

Designing Effective Productive Zakat Interventions: a Comparative System Dynamics Analysis of Rural and Urban BAZNAS Programs

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Abstract: Productive zakat increasingly supports income-generating activities among mustahik. However, evaluations often treat beneficiaries as homogeneous and overlook differences in program mechanisms across rural and urban settings. This study compares four productive zakat programs implemented by BAZNAS offices in East Java: broiler farming in Ngawi, goat livestock in Trenggalek, Baznas Microfinance Desa in Mojokerto, and a grant-based productive asset program in Surabaya. Using a comparative case-study design, the study combines qualitative field evidence with system dynamics simulation. Interviews, focus group discussions, field observations, and institutional monitoring records inform the model parameters, including return on investment, success rate, implementation delay, and revolving period. The simulation covers 36 months, assumes a constant monthly zakat allocation of IDR 100 million, and sets the marginal propensity to consume at one. Under these parameters, the three revolving designs generate more sustained modeled consumption trajectories than the non-revolving grant-based program. Baznas Microfinance Desa reaches approximately IDR 845 million by month 36, followed by broiler farming at IDR 693 million, while the grant-based program plateaus at around IDR 79–80 million. Although rural asset-based programs have longer activation periods due to biological production cycles, their modeled consumption effects strengthen through asset recycling. This study offers a context-sensitive dynamic framework for comparing productive zakat designs. Its fiqh discussion considers the compatibility of revolving mechanisms with maqasid al-shari'ah, tamlik, and Indonesian zakat regulation. The findings suggest that BAZNAS should align revolving mechanisms, monitoring arrangements, and evaluation horizons with local livelihood conditions rather than apply uniform program designs.

Keywords: Productive zakat; Poverty alleviation; Rural-Urban comparison; Islamic social finance

Introduction

Poverty remains a persistent development challenge in many Muslim-majority countries¹, including Indonesia, despite sustained economic growth and various social protection programs². According to national statistics, poverty in Indonesia exhibits not only a quantitative dimension but also strong spatial heterogeneity, with rural and urban areas facing structurally distinct poverty characteristics³. This is often associated with limited access to productive assets, infrastructure, and markets, while urban poverty is increasingly linked to informal employment, high living costs, and vulnerability to economic shocks. These contrasting conditions imply that a uniform poverty alleviation strategy may be ineffective in addressing diverse socio-economic realities.

Zakat is not only a mandatory act of worship but also a normative instrument for realizing social justice. In contemporary Islamic economic literature, productive zakat is understood as the utilization of zakat funds in ways that enable beneficiaries (*mustahiq*) to engage in income-generating activities. Rather than being entirely spent on immediate consumption, zakat may be allocated in the form of working capital, productive assets, or structured economic support that allows recipients to sustain their livelihoods over the long term⁴. Further reinforce this perspective by demonstrating that productive zakat enhances the welfare of beneficiaries and reduces long-term dependency⁵. From a legal standpoint, productive zakat does not alter the obligatory nature of zakat; rather, it reflects a contextual adaptation of its distribution patterns in response to contemporary socio-economic challenges⁶.

In this context, zakat, as a core instrument of Islamic social finance, holds significant potential to complement state-led poverty reduction efforts⁷. Unlike

¹ Akhmad Affandi and Dewi Puji Astuti, "Dynamic Model of Ibn Khaldun Theory on Poverty," *Humanomics* 30, no. 2 (2014): 136–61, <https://doi.org/10.1108/h-05-2012-0010>.

² Fharuddin Fharuddin and Darma Endrawati, "Determinants of Working Poverty in Indonesia," *Journal of Economics and Development* 24, no. 3 (2022): 230–46, <https://doi.org/10.1108/jed-09-2021-0151>; Rudi Purwono et al., "Poverty Dynamics in Indonesia: Empirical Evidence from Three Main Approaches," *World Development Perspectives* 23 (2021), <https://doi.org/10.1016/j.wdp.2021.100346>.

³ BPS, "Persentase Penduduk Miskin Maret 2025 Turun Menjadi 8,47 Persen" (Badan Pusat Statistik Indonesia, 2025).

⁴ M Fitri, "Productive Zakat Management as an Instrument for Improving Community Welfare," *Economica: Journal of Islamic Economics* 8, no. 1 (2017): 149–73, <https://doi.org/10.21580/economica.2017.8.1.1830>.

⁵ Imron Mawardi et al., "Analyzing the Impact of Productive Zakat on the Welfare of Zakat Recipients," *Journal of Islamic Accounting and Business Research* 14, no. 1 (2023): 118–40, <https://doi.org/10.1108/JIABR-05-2021-0145>.

⁶ M S Mahadhir and A Arifai, "Productive Zakat in the Perspective of Islamic Law," *Adl Islamic Economic* 2, no. 2 (2021): 95–110.

⁷ Maizaitulaidawati Md Husin, Nor Aiza Mohd Zamil, and Zarina Abdul Salam, "Is Zakat Capable of Alleviating Poverty and Reducing Income Inequality? An Analysis of the Distribution of Zakat Fund in Malaysia," in *Impact of Zakat on Sustainable Economic Development*, 2020, 168–85, <https://doi.org/10.4018/978-1-7998-3452-6.ch012>; Abdul Wahid Mongkito et al., "The Role of Zakat in Poverty Alleviation and Farmer Welfare; the Theoretical Review," *Journal of Global Innovations in*

conventional social assistance, zakat is rooted in a normative framework that emphasizes social justice (*'adl*), redistribution, and empowerment of the poor (*mustahiq*). In Indonesia, the institutionalization of zakat through formal organizations such as BAZNAS and LAZ has expanded its role from short-term consumption support toward more productive and empowerment-oriented interventions⁸. However, questions remain regarding the effectiveness of zakat programs when applied across different spatial and socio-economic contexts, particularly between rural and urban settings.

Prior scholarship has documented the welfare, poverty, enterprise⁹, governance¹⁰, and targeting dimensions of productive zakat¹¹. However, three limitations remain. First, many studies rely on static before–after comparisons, cross-sectional outcomes, or aggregate welfare indicators; these approaches are less suited to represent implementation delays, feedback loops, capital recycling, and cumulative effects¹². Second, many evaluations focus on one program or treat beneficiaries as relatively homogeneous, despite substantial differences among livestock, agricultural, microfinance, and productive-asset interventions¹³. Third,

Agricultural Sciences 13, no. 1 (2025): 285–96, <https://doi.org/10.22194/JGIAS/25.1427>; Indah Purbasari, Encik Muhammad Fauzan, and Azizah, “Zakat in Indonesian State Treasury Funds: Its Potential Obstacle and Abuse,” *IOP Conference Series: Earth and Environmental Science* 175 (2018): 12200, <https://doi.org/10.1088/1755-1315/175/1/012200>.

⁸ Aulia Delvina et al., “Governance and Legal Perspectives: Problems in the Management of Zakat Funds Are Used as Collateral,” *Journal of Advanced Research in Dynamical and Control Systems* 12, no. 6 (2020): 209–17, <https://doi.org/10.5373/JARDCS/V12I6/S20201023>; Ahmad Muhasim et al., “Revisiting Indonesia’s Zakat Law: Legal Analysis of Marine Product Zakat and Reform Proposals,” *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 2025, 309–28, <https://doi.org/10.24090/volksgeist.v8i2.14169>.

⁹ Nuryanti Mustari et al., “Multipartner Governance and the Urgency of Poverty Alleviation Policy: Zakat Fundraising Management,” *Cogent Social Sciences* 10, no. 1 (2024), <https://doi.org/10.1080/23311886.2024.2361529>; H Wahid, R A Kader, and S Ahmad, “The Acceptance of Amil and Zakat Recipient toward Localization of Zakat Distribution in Malaysia,” *Jurnal Ekonomi Malaysia*, 2012.

¹⁰ Mohd Zaidi Daud et al., “EMPOWERING FUTURES: Unveiling Zakat’s Vital Role Economic Development and Legal Framework in Malaysia’s,” *Jurisdictie: Jurnal Hukum Dan Syariah* 16, no. 1 (2025): 235–74, <https://doi.org/10.18860/j.v16i1.31424>; Mohammad Habibullah and Razali Haron, “Sustainable Finance,” *Islamic Sustainable Finance* (Routledge, 2024), <https://doi.org/10.4324/9781003395447-19>.

¹¹ E Amalia, “Good Governance for Zakat Institutions in Indonesia: A Confirmatory Factor Analysis,” *Pertanika Journal of Social Sciences and Humanities*, 2019; Delvina et al., “Governance and Legal Perspectives: Problems in the Management of Zakat Funds Are Used as Collateral.”

¹² Zubir Azhar, Muhammad Kamil Kader Mydin, and Anwar Allah Pitchay, “Zakat Distribution Priorities in Malaysia: An Analytic Hierarchy Process Analysis,” *Asian Journal of Business and Accounting* 16, no. 1 (2023): 69–87, <https://doi.org/10.22452/ajba.vol16no1.3>; Husin, Mohd Zamil, and Salam, “Is Zakat Capable of Alleviating Poverty and Reducing Income Inequality? An Analysis of the Distribution of Zakat Fund in Malaysia.”

¹³ Maghfirah Maghfirah, “ZAKAT MANAGEMENT AND POVERTY ALLEVIATION IN INDONESIA,” *JURISDICTION* 11, no. 2 (2021): 286–313, <https://doi.org/10.18860/j.v11i2.9261>.

rural–urban context is frequently used as a descriptive category rather than analyzed as a source of variation in market access, production cycle, monitoring, risk, and the capacity of zakat capital to revolve. System dynamics is useful for addressing these limitations because it represents time delays, feedback structures, capital recycling, and cumulative consequences of alternative program mechanisms.

Therefore, this study argues that designing effective zakat interventions requires a context-sensitive approach, where program models are aligned with the specific needs and constraints of rural and urban poor households¹⁴. By conducting a comparative analysis of zakat-based poverty alleviation programs in rural and urban Indonesia, this research proposes two research questions as follows: (1) What are the key differences in program design, implementation mechanisms, and outcomes? (2) How does the effectiveness of productive zakat interventions in increasing *mustahik* consumption compare between rural and urban program designs in East Java, Indonesia, and assessing their conformity with Islamic jurisprudential principles?

The main contribution of this study is the development of a dynamic, context-sensitive simulation framework for evaluating productive zakat intervention designs across rural and urban settings. The model estimates simulated *mustahik*-consumption trajectories over 36 months using program-specific parameters derived from field evidence and institutional monitoring information. Fiqh analysis is positioned as a normative framework for examining the institutional conditions under which productive and revolving mechanisms may align with *maqasid al-shari'ah*, *tamlik*, and Indonesian zakat regulation. The findings provide practical and policy-relevant insights for zakat institutions, particularly BAZNAS, in designing more effective, context-sensitive, and *Shari'ah*-compliant productive zakat interventions.

The remainder of this paper is structured as follows. Section 2 outlines the methodology. Section 3 presents and discusses the findings, followed by policy implications and concluding remarks in the final section.

Method

This study adopts a mixed qualitative–quantitative approach to evaluate the effectiveness of productive zakat interventions in increasing *mustahik* consumption. Primary qualitative data were collected through interviews, focus group discussions, and field observations with BAZNAS officials in four regions representing rural and urban contexts (Ngawi, Trenggalek, Mojokerto, and Surabaya). From each BAZNAS, one representative productive zakat program was selected based on program continuity, productive orientation, availability of monitoring data, and institutional feasibility. These programs serve as the

¹⁴ Mustari et al., “Multipartner Governance and the Urgency of Poverty Alleviation Policy: Zakat Fundraising Management.”

empirical basis for comparative analysis across different spatial and programmatic designs.

Informants were purposively selected based on their direct involvement in the implementation and outcomes of the selected productive zakat programs. In total, 12 informants were involved, comprising three informants from each of the four observed BAZNAS institutions: the Head of BAZNAS, a program implementation officer responsible for managing and monitoring the productive zakat intervention, and a program beneficiary who directly received and participated in the intervention. This composition was intended to capture the program from institutional, operational, and beneficiary perspectives. The qualitative data were analyzed thematically by identifying recurring mechanisms related to implementation delay, beneficiary success, return generation, risk control, and fund or asset recycling. These empirically identified mechanisms were subsequently translated into model structures and parameter assumptions for the system dynamics simulation.

The quantitative assessment employs a system dynamics simulation to model aggregate *mustahik* consumption over time. Effective consumption is defined as a function of productive zakat allocation, program return on investment (ROI), success rate, and the marginal propensity to consume (MPC). The simulation assumes a constant monthly productive zakat allocation of Rp100 million, fixed ROI and success rates for each program, and MPC set at unity. Program-specific delays and revolving mechanisms are explicitly incorporated to capture feedback effects, capital recycling, and delayed economic responses. Simulation outputs over a 36-month horizon are interpreted as relative measures of program effectiveness rather than point forecasts.

The parameters used in the system dynamics model were derived from the field investigation of the four selected BAZNAS programs rather than being assigned solely as arbitrary model assumptions. Four program-specific parameters were identified: return on investment (ROI), beneficiary success rate, implementation delay, and revolving period. These parameters were identified through interviews, field observations, and available program monitoring information obtained from the respective BAZNAS institutions and beneficiaries. To ensure comparability across the four cases, the same operational definitions were applied to each program. Table 1 presents the operational definitions, field evidence, derivation procedures, and resulting parameter values used as inputs in the simulation model.

Table 1.
Operational Definitions and Parameterization of Simulation Variables

Parameter	Operational Definition	Field Evidence / Data Basis	Derivation / Calculation
ROI	Return generated from productive activity relative to the productive zakat capital allocated to the program.	Observed economic return from the respective productive activity and available program information.	$\text{Economic return} \div \text{productive zakat capital} \times 100\%$.
Beneficiary Success Rate	Proportion of beneficiaries whose productive activities remained operational and continued to meet program objectives during the observed program period.	Beneficiary monitoring information and field evidence on continued program participation and operational status.	$\text{Successful beneficiaries} \div \text{total monitored beneficiaries} \times 100\%$.
Implementation Delay	Time interval between disbursement of productive zakat assistance and the beginning of measurable productive returns.	Program implementation process, including preparation, production, marketing, or initial repayment activities.	Observed duration between disbursement and initial productive return.
Revolving Period	Time required for productive zakat capital or productive assets to become available for redistribution or reuse.	Observed repayment, asset reproduction, or reinvestment cycle of each program.	Observed duration of the capital/asset recycling cycle.

Based on these operational definitions and the field evidence, the resulting parameter values used in the simulation are presented in Table 4. The values therefore represent empirically informed parameter assumptions reflecting the

characteristics of the observed programs, rather than universal estimates for productive zakat programs.

Complementing the quantitative analysis, the study integrates a fiqh-based normative assessment of productive zakat mechanisms. This normative analysis critically examines the permissibility and doctrinal grounding of productive zakat designs, including *qardh hasan*, in light of the Qur'an, the principle of *tamlik* (transfer of ownership), *al-faur* (immediacy of need fulfillment), and contemporary jurisprudential interpretations framed by *maqasid al-shari'ah*. The assessment draws on classical positions from the four Sunni schools as well as contemporary scholarship, and is situated within Indonesian legal and institutional frameworks. By integrating empirical simulation with normative evaluation, the methodology permits assessment of productive zakat not only in terms of economic effectiveness but also in terms of its juridical legitimacy and alignment with the objectives of Islamic law.

Result and Discussion

Typology of Productive Zakat Program Designs

This section classifies the observed productive zakat programs into a limited number of design archetypes that serve as the analytical foundation for the comparative and simulation-based evaluation. Rather than comparing zakat institutions as organizational units, this study focuses on the underlying economic and operational designs through which zakat funds are transformed into income-generating activities for *mustahik*. Field evidence from the four selected BAZNAS offices indicates four program design archetypes within the cases examined in this study:

- a. The first design is asset-based revolving production, represented by group-based broiler farming clusters from Baznas Ngawi (coded N3). In this model, zakat funds are used to finance productive inputs such as day-old chicks, feed, and operational costs, while output is sold through pre-arranged market channels. Revenues generated from each production cycle are partially retained as working capital, allowing the same zakat funds to be continuously recycled across production rounds. The production process follows a biological cycle, but risk is mitigated through group-based organization, technical facilitation, and guaranteed market absorption. This design is predominantly observed in rural settings where land availability, labor supply, and community-based monitoring support collective production.
- b. The second design is asset accumulation revolving, exemplified by group-based livestock programs from Baznas Trenggalek (coded T2). In this model, zakat is delivered in the form of productive assets—such as goats—granted to *mustahik* households. The revolving mechanism operates through biological reproduction and structured redistribution rules,

whereby part of the offspring is transferred to new beneficiaries or reinvested within the group. Unlike short-cycle production models, this design generates capital growth through asset appreciation over time. Risk is distributed across the group and moderated by social and religious norms that regulate asset liquidation and reinvestment. This design is also primarily rural, where livestock-based livelihoods are compatible with local ecological and social conditions.

- c. The third design is financial revolving microfinance from Baznas Mojokerto (coded M1), in which zakat funds are disbursed as interest-free and collateral-free working capital for microentrepreneurs. Beneficiaries are required to repay only the principal over a fixed period, after which the recovered funds are reallocated to new *mustahik*. Unlike asset-based models, production occurs through trade and services rather than biological processes, allowing faster capital turnover. Monitoring is typically conducted through group-based lending arrangements and regular repayment schedules. This design is dominant in urban environments, where market access is immediate, business activities are continuous, and administrative control is stronger.
- d. The fourth design is non-revolving asset grants from Baznas Surabaya (coded S1), in which zakat is provided as a one-time transfer of productive equipment and small start-up capital, such as business carts or tools. Once distributed, the zakat funds are not recovered or recycled, and program impact depends entirely on the individual beneficiary's ability to sustain the business. This design offers rapid short-term support but lacks a capital regeneration mechanism. It is most commonly implemented in dense urban contexts, where quick deployment and ease of administration are prioritized over long-term capital accumulation.

These archetypes should not be interpreted as an exhaustive classification of productive zakat programs in Indonesia, but as analytically useful representations of the program mechanisms observed in the selected cases.

The typology reveals a clear spatial pattern in productive zakat implementation. Rural zakat programs are dominated by asset-based revolving models that rely on biological production cycles and collective management, while urban programs emphasize financial or grant-based designs that prioritize speed, liquidity, and administrative simplicity. These four design archetypes provide the analytical foundation for examining how delay, risk, return, and revolving capacity shape the effectiveness of zakat interventions in the following sections.

The characteristics summarized in Table 2 were identified from field observations, interviews with program personnel, and available monitoring information. The final column links each design characteristic to observable program mechanisms, such as group-based monitoring, production cycles, repayment arrangements, market linkages, and asset recycling.

Tabel 2.

Summarizes the core characteristics of these four productive zakat designs

Design	Capital Type	Revolving Mechanism	Production Logic	Risk Distribution	Field Evidence / Observable Indicator
N3	Physical inputs for broiler farming	Sales revenue reinvested across cycles	Biological production with a contracted market	Group-based and institutional	Group structure and collective monitoring; defined broiler production cycle; recurring buyer/market linkage; sales and reinvestment records; collective management of production risk
T2	Livestock assets	Biological reproduction and asset rotation	Asset accumulation over time	Group-based and social norms	Group-based livestock management; livestock reproduction/growth cycle; records of livestock ownership/rotation; group monitoring and collective responsibility; asset transfer or reuse mechanism
M1	Financial working capital	Principal repayment and redeployment	Trade and services	Group-based lending discipline	Regular repayment records; defined financing/repayment cycle; group monitoring or peer responsibility; ongoing trade/service activity; redeployment of repaid capital
S1	Equipment and small cash grants	None (one-off transfer)	Individual microenterprise	Individual	One-time grant/equipment transfer; individual business operation; absence of repayment requirement; absence of formal capital recycling; continued use of productive equipment

Design Mechanics: Delay, Risk, Return and Revolving Capacity

This section examines the internal mechanics of each productive zakat design by focusing on four key parameters that determine economic performance: implementation delay, risk and success rate, return on investment (ROI), and revolving capacity. These parameters are derived from field evidence and subsequently used as inputs in the system dynamics simulation. Field observations and interviews indicated that group-based arrangements were accompanied by collective monitoring, shared responsibility, and regular facilitation. These mechanisms were considered relevant to the relatively high continuation rate observed in the selected rural programs.

Implementation Delay

Implementation delay refers to the time lag between the disbursement of zakat funds and the moment when beneficiaries begin to generate income. This delay differs substantially across program designs due to the underlying production processes. In urban-based financial and grant programs (M1 and S1), delays are primarily administrative. Once funds or equipment are delivered, microenterprises can begin operating almost immediately. As a result, these designs exhibit short delays of approximately one month.

By contrast, rural asset-based programs involve biological production cycles. In broiler farming clusters (N3), income is generated only after one production cycle of approximately 60 days, which includes chick growth, feeding, and harvesting. Livestock programs (T2) experience even longer delays because economic value is created through reproduction and herd growth, which typically requires several months before marketable assets are produced. These biological constraints create longer initial delays, but they also establish the foundation for asset accumulation.

Risk Structure and Success Rate

The success rate of a productive zakat program reflects the proportion of beneficiaries who remain economically active and aligned with program objectives over time. This is shaped primarily by risk distribution and monitoring mechanisms.

Asset-based rural programs (N3 and T2) rely heavily on group-based organization, collective responsibility, and continuous facilitation. In broiler clusters, production risks are mitigated through standardized inputs, technical assistance, and pre-arranged marketing channels, which stabilize revenue and reduce market uncertainty. Livestock programs distribute biological and market risks across groups through shared norms governing asset use and redistribution. These institutional and social arrangements produce relatively high and stable success rates.

In urban financial microfinance (M1), risk is controlled through repayment discipline and group-based lending structures. Because beneficiaries must repay principal installments, non-performing behavior is quickly detected, and peer

pressure supports compliance. This results in a high proportion of active and revolving beneficiaries.

Non-revolving asset grants (S1) place most risk at the individual level. Once equipment and capital are transferred, there is no contractual or institutional mechanism to ensure continued business operation. As a result, business failure, asset misuse, or inactivity directly reduces the effective number of productive beneficiaries.

Return on Investment

Return on investment (ROI) measures the income-generating capacity of zakat capital. Rural asset-based programs tend to produce higher ROIs because biological production allows capital to be transformed into growing assets and marketable outputs. In broiler clusters, standardized production and guaranteed buyers generate stable margins. In livestock programs, herd growth creates long-term capital appreciation in addition to periodic sales.

Urban microfinance programs generate moderate but stable ROI through trading and service activities, which benefit from high market turnover but operate with thin margins. Grant-based programs tend to have lower ROI because they lack reinvestment and depend entirely on the individual productivity of beneficiaries.

Revolving Capacity

Revolving capacity is the defining feature that differentiates sustainable zakat designs from one-off assistance. In N3, T2, and M1, zakat funds or assets are recovered and reallocated through sales revenue, biological reproduction, or principal repayment. This enables continuous reuse of the same zakat capital, creating cumulative economic effects over time.

In the microfinance-based program (M1), interviews with program personnel indicated that repayment monitoring and group-based lending arrangements were used to identify non-performing beneficiaries and maintain repayment discipline. These mechanisms were therefore represented in the model through the program's relatively high success rate and shorter revolving period.

By contrast, S1 lacks any revolving mechanism. Once funds are disbursed, their economic impact depends solely on the first round of business activity. Even if beneficiaries succeed, the zakat capital itself is exhausted and cannot be reused to support additional *mustahik*.

Tabel 3

Summarizes the design mechanics of the four productive zakat models

Design	Delay	Risk Control	ROI Logic	Revolving Capacity
N3	Short biological cycle	Group-based + contract market	High	Sales-based revolving

T2	Long biological cycle	Group norms + asset rules	Moderate–High	Asset reproduction
M1	Short administrative	Repayment discipline	Moderate	Principal repayment
S1	Short administrative	Individual only	Low–Moderate	None

Effective Consumption through Zakat Intervention

To evaluate the impact of productive zakat interventions on household consumption, this study conceptualizes effective consumption as a function of *mustahik* income generated through zakat programs and their marginal propensity to consume (MPC). In standard consumption theory, aggregate consumption is expressed as:

$$C = Y \times MPC$$

Accordingly, *mustahik* consumption derived from productive zakat interventions can be specified as:

$$C_m = Y_m \times MPC_m$$

Effective income generated through productive zakat interventions (Y_m) is assumed to depend on three key program-level parameters: the return on investment of the zakat program, the success rate of beneficiary participation, and the nominal value of zakat assistance received per *mustahik*. Formally, this relationship is defined as:

$$Y_m = ROI_{zp} \times S_{zp} \times Z_{pm}$$

Where:

C_m = *Mustahik* consumption generated through productive zakat intervention

MPC_m = Marginal Propensity to Consume of *mustahik* households

Y_m = Effective *mustahik* income resulting from zakat productive programs

ROI_{zp} = Return on Investment of the productive zakat program per *mustahik*

S_{zp} = Success rate of the productive zakat program

Z_{pm} = Nominal value of productive zakat funds allocated per *mustahik*

The success rate (S_{zp}) captures the proportion of beneficiaries whose economic activities remain operational and aligned with program objectives during the observation period. This indicator is derived from monitoring records, repayment discipline (where applicable), and the continued engagement of the *mustahik* in productive activities.

Aggregating across all active *mustahik* participating in productive zakat programs, total *mustahik* consumption attributable to zakat interventions can be expressed as:

$$C_m = \left(\sum_{m=0}^n ROI_{zp} \times S_{zp} \times Z_{pm} \right) \times MPC_m$$

Where:

n = Number of active *mustahik* participating in productive zakat interventions

This formulation enables the estimation of effective consumption generated by productive zakat programs, explicitly linking program design parameters—such as ROI, success rate, and fund allocation—to downstream consumption outcomes through the consumption behavior of *mustahik* households.

Building on the comparative analysis presented in the previous section, this study identifies one high-performing productive zakat program from each BAZNAS office (rural and urban). These selected programs form the basis for subsequent simulation and evaluation of consumption effects arising from zakat interventions (Table 3).

To evaluate the effectiveness of productive zakat interventions in stimulating economic activity, this study focuses on the effective consumption generated by *mustahik* over time. Consumption is chosen as the primary outcome variable because it directly reflects improvements in household welfare and serves as a key transmission channel of zakat toward local economic multipliers. Following the Keynesian consumption framework, consumption is defined as a proportion of income determined by the marginal propensity to consume (MPC). Accordingly, *mustahik* consumption derived from zakat interventions is modeled as a function of effective income generated by productive zakat programs, adjusted for program performance and implementation delay.

$$C_m(t) = \left(\sum_{m=0}^{n(t)} ROI_{zp} \times S_{zp} \times Z_{pm}(t - \tau) \right) \times MPC_m$$

Where:

$C_m(t)$ = Aggregate *mustahik* consumption generated from productive zakat intervention at time (t)

$Z_{pm}(t - \tau)$ = Nominal productive zakat fund received per *mustahik*, realized after a program-specific delay (τ)

To evaluate the effectiveness of productive zakat program design, a simulation was conducted using the best-performing program from each of the four BAZNAS cases. The simulation assumes a constant allocation of productive zakat amounting to IDR 100 million per month, with the marginal propensity to consume (MPC) of the *mustahik* fixed at 1. This assumption implies that all additional income generated through zakat intervention is fully translated into consumption expenditure, allowing the analysis to focus on program design characteristics rather than behavioral leakage. The simulation results (Figure 1) clearly indicate that revolving zakat programs generate a higher and more sustained consumption multiplier compared to non-revolving (grant-based) programs.

The parameter values presented in Table 4 were derived from program-specific monitoring information and field evidence. They should therefore be

interpreted as case-specific calibrated parameters rather than universal performance benchmarks. The values reflect the operational characteristics of the selected programs during the observation period and were used to represent the mechanisms observed in each case.

Table 4
Selected Productive Zakat Programs Across Rural and Urban

Program	CODE	ROI Program (%)	Successful Rate (%)	Program Delay (month)	Fund Per <i>Mustahik</i> (Million Rp)	Revolving	Time To Revolving (Month)
Group-Based Broiler Farming Cluster (Plasma Model)	N3	40	95	2	0.5	Yes	2
Group-Based Goat Livestock Program	T2	30	85	6	4	Yes	12
Baznas Microfinance Desa (BMD)	M1	30	95	1	1	Yes	10
Business Carts / Productive Equipment + Start-up Capital (Grant-Based)	S1	20	80	1	1.5	No	0

Source: Derived from program-specific monitoring information and field evidence.

At the initial stages (months 0–2), all programs exhibit zero consumption effects due to program-specific implementation delays. The non-revolving grant-based program (S1) and the microfinance-based program (M1) begin generating consumption earlier (months 3–4), reflecting their shorter gestation periods. However, their growth patterns diverge substantially over time. The grant-based program (S1) shows a rapid initial increase but quickly reaches a consumption plateau, stabilizing around 79–80 units after month 20. This stagnation reflects the absence of a revolving mechanism, where zakat funds are exhausted after a single cycle and no longer generate additional productive income. In contrast, the revolving programs (N3, T2, and M1) generate more persistent cumulative consumption effects. Once operational, these programs allow productive capital to be reused through subsequent production, repayment, or asset recycling cycles, thereby sustaining the economic effect over the simulation horizon.

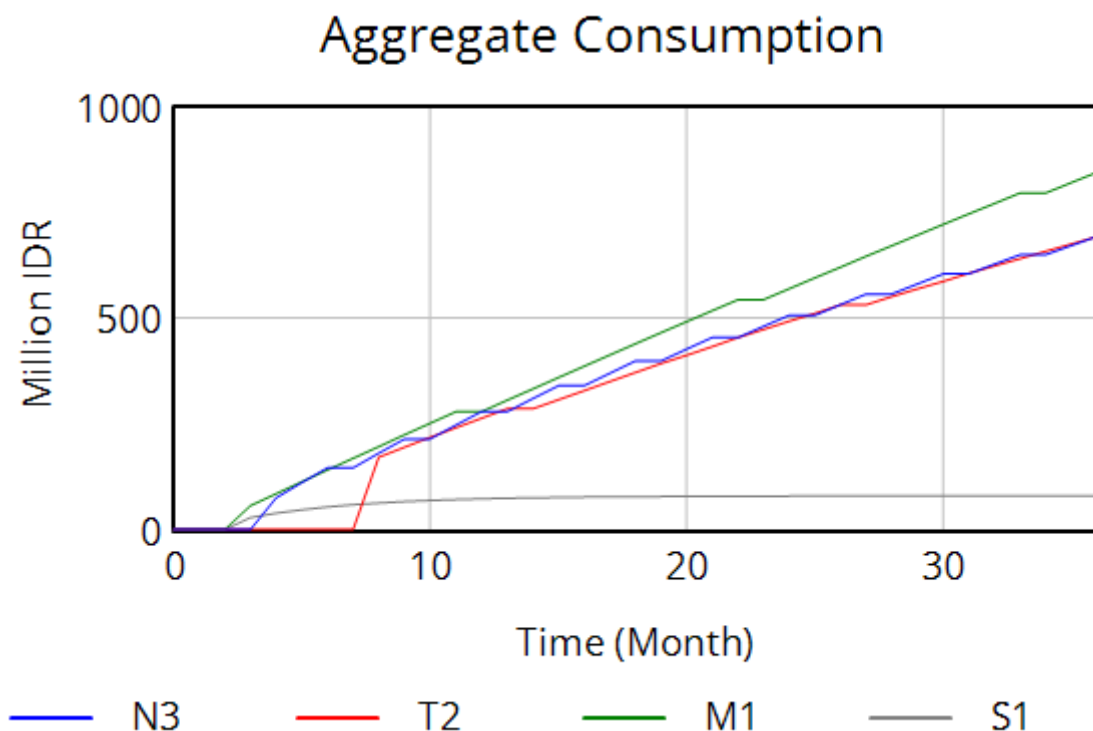


Figure 1. Aggregate Consumption Simulation Result

Among the revolving programs, Baznas Microfinance Desa (M1) exhibits the highest aggregate consumption level, reaching approximately 845 million Rupiah by month 36. This outcome is driven by three reinforcing factors: (1) Short program delay (1 month), (2) High success rate (95%), and (3) Relatively fast revolving cycle (10 months). The group-based broiler farming cluster (N3) follows closely, achieving around 693 million Rupiah by month 36. Although its delay is slightly longer than M1, its high ROI (40%) and very strong success rate (95%) enable robust consumption growth once the revolving cycle begins. The group-based goat livestock program (T2) shows a slower initial trajectory due to its long biological and production delay (6–12 months). However, after the revolving mechanism becomes active, consumption growth accelerates steadily, eventually converging toward the performance of

other revolving programs. This pattern highlights that longer delays do not necessarily reduce long-term effectiveness, provided the revolving mechanism is maintained.

The contrast between revolving and non-revolving programs is particularly striking. While the grant-based program (S1) remains effective in generating short-term consumption support, its impact is inherently non-cumulative. Without capital recovery and reallocation, the program's contribution to aggregate consumption is capped. Conversely, revolving zakat programs function as self-reinforcing economic mechanisms, transforming zakat from a one-off transfer into a dynamic productive asset. Over time, the difference in consumption outcomes widens significantly, demonstrating that program design—specifically the presence of a revolving structure—plays a more decisive role than initial disbursement size alone.

Policy and Design Implications

The simulation results indicate that revolving productive zakat programs consistently generate higher consumption multipliers than non-revolving programs, even under conservative assumptions (constant allocation of Rp100 million per month and MPC = 1). This confirms that capital recyclability, rather than nominal assistance size, is the key driver of sustained consumption growth. From a spatial perspective, program effectiveness differs between rural and urban settings:

Urban Context (M1 and S1)

Urban-based interventions benefit from short program delays and immediate market access, allowing consumption to increase rapidly. However, the results show that:

- a. Revolving urban programs (M1) maintain sustained consumption growth over time due to capital turnover and high success rates.
- b. Non-revolving urban grants (S1) reach early saturation, with diminishing marginal effects on consumption.
- c. This implies that in urban areas, revolving financial designs are essential to prevent stagnation and to sustain multiplier effects.

Rural Context (N3 and T2)

Rural-based programs exhibit longer activation delays due to biological production cycles and geographic constraints. Nevertheless:

- a. Once operational, rural revolving programs generate strong and persistent consumption multipliers.
- b. Group-based livestock and farming models (N3, T2) function as asset-accumulation mechanisms, where consumption gains materialize gradually but remain durable.

Therefore, rural zakat interventions should be evaluated using longer time horizons, as short-term assessments systematically underestimate their impact. These findings indicate that effective zakat design must be both revolving-oriented and spatially adaptive: urban programs require fast-revolving microfinance coupled with stringent credit oversight, whereas rural initiatives necessitate asset-based, group-managed models that tolerate prolonged gestation periods. Imposing a uniform intervention model across disparate

contexts risks either early market saturation in urban hubs or the systematic erasure of genuine productivity gains in rural areas.

To accommodate these distinct spatial dynamics, productive zakat requires a responsive governance framework rooted in tailored monitoring and continuous mentoring. At the micro-level, such sustained supervision serves as a direct operational buffer against acute behavioral distortions, most notably the diversion of capital toward immediate household consumption and the chronic entrenchment of dependency syndrome.¹⁵ Structured mentoring cultivates entrepreneurial agency, strengthens financial literacy, and facilitates crucial market integration and digital adoption.¹⁶

The literature emphasizes that monitoring and mentoring mechanisms cannot be effectively executed as rigid, one-size-fits-all protocols. Implementation failures frequently stem from targeting misalignments (*mis-targeting*) and sub-optimal capital allocations that fail to account for the structural operating cost structures and economic dynamics of *mustahik* enterprises.¹⁷ In particular, the operational friction of enterprise maturation and exit strategies varies fundamentally across geographical ecosystems. Because micro-producers face distinct commercial thresholds ranging from rapid cash-flow cycles in hyper-local commerce to asset-building processes requiring extended supervisory engagement, the evaluative horizon and monitoring framework must mirror these spatial conditions.¹⁸

Juridical Foundations and Cross-Madhab Debates on Qardh Hasan Revolving Zakat

As prescribed in the Qur'an (9:60), zakat is an exclusive entitlement granted only to eight eligible asnaf categories. This leaves zakat institutions in the role of fiduciary custodians rather than asset owners, meaning their authority is limited to the collection and disbursement process. Consequently, the allocation of zakat capital must rigorously adhere to fulfilling the rights of the specified beneficiaries.¹⁹ The juristic debate over deploying zakat assets as revolving capital via qardh hasan (benevolent loans) hinges on three interconnected doctrinal

¹⁵ Gusri Efendi, "Challenges and Opportunities of Productive Zakat Empowerment in Indonesia: A Literature Review and Problem Tree Analysis," *Journal of Islamic Philanthropy and Social Finance* 4, no. 2 (2025): 210–23; D Satria, "Dependency Syndrome among Mustahiq in Zakat Empowerment Programs," *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah* 13, no. 1 (2021): 88–103, <https://doi.org/10.15408/aiq.v13i1.16136>.

¹⁶ Adrianna Syarifur Rakhmat and Irfan Syauqi Beik, "Pengelolaan Zakat Dan Wakaf Di Malaysia Dan Turki: Studi Komparatif," *ILTIZAM Journal of Shariah Economics Research* 6, no. 1 (2022): 48–58, <https://doi.org/10.30631/iltizam.v6i1.1077>; Mawardi et al., "Analyzing the Impact of Productive Zakat on the Welfare of Zakat Recipients"; R Putra, "Efektivitas Pendampingan Usaha Dalam Program Zakat Produktif," *Jurnal Ekonomi Syariah* 12, no. 1 (2020): 55–70.

¹⁷ T Ahmed and M Khan, "Targeting Efficiency of Islamic Social Finance Programs for the Poor," *International Journal of Islamic and Middle Eastern Finance and Management* 14, no. 3 (2021): 584–602, <https://doi.org/10.1108/IJIMEFM-03-2020-0109>; M Kabir Hassan, Abdullah Al-Mamun, and Michael Swofford, "Zakat, Poverty Alleviation and Inequality Reduction," *Review of Economic Analysis* 13, no. 2 (2021): 189–212; Ascarya and Diana Yumanita, "Analisis Rendahnya Pengumpulan Zakat Di Indonesia Dan Alternatif Solusinya," *BI Working Paper Series* 9 (2018): 21, <https://www.bi.go.id/id/publikasi/kajian/Pages/WP-9-2018.aspx>; Abdul Ghafar Ismail and Bayu Taufiq Possumah, "Measuring the Impact of Productive Zakat on MSMEs Empowerment," *Journal of Islamic Monetary Economics and Finance* 9, no. 1 (2023): 1–24, <https://doi.org/10.21098/jimf.v9i1.1572>.

¹⁸ Efendi, "Challenges and Opportunities of Productive Zakat Empowerment in Indonesia: A Literature Review and Problem Tree Analysis"; A K Nisa and H S Sufyati, "Mustahiq Economic Empowerment Model through Productive Zakat as Business Capital," *Journal of Islamic Economics and Social Sciences*, 2022.

¹⁹ Wahbah Zuhaily, *Al-Fiqh Al-Islamiy Wa Adillatuh*, Vol.2, Hal 892 (Beirut: Darul Fikri, 1985).

pillars: disagreements over the requirement for immediate distribution (*fawriyyah*), varying madhhab perspectives regarding mandatory ownership transfer (*tamlik*), and analogical reasoning (*qiyas*) that classifies benevolent financing recipients within the *gharimin* (debtors) category.²⁰

First, the Maliki, Shafi'i, and Hanbali schools unanimously require the immediate discharge (*fawr*) of zakat as soon as the liability takes effect and the payer is solvent. This position is underscored by Al-Nawawi in *Al-Majmu'*, who affirms that within the Shafi'i tradition, prompt allocation is mandatory, rendering any deferral impermissible once liability and capacity are established.²¹ By contrast, the Hanafi tradition exhibits internal doctrinal variation. In *Bada'i' al-Sana'i'*, Al-Kasani outlines three distinct positions within the school: Al-Karkhi insists on immediate remittance (*fawr*), Al-Jassas allows for deferred discharge (*tarakhi*), and Abu Abdillah al-Balkhi conceptualizes the obligation as temporally flexible and non-immediate.²² This doctrinal disagreement highlights the lack of an unequivocal scriptural mandate (*nas qat'i*) governing the precise disbursement schedule once haul and nisab thresholds are satisfied. Consequently, this absence of explicit textual constraint provides legitimate space for *ijtihad* (independent juristic reasoning) in determining the temporal scope of zakat allocation.²³

Second, although the majority of jurists recognize *tamlik* (ownership transfer) as a foundational premise, its legal operationalization across the eight *asnaf* diverges markedly among the classical schools of law.²⁴ Although the Hanafi school designates *tamlik* as an essential pillar (*rukn*), it interprets this transfer through the lens of divine agency (*wakalah min Allah*). Under this construct, zakat assets are inherently the property of God and are delegated to the poor, positioning the payer simply as an intermediary who executes this divine conveyance of ownership.²⁵ On this basis, certain interpretations within the Hanafi tradition accommodate allocating zakat to public utility projects including mosque construction and irrigation networks on the grounds that *tamlik* is fulfilled communally rather than through individual conveyance.²⁶

Conversely, the Shafi'i and Hanbali traditions divide recipients into two distinct legal classes. For the first four *asnaf* (*fakir*, *miskin*, *amil*, and *muallaf*), *tamlik* is unconditional, vesting beneficiaries with unencumbered title and complete discretionary control without institutional supervision. For the latter four (*riqab*, *gharimin*, *fisabilillah*, and *ibn al-sabil*), ownership transfer is conditional (*muqayyad*); the capital is tied strictly to its designated objective, and non-compliance triggers an obligation of restitution.²⁷ In *Al-Majmu'*, Al-Nawawi elaborates that skilled indigent individuals ought to be granted zakat as productive

²⁰ M A Al-Hifzawi, "Aḥkām istithmār amwāl az-zakāh wa taṭbīqātuh" (Kulliyah al-Muta'addidat at-Takhassusat, 1998); K A Al-'Ani, *Maṣārif az-zakāh wa tamlikuhā fī ḍaw' al-Kitāb wa as-Sunnah*, 1st ed. (Dar Usamah li an-Nashr wa at-Tawzi', 1999).

²¹ Y Al-Nawawi, *Al-Majmu' sharh al-Muhadhdhab*, vol. 5 (Dar al-Fikr, 1996).

²² A Al-Kasani, *Bada'i' al-Sana'i' fī Tartib al-Shara'i'*, 2nd ed., vol. 2 (Dar al-Kutub al-'Ilmiyyah, 1986).

²³ Al-Hifzawi, "Aḥkām istithmār amwāl az-zakāh wa taṭbīqātuh."

²⁴ Al-'Ani, *Maṣārif az-zakāh wa tamlikuhā fī ḍaw' al-Kitāb wa as-Sunnah*.

²⁵ Al-Kasani, *Bada'i' al-Sana'i' fī Tartib al-Shara'i'*.

²⁶ Al-Hifzawi, "Aḥkām istithmār amwāl az-zakāh wa taṭbīqātuh."

²⁷ Al-Hifzawi.

equipment or business capital suited to their particular trades. Crucially, such funding must be tailored to the recipient's craft, spatial and temporal contexts, and individual livelihood needs.²⁸

Among the traditions upholding *tamlik*, the Maliki school adopts the most accommodating stance. It restricts mandatory individual title transfer exclusively to the first four asnaf alongside the wayfarer (*ibn al-sabil*), granting them autonomous control over their shares. For the other three categories, the school waives the *tamlik* constraint, permitting zakat to finance collective and institutional expenditures—such as emancipating enslaved individuals, ransoming captives, settling debts of the deceased, and procuring defensive assets. This cross-school variance confirms that *tamlik* is not rooted in an unyielding consensus (*ijma'*), but belongs to the sphere of scholarly debate (*ikhtilaf*). Consequently, it remains open to contextual reinterpretation, offering a sound juridical premise to validate collective financing models like *qardh hasan*.²⁹

Third, the legal justification for underwriting *qardh hasan* from zakat funds finds strong support in *qiyas* (analogical deduction) tied to the *gharimin* category. Through this juristic analogy, a recipient granted revolving capital via a benevolent loan is structurally assimilated to the legal status of a *gharim*.³⁰ In *Masharif al-Zakah wa-Tamlikuha*, Khalid Abdurrazzaq Al-Ani argues that classifying *qardh hasan* under the *gharimin* category is entirely permissible via *qiyas al-awla* (an a fortiori analogy).³¹ This deduction constitutes an a fortiori analogy because the operative legal cause (*'illah*) is more pronounced in the derivative case (*far'*) than in the primary archetype (*asl*). A robust contemporary scholarly consensus reinforces this view, advocated by jurists such as Muhammad Abu Zahrah, Hasanayn Makhluḥ, Abd al-Rahman Hasan, and Yusuf al-Qaradawi.³²

This orientation resonates with the resolution adopted by the International Islamic Fiqh Academy of the OIC during its third session in Amman (1407 AH / 1986 CE), which outlines a prudential governance baseline for productive zakat deployment.³³ The resolution establishes three binding prerequisites: first, all dividends and yields from productive investments must be dedicated exclusively to lawful beneficiaries; second, the principal assets must remain the collective property of these recipients, limiting the zakat agency's function to that of an administrative trustee (*wakil*); and third, the critical, urgent subsistence needs (*al-hajah al-massah al-fawriyyah*) of the poor must take precedence over revolving capital ventures, supported by stringent risk-containment protocols.³⁴

Aligning with this rationale, Egypt's *Dar al-Ifta* affirms the permissibility of funding productive ventures through zakat under the juristic rubrics of *hajah* (genuine need), *darurah* (dire necessity), or *maslahah* (public welfare), with the strict proviso that unencumbered title

²⁸ Al-Nawawi, *Al-Majmu' sharh al-Muhadhdhab*.

²⁹ Al-Hifzawi, "Ahkām istithmār amwāl az-zakāh wa taṭbīqātuh."

³⁰ Al-'Ani, *Maṣārīf az-zakāh wa tamlikuhā fī ḍaw' al-Kitāb wa as-Sunnah*.

³¹ Al-'Ani.

³² Al-'Ani.

³³ S A A Atiyyah, "Istithmār amwāl az-zakāh: Ru'yah fihiyyah mu'āṣirah" (Jami'ah al-Azhar, Kuliyah ad-Dirasat al-Islamiyyah wa al-'Arabiyyah lil-Banat, 2016).

³⁴ Atiyyah.

to the underlying capital is ultimately transferred to the beneficiaries.³⁵ Within this theoretical framework, the distribution of zakat through a revolving capital scheme based on *qardh hasan* finds limited juristic justification. This contract strictly requires a non-commercial social arrangement (*tabarru'*), meaning that this mechanism mandates the return of principal capital only, strictly prohibiting interest, margins, punitive fees, profit sharing, or institutional rent extraction, with its legal validity rooted in the *gharimin* classification.

In the Indonesian context, the Indonesian Council of Ulama (MUI) establishes operational guidelines permitting the utilization of surplus zakat assets for *qardh hasan* revolving microfinance, provided that immediate subsistence needs among local *mustahik* have been fully met. Such financing must be sourced exclusively from the *gharimin* share and directed toward beneficiaries demonstrating enterprise viability and creditworthiness. Notably, these outlays are not classified as completed zakat disbursements; the managing institution maintains fiduciary custody for principal recovery until formal transfer to eligible recipients takes place. Where borrowers encounter genuine business distress, force majeure, or insolvency, the administering body must restructure the debt through maturity extensions, installment relief, or outright loan cancellation.³⁶

Conclusion

This study demonstrates that productive zakat, when appropriately designed and institutionally governed, can generate sustained improvements in modeled *mustahik* consumption over time. Using a system dynamics simulation calibrated with field evidence from four selected BAZNAS cases, the findings indicate that revolving and group-based productive zakat designs can produce more persistent consumption effects than non-revolving grant-based interventions. Programs characterized by short operational delays, high success rates, and revolving mechanisms—such as group-based livestock clusters and *Baznas Microfinance Desa*—produce stronger and more persistent multiplier effects, particularly in rural settings where social cohesion and collective monitoring reduce failure risks.

Several limitations should be acknowledged. First, the analysis is based on four purposively selected BAZNAS cases in East Java and therefore should not be interpreted as nationally representative. Second, the rural–urban comparison is partly confounded with differences in program design, since the selected rural and urban cases do not employ identical intervention mechanisms. Third, the simulation uses fixed program parameters for ROI, success rate, implementation delay, and revolving period, whereas these parameters may vary across beneficiaries and over time. Fourth, the assumption of an MPC equal to one represents a simplifying modeling assumption and may overstate the translation of productive income into consumption. Finally, the current analysis focuses on structural and simulation-based validation; further research should incorporate broader empirical datasets,

³⁵ Dar al-Ifta al-Misriyyah, “Hukm istithmār amwāl al-zakāh bi ‘amal masyārī’ istithmāriyyah li shālih al-fuqarā’ wa al-masākīn (Fatwa No. 837),” March 17, 2011, <https://www.dar-alifta.org/ar/fatwa/details/12122/>.

³⁶ Majelis Ulama Indonesia, “Fatwa Nomor 71 Tahun 2023 Tentang Hukum Penyaluran Dana Zakat Melalui Mekanisme Al-Qardh” (2023).

systematic sensitivity analysis, and longitudinal validation against observed program outcomes.

The results further reveal that context matters: rural productive zakat programs benefit from stronger group discipline and asset-based production cycles, while urban programs require tighter selection and monitoring due to higher market competition and beneficiary heterogeneity. Importantly, the integration of fiqh analysis confirms that productive zakat—including *qardh hasan*-based mechanisms—can be normatively legitimate when grounded in *maqasid al-shari'ah*, aligned with the Qur'an (At-Tawbah 9:60), and implemented under accountable institutional frameworks as stipulated by Indonesian Law No. 23/2011 and the MUI Fatwa (2023). This study provides both empirical and jurisprudential justification for repositioning productive zakat as a strategic instrument for sustainable poverty alleviation, emphasizing that effectiveness lies not in the nominal size of zakat allocation, but in program design, revolving capacity, and institutional discipline. Accordingly, the findings should be interpreted as case-based evidence of how different productive zakat mechanisms may behave under specified conditions, rather than as universal performance rankings of productive zakat programs in Indonesia.

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Appendix I: Causal Loop and Stock-Flow Diagram of Simulation

