4	**0,891**	0,660	0,681	0,475
KA_1	**0,828**	0,624	0,561	0,522
KA_2	**0,823**	0,593	0,625	0,604
KA_3	**0,813**	0,555	0,532	0,413
KA_4	**0,764**	0,698	0,682	0,445
AZS	0,706	**0,871**	0,769	0,538
DAR	0,536	**0,814**	0,658	0,382
RRP	0,693	**0,718**	0,727	0,518
FS_2021	0,595	0,800	**0,851**	0,373
FS_2022	0,705	0,800	**0,813**	0,438
FS_2023	0,707	0,665	**0,790**	0,411
PS_2021	0,721	0,716	**0,726**	0,456

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PS_2022	0,676	0,702	**0,816**	0,544
PS_2023	0,607	0,771	**0,805**	0,441
SP_D	0,716	0,568	**0,817**	0,806
SP_DZ	0,545	0,499	**0,817**	0,709
SP_IR	0,576	0,730	**0,751**	0,416
SP_PJ	0,548	0,458	**0,731**	0,744
SP_TK	0,422	0,510	**0,784**	0,751
DPK_1	0,643	0,582	0,788	**0,935**
DPK_2	0,491	0,423	0,555	**0,852**
DPK_3	0,325	0,411	0,603	**0,779**

Source: Author's Data, 2024

Table 3 indicates that each indicator demonstrates a high correlation with its respective construct, as evidenced by unique loading scores compared to other constructs. This confirms that all indicators meet the criteria for discriminant validity.

A good measurement model for discriminant validity is established when the AVE value for a variable is greater than its correlation with other variables (Ghozali, 2014).

Table 4 Fornell-Larcker Criterion

Description	Independence (X1)	Sustainability (X2)	Penta Helix Synergy (X3)	Productive Zakat Funds (Y)
(X1) Independence	**0,798**			
(X2) Sustainability	0,751	**0,869**		
(X3) Penta Helix Synergy	0,790	0,730	**0,785**	
(Y) Productive Zakat Funds	0,579	0,561	0,770	**0,858**

Source: Author's Data, 2024

Table 4 demonstrates good discriminant validity, as the AVE values of each construct are higher than the correlations between constructs. This confirms the exclusivity of the measurement for the variables Independence, Sustainability, Penta Helix Synergy, and Productive Zakat Funds, ensuring that all constructs in the study meet the criteria for discriminant validity.

Reliability reflects the degree of accuracy, consistency, and dependability of the measurement tool in producing stable results (Ghozali, 2014).

Table 5 Composite Reliability and Cronbach's Alpha Test Results

Keterangan Variabel	Composite reliability (rho_a)	Cronbach's alpha	Description
(X1) Independence	0,963	0,960	Reliable
(X2) Sustainability	0,862	0,839	Reliable
(X3) Penta Helix Synergy	0,956	0,935	Reliable
(Y) Productive Zakat Funds	0,854	0,818	Reliable

Source: Author's Data, 2024

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Based on Table 5, the Cronbach's alpha values for all variables exceed 0.60, while the composite reliability values for all variables surpass 0.70. Therefore, all variables in the research model meet the construct reliability standards and are deemed reliable.

Structural Model Evaluation (Inner Model)

The structural model, or inner model, represents the causal relationships between latent variables based on the underlying theoretical framework (Hair et al., 2017).

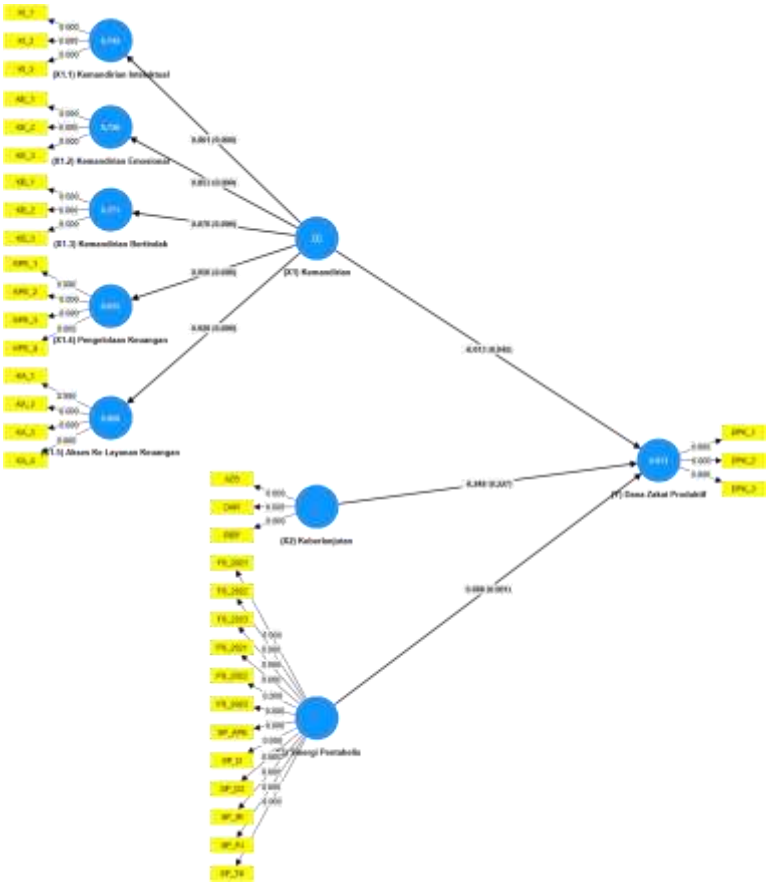

Figure 3. Inner's Model

Based on Figure 3, the following observations:

1. Independence (X1) has a negative and significant influence on Productive Zakat Funds (Y) with a path coefficient of -0.130, t-statistic of 2.069 > 1.96, and p-value of 0.045. This indicates that an increase in Independence tends to reduce Productive Zakat Funds, with statistical significance at a 95% confidence level.
2. Sustainability (X2) shows a negative and significant influence on Productive Zakat Funds (Y) with a path coefficient of -0.248, t-statistic of 2.208 > 1.96, and p-value of 0.027. This means that an increase in Sustainability is associated with a decrease in Productive Zakat Funds, significant at a 95% confidence level.
3. Penta Helix Synergy (X3) has a strong and significant positive influence on Productive Zakat Funds (Y) with a path coefficient of 0.986, t-statistic of 3.347 > 1.96, and p-value of 0.001. This confirms that increased synergy among Penta Helix elements significantly enhances Productive Zakat Funds, with statistical significance at a 99% confidence level.

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R-Square (R^2) Values for the Research Constructs:

Tabel 6 Coefficient of Determination Test

Description	R-square	R-square adjusted
(Y) Productive Zakat Funds	0,813	0,799

Source: Author's Data, 2024

Based on Table 6, the Adjusted R-Square value for the Productive Zakat Funds construct is 0.799. This indicates that the model has a moderate level of goodness-of-fit. It also means that 79.9% of the variability in Productive Zakat Funds is explained by the variables in the model, while the remaining 20.1% is influenced by factors outside the model.

Table 7 F-Square Test

Description	f-square
(X1) Independence -> (Y) Productive Zakat Funds	0,400
(X2) Sustainability -> (Y) Productive Zakat Funds	0,460
(X3) Penta Helix Synergy -> (Y) Productive Zakat Funds	0,621

Source: Author's Data, 2024

From Table 7, the F-Square values for Productive Zakat Funds are 0.400, 0.460, and 0.621. Therefore, it can be concluded that the variables influencing Productive Zakat Funds have a substantial impact.

Table 8 Q-Square Test

	SSO	SSE	Q^2 (=1-SSE/SSO)
(X1) Independence	1581,000	1581,000	0,000
(X2) Sustainability	279,000	279,000	0,000
(X3) Penta Helix Synergy	1116,000	1116,000	0,000
(Y) Productive Zakat Funds	279,000	167,450	0,400

Source: Author's Data, 2024

As shown in Table 8, the Q^2 value for Productive Zakat Funds is 0.400. A higher Q^2 value indicates a better ability of the model to provide accurate predictions for the variable being explained (Ghozali, 2014).

Table 9 Hypothesis Testing for Direct Effects

Descriptive	Original sample (O)	T-statistics (|O/STDEV|)	P-values
(X1) Independence -> (Y) Productive Zakat Funds	-0,130	2,069	0,045
(X2) Sustainability -> (Y) Productive Zakat Funds	-0,248	2,208	0,027
(X3) Pentahelix Synergy -> (Y) Productive Zakat Funds	0,986	3,347	0,001

Source: Author's Data, 2024

DISCUSSION

First Hypothesis (H_1): Independence (X_1) on Productive Zakat Funds (Y)

The results show a significant negative influence with an Original Sample (O) of -0.130, t-statistics of 2.069 (>1.96), and a p-value of 0.045 (<0.05). H_1 is accepted, indicating that an increase in mustahiq's financial independence reduces dependence on zakat funds, aligning with the objectives of productive zakat. However, the high reliance of mustahiq on empowerment programs can become a constraint, resulting in negative effects. The approaches of (Perkins & Zimmerman, 1995; Sen, 2000) emphasize the importance of self-management and the freedom of choice, while Brigham and Ehrhardt (2017) highlights that independence enables more effective zakat allocation.

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Second Hypothesis (H_2): Sustainability (X_2) on Productive Zakat Funds (Y)
The test indicates a significant negative effect with an Original Sample (O) of -0.248, t-statistics of 2.208 (>1.96), and a p-value of 0.027 (<0.05), leading to the rejection of H_2. While zakat funds support sustainability, the negative impact may be caused by uneven allocation (as seen in Graph 1.2), high operational costs (Dubel & Pawłowska, 2020), and inadequate training, which limit long-term positive outcomes. (Gundogdu, 2023) supports that sustainability requires program integration to reduce dependence. However, the results indicate that sustainability has not yet positively contributed to Productive Zakat Funds in Riau Province.

Third Hypothesis (H_3): Penta Helix Synergy (X_3) on Productive Zakat Funds (Y)
The results show a strong and significant positive influence with an Original Sample (O) of 0.986, t-statistics of 3.347 (>1.96), and a p-value of 0.001 (<0.05), leading to the acceptance of H_3. This demonstrates that the Penta Helix model—through collaboration between government, academia, businesses, communities, and media—is highly effective in the distribution of productive zakat. Research by (Halibas et al., 2017; Kachkar & Alfares, 2022; Herianingrum et al., 2024) supports the notion that cross-sectoral synergy enhances zakat funding effectiveness, even during crises. The acceptance of H_3 confirms the relevance of the Penta Helix approach in improving the efficiency of social programs and the sustainable welfare of mustahiq.

CONCLUSION

Mustahiq independence has a significant negative influence on the effectiveness of productive zakat funds, as low independence increases dependency on zakat, which reduces sustainable empowerment. This calls for strategies to enhance mustahiq independence, ensuring that zakat funds have a lasting impact. Additionally, mustahiq economic sustainability negatively affects the effectiveness of zakat fund distribution, primarily due to distribution inequalities, limited training, and restricted financial access. To address this, solutions such as improved training programs and greater access to financial facilities are necessary to support the economic sustainability of mustahiq. On the other hand, Penta Helix Synergy has a significant positive influence on the effectiveness and efficiency of zakat distribution, as cross-sector collaboration improves transparency, accountability, and stakeholder involvement, thereby strengthening the empowerment of mustahiq.

However, this study is limited to the Riau region, utilizes short-term data, and employs the exploratory PLS-SEM method, meaning that broader studies with more robust methodologies are needed to validate the results. Based on these findings, recommendations include enhancing mustahiq independence through entrepreneurship and financial management training based on local resources, optimizing fund allocation to ensure equitable distribution, particularly in rural areas, and strengthening Penta Helix Synergy by collaborating with the private sector and media to expand training access, increase transparency, and improve the positive image of productive zakat programs in society.

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