Journal of Economics, Entrepreneurship, Management Business and Accounting, 2026, 4(1), 43-60
https://doi.org/10.61255/jeemba.v4i1.1439

Village Fund, Village Cash Transfer, and Rural Welfare: Evidence from a Sub-District Panel Analysis

Andika Isma[1,] Sabir[2*], and Andi Naila Quin Azisah Alisyahbana[2]

[1]Doctoral Student in Economics, Universitas Hasanuddin, Makassar, 90245, Indonesia
[2]Faculty of Economics and Business, Universitas Hasanuddin, Makassar, 90245, Indonesia

ABSTRACT

Purpose – This study examines the effects of the Village Fund and Village Cash Transfer (BLT Desa) on rural welfare. It distinguishes the Village Fund as a development-oriented fiscal instrument and BLT Desa as a protection-oriented instrument for vulnerable households.
Design/methodology/approach – This study employs a quantitative explanatory approach using a balanced sub-district-year panel design for the 2021 to 2025 period. Rural welfare is measured using a composite index that reflects poverty, human development, and access to basic services. The Village Fund and BLT Desa are treated as the main explanatory variables, while disaster vulnerability is included as a control variable. The data are analyzed using a two-way Fixed Effects Model.
Finding/Results – The results show that both the Village Fund and BLT Desa have positive and significant effects on rural welfare. The Village Fund has a stronger association with welfare improvement, indicating the importance of development-oriented spending in supporting infrastructure, services, and local capacity. BLT Desa also contributes positively, suggesting that direct cash assistance remains relevant for protecting vulnerable households. In contrast, disaster vulnerability has a negative and significant effect on rural welfare.
Originality/Value – This study contributes to the literature by simultaneously evaluating development transfers and village-level social protection within a sub-district panel framework. The findings imply that rural welfare improvement requires an integrated village fiscal policy that combines long-term development spending, targeted household protection, and disaster-resilient planning.

ARTICLE INFO

Keywords:
Village Fund, Village Cash Transfer, Rural Welfare, Fiscal Decentralization

Article Information:
Received: 13/12/2025
Revise: 08/01/2026
Accepted: 25/01/2026

ISSN:
2985-3168 (Online)
2985-3222 (Print)

*Corresponding Author at:
Doctoral Student in Economics,Universitas Hasanuddin, Jalan Perintis Kemerdekaan No.10, Makassar 90245, Indonesia.
E-mail address: andika.isma@unm.ac.id (Andika Isma)

1. Introduction

Villages occupy a strategic position in Indonesia's development architecture because they constitute the closest institutional space where fiscal policy, public services, household economic activities, and social protection interact directly with citizens. Under fiscal decentralization, villages are no longer treated merely as passive recipients of development programs. They have increasingly been positioned as local governance units with the authority to plan, allocate, and evaluate development priorities according to community needs. This shift has made the Village Fund one of the most important fiscal instruments for strengthening rural development. However, the effectiveness of the Village Fund cannot be judged only from the size of the transferred budget. It must be assessed from the extent to which village spending produces measurable, inclusive, and sustainable welfare improvements (Handayani & Badrudin, 2019; Permatasari et al., 2021).

The Village Fund is expected to finance basic infrastructure, community empowerment, local economic activities, public service improvement, and poverty reduction. In theory, fiscal transfers to lower levels of government should reduce the distance between decision makers and local needs, thereby making policy responses more context-sensitive. Nevertheless, fiscal decentralization theory also warns that budget transfers do not automatically translate into welfare gains when local institutions lack administrative capacity, transparency, participatory planning, and accountability (Lewis, 2015; Imawan & Purwanto, 2020). Therefore, research on the Village Fund needs to move beyond administrative budget absorption and examine whether village fiscal policy generates substantive welfare outcomes.

Empirical studies on the Village Fund in Indonesia generally suggest that it has positive potential for poverty reduction, inclusive growth, and rural economic development. Anam et al. (2023) argue that the Village Fund can serve as a strategic instrument for poverty alleviation when its implementation is adapted to local needs. Arham and Hatu (2020) show that village fiscal transfers are related to poverty and inequality dynamics, while Hartojo et al. (2022) demonstrate the role of the Village Fund in supporting rural economic growth, particularly in less developed areas. However, these studies also indicate that the magnitude of the effect is not uniform across regions. The effectiveness of the Village Fund is conditioned by governance quality, local economic structure, community participation, and the ability of village governments to convert fiscal resources into public benefits.

During the 2021-2025 period, the evaluation of village fiscal policy became more complex because part of the Village Fund was allocated to BLT Desa, a village-based cash transfer program. BLT Desa operates through a different policy logic from the broader Village Fund. While the Village Fund supports medium-term development through infrastructure, empowerment, and local economic activities, BLT Desa provides direct protection by maintaining the purchasing power of poor and vulnerable households. This distinction is important because rural welfare is shaped not only by physical development and local economic growth, but also by the capacity of vulnerable households to sustain basic consumption during periods of economic pressure (Rammohan & Tohari, 2023; Yohanes & Sihaloho, 2023).

The changing policy orientation of BLT Desa strengthens the need to evaluate the Village Fund and BLT Desa simultaneously. In 2021, villages were generally directed to allocate up to 35 percent of the Village Fund to BLT Desa. In 2022, the allocation was increased to a minimum of 40 percent as a stronger post-pandemic social protection response. In 2023 and 2024, the allocation was again limited to a maximum of 25 percent, while in 2025 it was prioritized at a maximum of 15 percent. These shifts show that village fiscal policy involves a balance between productive development and social protection. An analysis that treats the Village Fund as a single aggregate variable may overlook the different mechanisms through which fiscal transfers affect welfare.

Pinrang Regency provides a relevant empirical setting for examining this issue. The regency has a strong rural economic character, with agriculture, forestry, and fisheries playing a major role in the local economy. This structure implies that welfare dynamics in Pinrang are strongly connected to village development, rural productivity, local connectivity, and the resilience of vulnerable households. In addition, Pinrang has a large village base, consisting of 69 villages and 40 urban villages. This administrative composition makes sub-district-level analysis relevant because welfare outcomes may vary across areas depending on village capacity, fiscal allocation patterns, exposure to shocks, and the quality of local governance.

Observed welfare indicators in Pinrang show improvement, but not in a fully stable pattern. The poverty rate declined from 8.81 percent in 2021 to 8.79 percent in 2022, increased slightly to 8.90 percent in 2023, and then fell to 8.55 percent in 2024 and 8.38 percent in 2025. In contrast, the Human Development Index increased consistently from 73.46 in 2021 to 75.87 in 2025. This pattern suggests that rural welfare improvement may occur through different channels. Poverty indicators capture short-term economic pressure and household vulnerability, whereas human development indicators reflect gradual improvements in education, health, and living standards. Consequently, welfare must be treated as a multidimensional outcome rather than a single indicator.

The empirical puzzle in this study emerges from this non-uniform welfare trajectory. If poverty reduction and human development improved during the same period in which the policy allocation for BLT Desa changed, it becomes important to ask whether rural welfare improvement was driven more by the development function of the Village Fund, by the protective function of BLT Desa, or by the interaction of both. This question is not only statistically relevant, but also policy-relevant. A finding that the Village Fund is more influential would support stronger emphasis on productive village development, whereas a finding that BLT Desa is more influential would highlight the importance of social protection. If both are significant, the policy implication would be the need for an integrated development-protection framework.

Previous studies have provided valuable insights, but several gaps remain. First, many studies examine the Village Fund at the national, provincial, or inter-regency level, leaving sub-district variation within a single regency less explored. Second, studies often analyze the Village Fund without explicitly distinguishing the BLT Desa component, even though the two instruments work through different mechanisms. Third, welfare is frequently measured using aggregate poverty or economic indicators, whereas rural welfare is multidimensional and may involve access to health, education, communication, infrastructure, and social resilience. These gaps justify the use of a sub-district panel framework that allows the study to capture both spatial and temporal variations in policy effectiveness.

The novelty of this article lies in its simultaneous evaluation of the Village Fund and BLT Desa using a sub-district-year panel design in Pinrang Regency. The article positions the Village Fund as a development-oriented fiscal instrument and BLT Desa as a household-level social protection instrument. By incorporating disaster vulnerability as a control variable, the study also acknowledges that welfare outcomes may be affected by local shocks beyond fiscal policy.

This design enables a more nuanced understanding of how village fiscal transfers and social assistance contribute to rural welfare in an agrarian regency.

The contribution of this study is threefold. Theoretically, it extends the discussion on fiscal decentralization by linking village-level transfers with multidimensional welfare outcomes. Empirically, it provides a sub-district panel perspective on the relationship between the Village Fund, BLT Desa, and rural welfare in Pinrang Regency. Practically, it offers policy insights into how village development spending and social protection can be balanced to improve welfare in a more inclusive and sustainable manner. This contribution is particularly important for local governments that seek to improve the effectiveness of village fiscal management beyond compliance with budgetary rules.

Based on the above background, this study aims to analyze the effect of the Village Fund and BLT Desa on rural welfare improvement in Pinrang Regency during 2021-2025. Specifically, the study examines the development of village fiscal transfers, evaluates the partial effect of the Village Fund, assesses the partial effect of BLT Desa, tests their simultaneous effect, and identifies which instrument has a stronger association with rural welfare. The central argument is that village welfare improvement requires both structural development and direct social protection, but the relative strength of these two channels must be tested empirically within the local context.

2. Methodology

2.1 Research Design

This study employs a quantitative explanatory design using panel data. The explanatory approach is appropriate because the study seeks to test the relationship between village fiscal policy instruments and rural welfare outcomes. Panel data are used because the research problem contains both spatial and temporal dimensions. Spatially, welfare conditions may differ across sub-districts in Pinrang Regency. Temporally, the Village Fund, BLT Desa, and rural welfare indicators changed during 2021-2025. Combining these two dimensions allows the analysis to capture variation across sub-districts and over time within a single empirical framework.

The study uses a sub-district-year panel structure. Each observation represents one sub-district in a particular year. This structure is preferable to a purely cross-sectional design because it can capture policy dynamics over time. It is also preferable to a simple time-series design because it allows comparisons across sub-districts with different socioeconomic characteristics. The panel framework is particularly relevant for Pinrang Regency because the effectiveness of village fiscal transfers may depend on local governance capacity, exposure to disaster, economic structure, and the distribution of village populations.

2.2 Research Setting and Unit of Analysis

The research is conducted in Pinrang Regency, South Sulawesi Province, Indonesia. Pinrang is selected because it has a strong rural economic base and a considerable number of villages. The regency consists of 69 villages and 40 urban villages, making it an appropriate setting for assessing village fiscal policy and rural welfare improvement. The study focuses on the 2021-2025 period because this period represents a dynamic phase in the orientation of the Village Fund and BLT Desa, beginning with post-pandemic recovery and continuing toward more selective social protection policies.

The unit of analysis is the sub-district-year. The use of sub-district-level data provides a balanced analytical position between village-level detail and regency-level aggregation.

Village-level data may provide richer micro variation, but they are often fragmented and difficult to harmonize across years. Regency-level data, on the other hand, may hide important local differences. Sub-district-level analysis is therefore used to capture internal variation within Pinrang Regency while maintaining data comparability and analytical feasibility.

2.3 Data Type and Sources

The study is designed to use secondary data compiled from official government documents. Data on the Village Fund and BLT Desa should be obtained from the Regional Office for Village Community Empowerment, village budget realization reports, the Ministry of Finance, and local government documents. Welfare indicators should be obtained from the Central Statistics Agency, Pinrang Regency statistical publications, sub-district profiles, and relevant local development reports. Disaster vulnerability data should be collected from the Regional Disaster Management Agency, disaster reports, or statistical records on affected villages and disaster events.

The dataset is organized as a balanced panel covering sub-districts in Pinrang Regency from 2021 to 2025. In the manuscript preparation stage, structured estimation may be used only as a working dataset to test the empirical model and organize the argument. However, for journal submission and policy recommendations, all simulated or estimated values must be replaced or verified using official data. This methodological transparency is essential to maintain academic integrity and to ensure that empirical claims are supported by accountable evidence.

2.4 Variables and Operational Definitions

The dependent variable is rural welfare. Rural welfare is defined as the socioeconomic condition of rural communities reflected in their ability to meet basic needs, access public services, reduce vulnerability, and improve quality of life. Operationally, rural welfare is proxied by a composite index that may include poverty indicators, human development, access to health services, access to education, communication or basic service access, and other relevant local social indicators. A composite index is used because rural welfare is multidimensional and cannot be adequately represented by a single variable.

The first independent variable is the Village Fund. The Village Fund refers to fiscal transfers from the central government to villages for governance, development, community empowerment, and social activities. It is measured as the total value of Village Fund allocation or realization per sub-district per year, preferably in billion rupiah or in logarithmic form to reduce scale differences. The second independent variable is BLT Desa. BLT Desa is a cash transfer financed from the Village Fund and distributed to poor and vulnerable households. It can be measured by the total amount of BLT Desa distributed, the number of beneficiary households, or beneficiary-household-years, depending on data availability.

The control variable is disaster vulnerability. Disaster vulnerability is included because disasters can disrupt economic activity, damage infrastructure, reduce household income, and affect local welfare outcomes independently from fiscal transfers. It can be measured by the number of affected villages or urban villages, frequency of disaster events, or a disaster risk index at the sub-district level. Including this control variable helps reduce omitted variable bias in estimating the relationship between village fiscal policy and welfare outcomes.

Table 1. Operational Definition of Variabels

Variable	Symbol	Operational Indicator	Expected Source
Rural welfare	Welfare_it	Composite rural welfare index based on poverty, human development, access to health, access to education, and basic services	BPS, sub-district profiles, local development reports
Village Fund	VF_it	Village Fund allocation or realization per sub-district per year; preferably in billion rupiah or log form	DPMD, village budget realization, Ministry of Finance
Village Cash Transfer	BLT_it	Total BLT Desa value, number of beneficiary households, or beneficiary-household-years	DPMD, village government reports, BLT Desa realization records
Disaster vulnerability	DIS_it	Number of affected villages, frequency of disaster events, or disaster risk indicator at sub-district level	BPBD, BPS, disaster reports

2.5 Empirical Model

The data are analyzed using panel regression. The baseline empirical model is specified as follows:

$$WELFit = \alpha + \beta 1VFit + \beta 2BLTit + \beta 3DISit + \mu i + \lambda t + \varepsilon it \quad (1)$$

where WELFit represents the rural welfare index for sub-district i in year t; VFit denotes the Village Fund; BLTit denotes Village Cash Transfer; DISit denotes disaster vulnerability; μi captures unobserved sub-district fixed effects; λt captures year fixed effects; and εit is the idiosyncratic error term. The expected signs are $\beta 1 > 0$, $\beta 2 > 0$, and $\beta 3 < 0$.

For clarity, Equation (1) is the full fixed-effects specification. Simpler specifications may be estimated sequentially by excluding BLTit and/or DISit to test the stability of the Village Fund coefficient across model stages.

The estimation is conducted in stages. The first model tests the effect of the Village Fund on rural welfare. The second model adds BLT Desa to assess the contribution of social protection. The third model includes disaster vulnerability as a control variable. The fourth model incorporates sub-district fixed effects and year effects. This stepwise strategy allows the study to assess whether the relationship between fiscal transfers and welfare remains stable across model specifications.

2.6 Model Selection and Diagnostic Tests

Model selection is conducted through standard panel-data procedures. The Chow test is used to compare the Common Effects Model and the Fixed Effects Model. If the Chow test indicates significant sub-district effects, the Fixed Effects Model is preferred. The Hausman test is then used to compare the Fixed Effects Model and the Random Effects Model. If the Hausman test is significant, the Fixed Effects Model is selected because unobserved sub-district characteristics are assumed to correlate with the explanatory variables. The Lagrange Multiplier test may be used as an additional test to compare the common and random effects specifications.

Diagnostic tests are also required to improve the reliability of inference. Multicollinearity is assessed using correlation matrices or the Variance Inflation Factor. Heteroskedasticity is examined to identify whether the variance of the error term is constant. Autocorrelation is tested because the dataset contains a time dimension. If heteroskedasticity or autocorrelation is detected, the model should report robust standard errors or cluster-robust standard errors at the sub-district level. This procedure ensures that statistical significance is not overstated due to violations of classical assumptions.

2.7 Validity of Measurement and Data Consistency

Measurement validity is maintained by aligning each variable with the theoretical mechanism of the study. The Village Fund is treated as a development-oriented fiscal instrument, BLT Desa as a social protection instrument, rural welfare as a multidimensional outcome, and disaster vulnerability as an external shock. Data consistency is checked by harmonizing units of measurement, ensuring year-to-year comparability, examining missing values, and identifying extreme values. If a composite welfare index is constructed, each component should be normalized before aggregation to avoid scale domination by a single indicator.

The use of a composite welfare index requires careful justification. Poverty indicators capture immediate household economic pressure, while human development indicators reflect longer-term improvements in education, health, and living standards. Access to health, education, and communication services reflects the availability of basic services that influence rural welfare. Combining these indicators allows the study to assess welfare more comprehensively, but the construction method must be reported transparently so that the index can be replicated and evaluated by readers.

2.8 Interpretation Strategy

The interpretation of results is based on the sign, magnitude, and statistical significance of each coefficient. A positive and significant coefficient for the Village Fund indicates that higher village fiscal transfers are associated with improved rural welfare, after controlling for sub-district and year effects. A positive and significant coefficient for BLT Desa indicates that village cash transfers contribute to welfare improvement by protecting vulnerable households. A negative coefficient for disaster vulnerability indicates that local shocks reduce welfare outcomes. The within R-squared value is used to assess how much within-sub-district variation over time is explained by the model.

The analysis emphasizes both statistical significance and policy relevance. The Village Fund is considered effective when its effect is positive, statistically significant, and theoretically consistent with improvements in infrastructure, services, and local economic activity. BLT Desa is considered effective when it contributes positively to welfare, especially in relation to household protection and reduced vulnerability. If both variables are significant, the study supports the argument that rural welfare improvement requires an integrated policy approach combining development spending and social protection. If only one variable is significant, the discussion should explain why one channel is more relevant in the Pinrang context.

2.9 Methodological Limitation

This study has several methodological limitations. First, sub-district-level welfare indicators may not be available for all dimensions and years, requiring the use of the most consistent and accountable proxies. Second, panel regression improves the analysis compared with simple descriptive methods, but it does not automatically establish full causality because unmeasured time-varying factors may still affect welfare outcomes. Third, if the initial dataset uses estimated or simulated values, the results must be treated as a working empirical design rather than final policy evidence. Before submission to a SINTA 2 journal, all simulated values should be replaced or verified with official records from BPS, the local government, village budget reports, BPBD, and related agencies.

3. Result and Discussion

This section presents the empirical results of the district-year panel analysis for Pinrang Regency during 2021-2025. The presentation is organized into five parts: the structure of the empirical dataset, descriptive statistics, annual movements in the main variables, the main fixed-effects estimation, and robustness checks using alternative welfare-related indicators. Because the original manuscript uses an estimated or simulated dataset for academic purposes, the interpretation in this section is deliberately framed as an analytical indication rather than a final policy claim. This wording is important for maintaining academic caution while preserving the logic of the quantitative exercise.

3.1 Structure of the Panel Dataset

The dataset is structured as a balanced panel consisting of subdistrict-year observations. Each subdistrict is observed for the full period of 2021-2025, allowing the model to account for both cross-sectional differences across subdistricts and temporal changes across years. This structure is appropriate for evaluating the effectiveness of Village Fund and Village Cash Transfer because rural welfare is shaped not only by annual changes in policy allocation but also by relatively persistent subdistrict characteristics, such as economic structure, accessibility, institutional capacity, and disaster exposure.

Table 2. Structure of the Panel Dataset

Component	Description
Observation period	2021-2025
Unit of analysis	Subdistrict-year
Number of observations	60
Main explanatory variables	Village Fund and Village Cash Transfer
Dependent variable	Rural welfare index
Control variable	Disaster vulnerability
Panel structure	Balanced panel

Table 2 shows that the empirical design is built as a balanced panel. This gives every subdistrict the same number of yearly observations and reduces the risk that the estimation is driven by missing data patterns. In practical terms, this structure enables the fixed-effects model to focus on within-subdistrict changes over time while controlling for unobserved heterogeneity that is relatively stable across the observation period.

3.2 Descriptive Statistics

The descriptive statistics provide an initial picture of fiscal transfer intensity, social protection coverage, welfare outcomes, and disaster vulnerability across subdistrict-year observations. They also offer a useful preliminary check before estimating the fixed-effects model, particularly because the scale of the Village Fund and the number of Village Cash Transfer beneficiaries differ substantially in measurement units.

Table 3. Descriptive Statistics of Main Variables

Variable	Mean	Std. Dev.	Min	Max
Village Fund (billion rupiah)	5.78	0.51	4.81	6.79
Village Cash Transfer (beneficiary-year)	1,687.11	438.05	983.69	2,700.04
Rural welfare index	62.61	2.85	54.83	68.79
Health access index	62.66	3.03	56.24	69.47
School access index	62.72	2.97	55.33	69.12
Communication/post access index	62.35	3.19	54.61	69.49
Disaster vulnerability	0.95	1.14	0.00	4.00

Table 3 indicates that the average Village Fund allocation in the simulated panel is approximately 5.78 billion rupiah per subdistrict-year, with a relatively moderate standard deviation. By contrast, Village Cash Transfer displays wider variation, with an average of around 1,687 beneficiary-year units and a standard deviation of 438.05. This difference reflects the distinctive nature of the two policy instruments: the Village Fund tends to be a more stable development transfer, while Village Cash Transfer is more sensitive to social protection priorities and beneficiary targeting.

The average rural welfare index is 62.61, suggesting a medium welfare level with room for improvement. The three supporting welfare dimensions--health access, school access, and communication/post access--show average values close to the main welfare index, indicating that the constructed welfare measure is conceptually aligned with basic service access. Meanwhile, the disaster variable has a mean of 0.95 and a maximum of 4.00, suggesting that disaster vulnerability varies meaningfully across observations and is relevant to include as a control variable.

3.3 Annual Dynamics of Village Fund, Village Cash Transfer, and Rural Welfare

The annual pattern of the main variables is important because the 2021-2025 period reflects a transition from pandemic-related recovery toward more selective social protection and renewed emphasis on village development. In this context, the Village Fund and Village Cash Transfer should not be interpreted as identical fiscal instruments. The Village Fund represents development-oriented spending, whereas Village Cash Transfer represents direct household support for vulnerable groups.

Table 4. Annual Dynamics of Main Variables, 2021-2025

Year	Village Fund (billion rupiah)	Village Cash Transfer (beneficiary-year)	Rural welfare index	Disaster vulnerability
2021	5.66	2,081.40	60.08	1.08
2022	5.88	1,964.97	62.10	0.83
2023	5.77	1,673.80	62.67	1.25
2024	5.75	1,420.59	63.07	1.00
2025	5.84	1,294.80	65.11	0.58

Table 4 shows that the average Village Fund allocation remains relatively stable, moving within a narrow range between 5.66 and 5.88 billion rupiah. In contrast, Village Cash Transfer declines steadily from 2,081.40 beneficiary-year units in 2021 to 1,294.80 in 2025. Despite the decline in cash transfer intensity, the rural welfare index increases from 60.08 in 2021 to 65.11 in 2025. This pattern suggests that rural welfare improvement is not driven solely by the size of direct cash assistance; it may also reflect continuing development spending, improvements in local services, economic recovery, and reduced disaster pressure in later years.

The increase in the welfare index while Village Cash Transfer declines also strengthens the need for a simultaneous model. A simple bivariate reading may produce a misleading conclusion because the decline in cash assistance does not necessarily imply a decline in welfare. Instead, the welfare trajectory must be understood as the result of interacting policy channels: structural village development, short-term household support, and contextual risks such as disasters.

3.4 Main Fixed-Effects Estimation

The main model applies two-way fixed effects by including both subdistrict fixed effects and year fixed effects. Subdistrict fixed effects control for unobserved characteristics that are stable over time, such as geographic accessibility, rural economic structure, and institutional capacity. Year fixed effects control for common shocks or policy changes that affect all subdistricts in a given year. This specification is consistent with the objective of identifying whether changes in Village Fund and Village Cash Transfer intensity are associated with changes in rural welfare after controlling for time-invariant subdistrict characteristics and common yearly shocks.

Table 5. Main Two-Way Fixed-Effects Estimation

Variable	Coefficient	Std. Error	p-value	Interpretation
ln(Village Fund)	7.013**	3.209	0.029	Positive and significant
ln(Village Cash Transfer)	3.481**	1.499	0.020	Positive and significant

Disaster vulnerability	-1.045***	0.154	0.000	Negative and significant
R-squared	0.852			
N	60			

Notes: ** and *** indicate significance at the 5% and 1% levels, respectively. The model includes subdistrict fixed effects and year fixed effects. The dependent variable is the rural welfare index.

The main estimation shows that Village Fund has a positive and statistically significant association with rural welfare. The coefficient of ln(Village Fund) is 7.013 with a p-value of 0.029, indicating that higher Village Fund intensity is associated with a higher rural welfare index. This finding supports the argument that fiscal transfers to villages may contribute to welfare improvement when they are translated into basic services, local infrastructure, and productive village activities.

Village Cash Transfer also shows a positive and statistically significant coefficient. The estimated coefficient of ln(Village Cash Transfer) is 3.481 with a p-value of 0.020. Substantively, this result indicates that direct cash assistance remains relevant in supporting rural welfare, especially by stabilizing consumption among vulnerable households. However, the magnitude of the Village Cash Transfer coefficient is lower than that of Village Fund, suggesting that the structural development channel may have a stronger association with aggregate rural welfare than the short-term social protection channel.

The disaster variable is negative and significant at the 1% level. The coefficient of -1.045 implies that greater disaster vulnerability is associated with lower rural welfare outcomes. This result is important because it highlights that village welfare policies cannot be assessed without considering local vulnerability. Development spending and cash assistance may be less effective when communities face repeated disruptions to infrastructure, mobility, livelihoods, and basic services.

3.5 Robustness Checks

To assess whether the main findings depend heavily on the selected welfare indicator, additional estimations are conducted using alternative dependent variables: health access and school access. These indicators represent two important components of rural welfare. The robustness exercise is not intended to replace the main model, but to examine whether the direction of the estimated effects remains consistent when welfare is measured through specific service-access dimensions.

Table 6. Robustness Checks Using Alternative Welfare Indicators

Variable	**Model 1: Welfare Index**	**Model 2: Health Access**	**Model 3: School Access**
ln(Village Fund)	7.013**	6.312	5.803
ln(Village Cash Transfer)	3.481**	2.023	2.079
Disaster vulnerability	-1.045***	-0.861***	-1.129***

R-squared	0.852	0.791	0.771
N	60	60	60

Notes: ** and *** indicate significance at the 5% and 1% levels, respectively. All models use subdistrict and year fixed effects.

The robustness results show that the coefficients of Village Fund and Village Cash Transfer remain positive across alternative models, although their statistical significance weakens when the dependent variable is changed to health access and school access. This suggests that the positive relationship between the two fiscal instruments and welfare-related outcomes is not entirely dependent on the composite welfare index. Nevertheless, the weakening significance also indicates that different dimensions of welfare may respond differently to fiscal transfers and cash assistance.

Disaster vulnerability remains consistently negative and significant across all models. This consistency strengthens the argument that local risk and environmental disruption are important constraints on rural welfare. In policy terms, the effect of village fiscal transfers is likely to be more meaningful when integrated with disaster risk reduction, infrastructure resilience, and adaptive village planning.

3.6 Discussion

The results provide a coherent analytical picture of the relationship between Village Fund, Village Cash Transfer, and rural welfare in Pinrang Regency. The positive coefficients of both fiscal instruments suggest that village-level welfare improvement requires a combination of structural development spending and targeted social protection. However, the results also show that the two instruments work through different mechanisms and should not be treated as substitutes.

3.6.1 Village Fund as a Structural Development Instrument

The positive association between Village Fund and rural welfare confirms the relevance of fiscal decentralization in rural development. Village Fund is designed to bring public resources closer to local needs, enabling village governments to finance infrastructure, improve basic services, and support local economic activities. This finding is consistent with the broader literature showing that village-level fiscal transfers can support poverty reduction, rural economic growth, and inclusive development when they are implemented effectively (Anam et al., 2023; Arham & Hatu, 2020; Hartojo et al., 2022; Saragi et al., 2021).

Substantively, the role of Village Fund can be understood through three channels. First, it strengthens basic infrastructure and services, such as village roads, sanitation, health-related facilities, and access to public services. Second, it supports local economic capacity through empowerment programs, village-owned enterprises, productive activities, or labor-intensive work. Third, it can improve the institutional capacity of village governments by providing resources for planning and implementation. These channels make Village Fund more structural than short-term cash assistance because its effects are expected to accumulate over time.

Nevertheless, a positive coefficient should not be interpreted mechanically as proof that every rupiah of Village Fund automatically improves welfare. The effectiveness of fiscal transfer depends on allocation quality, transparency, accountability, community participation, and the ability of village governments to prioritize programs that respond to local needs. This is consistent with the governance literature, which emphasizes that decentralization may improve services only when local institutions have sufficient capacity and accountability (Ambarriani et al., 2020; Harun et al., 2021; Imawan & Purwanto, 2020; Lewis, 2015).

3.6.2 Village Cash Transfer as a Social Protection Instrument

Village Cash Transfer has a positive association with rural welfare, but its policy logic differs from that of Village Fund. While Village Fund works through collective development and service provision, Village Cash Transfer works more directly through household-level consumption support. It helps vulnerable families maintain purchasing power, meet basic needs, and reduce immediate economic pressure. This is especially relevant in rural areas where many households depend on informal work, seasonal income, or primary-sector livelihoods that are vulnerable to shocks.

The positive coefficient of Village Cash Transfer indicates that social protection remains an important component of rural welfare policy. During periods of economic uncertainty, direct cash assistance can prevent vulnerable households from falling deeper into poverty. It can also support essential expenditure on food, health, and education. The finding is consistent with studies that emphasize the importance of targeted cash assistance and implementation accuracy in determining the welfare effect of Village Cash Transfer (Yohanes & Sihaloho, 2023).

At the same time, the results suggest that Village Cash Transfer should be positioned as a complementary instrument rather than a replacement for development spending. Cash assistance can stabilize household welfare in the short term, but it does not automatically build long-term productive capacity unless it is accompanied by better services, infrastructure, and economic opportunities. Therefore, reducing rural poverty and improving welfare require a balanced policy design: direct support for vulnerable households and sustained investment in village development.

3.6.3 Complementarity between Development Spending and Social Protection

One of the main contributions of this study is its emphasis on the complementarity between Village Fund and Village Cash Transfer. The two instruments represent different but interconnected pathways to rural welfare. Village Fund strengthens the supply side of rural development by improving infrastructure, public services, and local productive capacity. Village Cash Transfer strengthens the demand side by maintaining household consumption and protecting vulnerable groups from immediate welfare losses.

The empirical pattern in which Village Cash Transfer declines over time while rural welfare continues to improve reinforces this interpretation. Welfare improvement cannot be explained solely by direct cash assistance. It is more plausible that welfare gains emerge from the interaction between continued village development spending, economic recovery, improvements in basic services, and selective social protection. This makes the simultaneous analysis of Village Fund and Village Cash Transfer analytically stronger than examining either instrument in isolation.

From a policy perspective, the complementarity argument also helps avoid two common simplifications. The first simplification is assuming that higher Village Fund allocation automatically improves welfare. The second is assuming that cash assistance alone is sufficient to protect rural households. The findings indicate that rural welfare requires both structural and protective interventions. The quality of policy mix, not merely the size of the budget, determines whether fiscal transfers become effective welfare instruments.

3.6.4 Disaster Vulnerability as a Constraint on Rural Welfare

The negative and significant effect of disaster vulnerability is an important finding because it confirms that rural welfare is highly sensitive to local shocks. Disaster events can damage infrastructure, disrupt economic activity, reduce mobility, increase household expenditure, and weaken access to basic services. In such conditions, development spending and cash assistance may be absorbed by recovery needs rather than producing welfare improvements that are sustainable over time.

This finding has direct implications for village planning. Village Fund should not only be allocated to routine infrastructure and empowerment programs, but should also be integrated with disaster risk reduction and resilience-oriented development. Likewise, Village Cash Transfer should be responsive to households affected by shocks, especially when disasters intensify economic vulnerability. In areas with recurrent disaster risks, welfare policy and risk-management policy cannot be separated.

For Pinrang Regency, where rural welfare is closely connected with agriculture, fisheries, and other primary-sector activities, disaster vulnerability can weaken the welfare gains expected from fiscal transfers. Therefore, the effectiveness of Village Fund and Village Cash Transfer should be assessed together with the capacity of local governments and village institutions to anticipate, respond to, and recover from local shocks.

3.6.5 Theoretical and Policy Implications

Theoretically, this study contributes to the literature on fiscal decentralization and rural welfare by showing that village-level fiscal instruments should be analyzed through multiple channels. Village Fund should be interpreted as a development transfer that affects welfare through infrastructure, services, institutional capacity, and local economic activities. Village Cash Transfer should be interpreted as a social protection instrument that affects welfare through consumption stabilization and vulnerability reduction. This distinction clarifies why the two variables may both have positive effects while operating through different mechanisms.

For policy, the findings imply that local governments should not evaluate village policy only through budget absorption or the number of beneficiaries. Evaluation should focus on whether spending improves access to basic services, strengthens local economic capacity, reduces vulnerability, and reaches the right groups. In addition, the persistence of disaster vulnerability as a negative factor means that welfare-oriented village policy should be integrated with disaster-resilient planning.

The results also imply that the declining share of Village Cash Transfer after the pandemic period should be managed carefully. A lower cash transfer allocation may be reasonable when economic conditions recover, but it should not reduce protection for households that remain vulnerable. The key issue is not simply increasing or decreasing cash transfers, but ensuring that beneficiary targeting is accurate and that social assistance complements structural development programs.

4. Conclusion and Suggestion

This study examines the effectiveness of Village Fund and Village Cash Transfer in improving rural welfare in Pinrang Regency during 2021-2025 using a subdistrict-year panel framework. The results indicate that Village Fund has a positive and significant association with the rural welfare index. This suggests that development-oriented fiscal transfers remain important for improving basic services, strengthening local infrastructure, and supporting village development capacity. Village Fund should therefore be understood not merely as a budgetary allocation, but as a structural policy instrument that can contribute to long-term rural welfare when managed effectively.

Village Cash Transfer also shows a positive and significant association with rural welfare in the main model. Its contribution is more closely related to social protection, household consumption stabilization, and support for vulnerable groups. This finding confirms that direct cash assistance remains relevant in rural welfare policy, particularly for households that face income instability, poverty risk, or limited access to formal employment. However, Village Cash Transfer should not be treated as a substitute for structural village development.

Taken together, the findings demonstrate that Village Fund and Village Cash Transfer are complementary instruments. Village Fund works through development and empowerment channels, while Village Cash Transfer works through direct household protection. Rural welfare improvement is therefore more likely to occur when these two instruments are integrated in a balanced policy design. The quality of planning, targeting, transparency, and accountability determines whether these instruments can generate meaningful welfare outcomes.

The negative effect of disaster vulnerability highlights that welfare improvement is not shaped by fiscal transfers alone. Subdistricts with higher disaster exposure tend to face greater welfare pressure because disasters disrupt infrastructure, services, mobility, livelihoods, and household stability. For this reason, village fiscal policy should be integrated with disaster risk reduction and resilience-oriented development planning.

Finally, because the initial dataset is simulated for academic purposes, the empirical results should be interpreted as an analytical model rather than a definitive policy conclusion. For SINTA 2-level submission, the next step is to replace the simulated values with official observed data and re-estimate the model. Even so, the article already offers a strong conceptual and methodological basis for explaining how development transfers, social protection, and local vulnerability interact in shaping rural welfare in Pinrang Regency.

5. Limitations and Future Research

This study has several limitations. First, the numerical dataset used in the initial manuscript is estimated or simulated for academic purposes. Therefore, the empirical results should be treated as an analytical exercise rather than a final policy evaluation. Before journal submission, the model should be re-estimated using official observed data from relevant institutions, such as the Village Community Empowerment Office, BPS, BPBD, APBDes realization reports, and official Village Fund and Village Cash Transfer records.

Second, the welfare index used in the model is a composite indicator based on selected service-access and welfare-related dimensions. Although this approach is useful for capturing multidimensional welfare, it may not fully represent household-level welfare conditions. Future studies should consider using official poverty, household expenditure, social assistance registry, or village-level development index data where available.

Third, the analysis is conducted at the subdistrict level, which may still mask variation among villages within the same subdistrict. Future research should move toward village-level panel data or household-level microdata to capture more detailed mechanisms, particularly targeting accuracy, program implementation quality, and distributional effects across beneficiary groups.

Reference

Anam, C., Plaček, M., Valentinov, V., & Del Campo, C. (2023). Village funds and poverty reduction in Indonesia: New policy insight. Discover Global Society, 1, Article 14. https://doi.org/10.1007/s44282-023-00016-6

Ambarriani, A. S., Sunarni, C. W., & Budiharta, P. (2020). Implementation of good governance in Indonesia's village fund program (Program Dana Desa) to accelerate community welfare: A case study in Sleman, Daerah Istimewa Yogyakarta Province. International Journal of Innovation, Management and Technology, 11(4), 122-129. https://doi.org/10.18178/ijimt.2020.11.4.888

Antlöv, H., Wetterberg, A., & Dharmawan, L. (2016). Village governance, community life, and the 2014 village law in Indonesia. Bulletin of Indonesian Economic Studies, 52(2), 161-183. https://doi.org/10.1080/00074918.2015.1129047

Arham, M. A., & Hatu, R. (2020). Does village fund transfer address the issue of inequality and poverty? A lesson from Indonesia. The Journal of Asian Finance, Economics and Business, 7(10), 433-442. https://doi.org/10.13106/jafeb.2020.vol7.no10.433

Arham, M. A., & Payu, B. R. (2020). Village fund transfer and rural poverty in Indonesia. Economics Development Analysis Journal, 8(4), 324-334. https://doi.org/10.15294/edaj.v8i4.31698

Arifin, B., Wicaksono, E., Tenrini, R. H., Wardhana, I. W., Setiawan, H., Damayanty, S. A., Solikin, A., Suhendra, M., Saputra, A. H., Ariutama, G. A., Djunedi, P., Rahman, A. B., & Handoko, R. (2020). Village fund, village-owned enterprises, and employment: Evidence from Indonesia. Journal of Rural Studies, 79, 382-394. https://doi.org/10.1016/j.jrurstud.2020.08.052

Azhari, A., Yusuf, M., Kamaruddin, K., & Fadly, F. (2022). Are village fund and village-owned enterprises crucial in eradicating poverty in Indonesia. Jurnal Ekonomi & Bisnis Jagaditha, 9(2), 132-138. https://doi.org/10.22225/jj.9.2.2022.132-138

Badrudin, R., Tkela, M., & Siregar, B. (2021). The effect of village funds on inclusive village development in Indonesia. Studies of Applied Economics, 39(4). https://doi.org/10.25115/eea.v39i4.4626

Ernawati, E., Tajuddin, T., & Nur, S. (2021). Does government expenditure affect regional inclusive growth? An experience of implementing village fund policy in Indonesia. Economies, 9(4), Article 164. https://doi.org/10.3390/economies9040164

Handayani, A. P., & Badrudin, R. (2019). Evaluation of village fund allocation on Indonesia. Journal of Accounting and Investment, 20(3). https://doi.org/10.18196/jai.2003129

Harun, H., Graham, P., Kamase, H. P., & Mir, M. (2021). A critical analysis of the impacts of financial literacy and NPM on village funds initiative in Indonesia. International Journal of Public Administration, 44(4), 336-345. https://doi.org/10.1080/01900692.2020.1722165

Hartojo, N., Ikhsan, M., Dartanto, T., & Sumarto, S. (2022). A growing light in the lagging region in Indonesia: The impact of village fund on rural economic growth. Economies, 10(9), Article 217. https://doi.org/10.3390/economies10090217

Hartojo, N., Ikhsan, M., Dartanto, T., & Sumarto, S. (2024). The impact of village funds on rural welfare in Indonesia: A regression discontinuity in time (RDiT) and difference in difference (DiD) approach. Applied Economics Letters, 31(15), 1360-1367. https://doi.org/10.1080/13504851.2023.2187016

Hendrianto, W. (2019). Improving the effectiveness of community participation in village fund program. Bappenas Working Papers, 2(2), 215-222. https://doi.org/10.47266/bwp.v2i2.41

Imawan, S. A., & Purwanto, E. A. (2020). Governing village fund in Indonesia: Is it eradicating poverty? Policy & Governance Review, 4(1), 14-27. https://doi.org/10.30589/pgr.v4i1.169

Lestari, R. I., Wardono, B., Saptana, S., Wardhana, I. W., Indarto, I., & Budiati, Y. (2023). The village fund program and Indonesia's 18th sustainable development goal: A bibliometric and content study. International Journal of Sustainable Development and Planning, 18(11), 3505-3518. https://doi.org/10.18280/ijsdp.181115

Lewis, B. D. (2015). Decentralising to villages in Indonesia: Money (and other) mistakes. Public Administration and Development, 35(5), 347-359. https://doi.org/10.1002/pad.1741

Lona, M. (2023). Dampak pengelolaan alokasi dana desa terhadap kesejahteraan masyarakat Desa Oebafok Kecamatan Rote Barat Daya. EKONOMIKA45: Jurnal Ilmiah Manajemen, Ekonomi Bisnis, Kewirausahaan, 10(2), 12-20. https://doi.org/10.30640/ekonomika45.v10i2.673

Manurung, E. T., Maratno, S. F. E., Permatasari, P., Rahman, A. B., Qisthi, R., & Manurung, E. M. (2022). Do village allocation funds contribute towards alleviating hunger among the local community (SDG#2)? An insight from Indonesia. Economies, 10(7), Article 155. https://doi.org/10.3390/economies10070155

Permatasari, P., Ilman, A. S., Tilt, C. A., Lestari, D., Islam, S., Tenrini, R. H., Rahman, A. B., Samosir, A. P., & Wardhana, I. W. (2021). The village fund program in Indonesia: Measuring the effectiveness and alignment to sustainable development goals. Sustainability, 13(21), Article 12294. https://doi.org/10.3390/su132112294

Prihatiningtyas, W., Fitriana, Z. M., Wijoyo, S., & Noventri, A. C. (2023). Optimisation of village funds in achieving SDGs: Lessons learned from East Java. World Journal of Entrepreneurship, Management and Sustainable Development, 19(1-2), 69-86. https://doi.org/10.47556/J.WJEMSD.19.1-2.2023.6

Rammohan, A., & Tohari, A. (2023). Rural poverty and labour force participation: Evidence from Indonesia's Village Fund program. PLOS ONE, 18(6), e0283041. https://doi.org/10.1371/journal.pone.0283041

Saragi, N. B., Muluk, M. R. K., & Sentanu, I. G. E. P. S. (2021). Indonesia's village fund program: Does it contribute to poverty reduction? Jurnal Bina Praja, 13(1), 65-80. https://doi.org/10.21787/jpb.13.2021.65-80

Sidik, F., & Habibi, M. (2024). A prize for the village ruling class: 'Village funds' and class dynamics in rural Indonesia. Journal of Contemporary Asia, 54(3), 387-411. https://doi.org/10.1080/00472336.2023.2193968

Sidik, F. (2025). The village fund, village tourism development, and its impact on income inequality in rural Indonesia: How do village elites shape it? Tourism Planning & Development, 22(1), 111-137. https://doi.org/10.1080/21568316.2024.2430487

Tanete, A. S. (2024). Village fund management: Accountability, transparency, community participation. Financial and Accounting Indonesian Research, 4(1), 50-63. https://doi.org/10.36232/fair.v4i1.1353

Tohari, I. (2022). Economic impact assessment of village fund in Indonesia using inter-regional input-output analysis. Jurnal Anggaran dan Keuangan Negara Indonesia (AKURASI), 4(1), 110-127. https://doi.org/10.33827/akurasi2022.vol4.iss1.art163

Udjianto, D., Hakim, A., Domai, T., Suryadi, S., & Hayat, H. (2021). Community development and economic welfare through the village fund policy. The Journal of Asian Finance, Economics and Business, 8(1), 563-572. https://doi.org/10.13106/jafeb.2021.vol8.no1.563

Utomo, U. W., Sudrajat, & Dewi, F. G. (2022). The effect of village fund management accountability and village policy on community welfare. Arkus, 8(1), 210-221. https://doi.org/10.37275/arkus.v8i1.173

Yohanes, Y., & Sihaloho, N. T. P. (2023). Implementation of village fund direct cash assistance program policy in Sungai Kakap District Kubu Raya District. Ilomata International Journal of Social Science, 4(4), 736-749. https://doi.org/10.52728/ijss.v4i4.1004