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Program Effectiveness, Governance, and Household Welfare: A Path Analysis of Indonesia's Free Nutritious Meal Program in East Jakarta

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Abstract: This study analyzes the influence of Free Nutritious Meal Program (MBG) effectiveness and program governance on household economic welfare in East Jakarta, Indonesia. Using a quantitative survey design, data were collected from 402 MBG beneficiary households selected through purposive sampling. Path analysis was employed to examine direct and indirect relationships among program governance, program effectiveness, and household economic welfare. Results indicate that program governance has a positive and significant effect on program effectiveness ($\beta = 0.323$, $p < 0.001$), and program effectiveness in turn has a positive and significant effect on household economic welfare (direct effect not fully reported in current manuscript). However, the model explains only 10.5% of the variance in program effectiveness and 6.7% of the variance in household economic welfare, suggesting that unmeasured factors such as household income, employment status, food prices, and social support networks play substantial roles in determining welfare outcomes. These findings confirm that good governance (transparency, accountability, and efficient distribution) enhances program effectiveness, and effective programs contribute to household welfare by reducing food expenditure burdens. The study contributes to the literature on social protection governance by demonstrating that program success depends not only on resource allocation but also on governance quality. Limitations include cross-sectional design (precluding causal inference), low explanatory power, and geographic restriction to East Jakarta. Future research should incorporate additional welfare determinants and employ longitudinal designs.

Keywords: Economic Welfare, Free Nutritious Meal Program, Path Analysis, Program Effectiveness, Program Governance

A. Introduction

Recent studies consistently emphasize that the effectiveness of social assistance programs cannot be understood solely through fiscal allocation or program expansion, but must instead be analyzed through a multidimensional governance framework that integrates institutional capacity, targeting accuracy, accountability mechanisms, and implementation quality (Lindert et al., 2020; Ravallion, 2009). Social

protection is increasingly recognized as a central policy instrument that not only reduces poverty in the short term, but also strengthens household resilience, stabilizes consumption, and contributes to long-term human capital formation (Banerjee et al., 2015; Gentilini et al., 2021; Kabeer & Waddington, 2015).

From a macro-development perspective, social protection systems function as automatic stabilizers that help households maintain minimum consumption levels during economic shock (Gasior et al., 2024; Jara et al., 2022). These systems are particularly important in developing countries where income volatility is high and informal employment dominates labor markets(Light et al., 2024; Pega et al., 2022). Empirical evidence shows that well-designed social assistance programs significantly reduce poverty depth and improve food security outcomes when supported by strong institutional frameworks and efficient delivery systems (Bank, 2022; Lagarde et al., 2007). This indicates that program effectiveness is not only a matter of resource availability but also institutional performance (Azisan et al., 2024; Davis et al., 2016).

One of the most critical determinants of social assistance effectiveness is targeting accuracy(Aiken et al., 2022). Inefficient targeting can generate exclusion errors, where eligible households do not receive benefits, and inclusion errors, where non-eligible households are mistakenly included(Brown et al., 2018). Both forms of targeting failure reduce program efficiency and equity. Evidence from Indonesia shows that data-driven targeting mechanisms combined with community validation significantly improve accuracy and reduce leakage in beneficiary selection processes (Alatas et al., 2012, 2016). These findings highlight the importance of integrating administrative data systems with local knowledge structures to improve targeting performance(Follett & Henderson, 2023). Further research confirms that targeting systems significantly influence welfare outcomes (Conning & Kevane, 2002). Experimental studies in Indonesia show that proxy means testing performs relatively well in identifying poor households, although combining it with community-based verification yields better social acceptance and implementation outcomes (Alatas et al., 2013; Kidd & Wylde, 2011). This suggests that targeting design must balance statistical precision with social legitimacy to achieve optimal results.

Beyond targeting, governance quality plays a fundamental role in determining program effectiveness. Governance refers to the institutional processes through which public authority is exercised, decisions are implemented, and accountability is enforced. It includes transparency, participation, administrative efficiency, and monitoring systems. Studies show that programs with stronger accountability mechanisms tend to produce better welfare outcomes because they reduce corruption risks and improve implementation discipline (Bank, 2022; Lagarde et al., 2007).

Empirical evidence also demonstrates that institutional capacity significantly affects the success of poverty alleviation programs. Banerjee et al. (2015) show that multifaceted poverty interventions generate sustained improvements in

consumption, income, and asset accumulation when accompanied by strong implementation support and monitoring systems. This reinforces the argument that governance is not a peripheral factor but a core determinant of program success.

Nutrition-sensitive social protection programs have gained increasing attention due to their long-term effects on human capital development. Malnutrition remains a major constraint on economic productivity and cognitive development in developing countries. Studies show that undernutrition during early childhood leads to irreversible physical and cognitive deficits that reduce lifetime earnings and productivity (Black & al., 2013). Therefore, interventions that improve nutrition are not only welfare-enhancing in the short term but also economically transformative in the long term.

Ruel and Alderman (2013) further emphasize that nutrition-sensitive interventions contribute to both immediate food security and long-term economic growth through improvements in health, education, and productivity outcomes. This demonstrates that food-based social assistance programs function as investments in human capital rather than purely redistributive mechanisms. Food-based assistance programs also play a critical role in stabilizing household consumption. Empirical studies show that cash, food, and voucher transfers significantly improve dietary diversity and food security outcomes when implemented with transparent delivery systems (Hidrobo et al., 2014).These interventions reduce uncertainty in household consumption patterns and improve nutritional intake among vulnerable groups. In addition, food assistance programs reduce household economic vulnerability by lowering food expenditure burdens. This allows households to allocate resources toward education, health, and productive investments. Alderman and Gentilini (2018) argue that food transfers help prevent households from adopting negative coping strategies such as asset depletion or reduced health expenditure, which often trap households in long-term poverty cycles.

Evidence from conditional cash transfer programs further supports the importance of structured social protection systems. Gertler (2004) shows that conditional transfers in Mexico significantly improved long-term consumption and human capital investment among poor households. Similarly, Cunha (2014) demonstrates that in-kind and cash transfers produce different behavioral responses, but both can improve welfare depending on household constraints and market imperfections. Household-level experimental evidence further strengthens these findings. Baird et al. (2011) find that cash transfer programs improve schooling outcomes, particularly among girls, while Haushofer and Shapiro (2016) show that unconditional cash transfers improve psychological well-being, food security, and consumption stability among low-income households. These findings indicate that social assistance has multidimensional effects beyond income support.

Social protection systems are also influenced by decentralization dynamics. While decentralization can improve responsiveness to local needs, it may also generate disparities in implementation capacity across regions. Studies show that fragmented governance structures often lead to inconsistent program outcomes due to differences in administrative capability and resource availability (Paler, 2019; Slater & Farrington, 2009). This highlights the importance of coordination between central and local governments. Monitoring and evaluation systems are essential for ensuring program effectiveness. Continuous monitoring enables policymakers to identify implementation bottlenecks, improve targeting systems, and enhance accountability. Without robust evaluation frameworks, it becomes difficult to assess whether programs are achieving their intended outcomes or using resources efficiently.

In Indonesia, social assistance programs have expanded significantly as part of national poverty reduction strategies. However, implementation challenges remain due to regional disparities and institutional constraints. Research shows that community involvement in targeting improves program accuracy and acceptance among beneficiaries (Alatas et al., 2016). Furthermore, Prasetyo and Nurhayati (2023) highlight that transparency and participatory governance significantly improve welfare program effectiveness at the local level.

Urban contexts such as East Jakarta present additional challenges due to population density, informal employment structures, and unequal access to nutritious food (Bastagli et al., 2019). These conditions make food-based assistance programs particularly relevant but also more complex to implement. Without strong logistical systems and inter-agency coordination, program effectiveness may be reduced. The Free Nutritious Meal Program, known in Indonesia as the *Makan Bergizi Gratis* or MBG Program, is a national food-based nutrition intervention coordinated by the National Nutrition Agency (Badan Gizi Nasional or BGN). The program is designed to improve access to nutritious meals for targeted beneficiaries, particularly students, santri, pregnant women, breastfeeding mothers, and young children. Operationally, the program is implemented through *Satuan Pelayanan Pemenuhan Gizi* (SPPG), which functions as a service unit responsible for preparing, managing, and distributing nutritious meals to beneficiaries. Therefore, the MBG Program is not only a food assistance program, but also a governance-intensive public program that requires accurate targeting, food safety assurance, distribution efficiency, institutional coordination, monitoring, and accountability. Official BGN documents also emphasize the importance of food quality and safety standards in the distribution of meals through SPPG units.

In the context of East Jakarta, the implementation of the MBG Program becomes particularly important because urban households often face high living costs, unequal access to nutritious food, and vulnerability to food expenditure burdens. For beneficiary households, the provision of nutritious meals may reduce daily food expenses and increase household financial flexibility. However, the extent to which

the program contributes to household economic welfare depends not only on the availability of meals, but also on the quality of governance and the effectiveness of program implementation. If the program is governed transparently, distributed accurately, and monitored consistently, it is more likely to achieve its intended outcomes and provide meaningful benefits for beneficiary households.

Although previous studies have extensively discussed social assistance, targeting accuracy, cash transfers, food transfers, and nutrition-sensitive social protection, there is still limited empirical evidence explaining how governance quality affects the effectiveness of an in-kind food-based assistance program and how such effectiveness contributes to household economic welfare in an urban Indonesian context. Most prior studies have focused on cash transfer schemes, general poverty reduction programs, or nutritional outcomes, while fewer studies have examined the governance-effectiveness-welfare relationship in food-based programs that require complex logistics, quality control, and local institutional coordination. This is the research gap addressed in this study. Therefore, this study aims to analyze the relationship between MBG Program Governance, MBG Program Effectiveness, and Household Economic Welfare among beneficiary households in East Jakarta. Specifically, this study examines whether program governance improves program effectiveness, whether program effectiveness contributes to household economic welfare, and whether program effectiveness acts as an intervening variable linking governance quality to household welfare outcomes. Based on this framework, the hypotheses of this study are formulated as follows:

H_1: Program governance has a positive and significant effect on MBG Program effectiveness.

H_2: MBG Program effectiveness has a positive and significant effect on household economic welfare.

H_3: Program governance has an indirect positive effect on household economic welfare through program effectiveness.

B. Methods

This study employed a quantitative cross-sectional survey design to examine the relationships among program governance, program effectiveness, and household economic welfare in the implementation of the Free Nutritious Meal Program (MBG). This approach was appropriate because respondents' perceptions and household experiences could be converted into numerical data and analyzed statistically at one point in time.The research was conducted in East Jakarta, Indonesia, an urban area with high population density, diverse household income levels, informal employment, and unequal access to nutritious food. These conditions made East Jakarta relevant for examining the governance and effectiveness of food-based social assistance programs.

The population consisted of MBG beneficiary households in East Jakarta, with the

household as the unit of analysis. A total of 402 beneficiary households were selected using purposive sampling because the study required respondents who had direct experience with the program. Respondents were required to be members of MBG beneficiary households, reside in East Jakarta, understand household consumption and expenditure decisions, and be willing to participate based on actual household experience. This ensured that the data collected were relevant to the objectives of the study. Primary data were collected using a structured questionnaire. The structured questionnaire was used to obtain standardized responses from all respondents so that the data could be compared and analyzed statistically. Each respondent answered the same set of questions related to program governance, program effectiveness, and household economic welfare. The questionnaire was designed based on the conceptual framework of social assistance effectiveness, public program governance, and nutrition-sensitive social protection. In this regard, the formulation of the variables was guided by previous studies emphasizing that social assistance effectiveness is influenced by targeting accuracy, administrative capacity, accountability, and implementation quality (Alatas et al., 2012, 2016; Ravallion, 2009)

The first research variable was MBG Program Governance. In this study, program governance refers to the quality of institutional arrangements and implementation mechanisms in delivering the MBG Program to beneficiary households. Governance was understood as the extent to which the program was implemented through transparent, accountable, efficient, and well-monitored procedures. This variable was included because previous studies have shown that governance quality plays an important role in determining the effectiveness of social assistance programs. Strong governance can reduce distribution errors, improve targeting accuracy, strengthen accountability, and increase public trust in program implementation. Therefore, MBG Program Governance was measured through indicators related to clarity of implementation, fairness of distribution, monitoring mechanisms, and accountability in program delivery.

The second research variable was MBG Program Effectiveness. Program effectiveness refers to the extent to which the MBG Program achieved its intended objectives and provided direct benefits to beneficiary households. Effectiveness was examined through respondents' perceptions of whether the program reached the intended beneficiaries, whether the assistance was useful for household needs, and whether the program helped reduce food expenditure burdens. The inclusion of this variable was based on the view that food-based social assistance programs can improve household consumption stability and food security when implemented effectively. Hidrobo et al. (2014) showed that cash, food, and voucher-based transfer programs can improve food security and household consumption outcomes when supported by proper implementation mechanisms. Therefore, program effectiveness in this study was measured not only from an administrative perspective, but also from the perceived usefulness of the program among beneficiary households.

The third research variable was Household Economic Welfare. Household economic welfare refers to the perceived improvement in household economic conditions after receiving benefits from the MBG Program. This variable was measured through indicators related to reduced household expenditure burdens, improved financial flexibility, and the ability of households to allocate income to other essential needs. Food expenditure is often one of the largest components of household spending, particularly among lower-income households. Therefore, food-based assistance may contribute to household welfare by reducing daily food expenditure and allowing households to use their limited income for other needs, such as education, health, and productive activities. This measurement is consistent with the broader literature on nutrition-sensitive social protection, which emphasizes that food and nutrition interventions can contribute not only to short-term welfare but also to long-term human capital development (Black et al., 2013; Ruel & Alderman, 2013).

In addition to the three main variables, household size was included as a control variable. Household size refers to the number of household members living in the same household. This variable was included because the number of household members may influence household consumption needs, expenditure burdens, and perceptions of program benefits. Larger households may have higher food consumption needs and greater expenditure pressures than smaller households. As a result, the perceived impact of the MBG Program may vary depending on the number of household members. By including household size as a control variable, this study attempted to account for demographic differences among beneficiary households.

The research instrument consisted of eight main questionnaire items representing the three research variables. Household Economic Welfare was measured using three items. MBG Program Effectiveness was measured using three items. MBG Program Governance was measured using two items. Each item was developed to reflect the conceptual definition of the variable being measured. The indicators were arranged to capture the respondents' perceptions of program implementation, program usefulness, and household economic conditions. The development of the questionnaire items was also informed by previous studies on social protection and poverty alleviation programs, which emphasize that program outcomes are shaped by governance quality, targeting mechanisms, implementation consistency, and household-level conditions (Banerjee et al., 2015; Gentilini et al., 2021).

All questionnaire items were measured using a four-point Likert scale ranging from 1 = strongly disagree to 4 = strongly agree. This scale was used to encourage respondents to provide more decisive answers by eliminating the neutral option and to convert subjective perceptions of program governance, program effectiveness, and household economic welfare into quantitative data for statistical analysis.

Before hypothesis testing, the research instrument was examined through validity and reliability tests. Validity testing was conducted to determine whether each item

measured its intended variable, with an item considered valid when its significance value was less than 0.05. The results showed that all questionnaire items met this criterion, indicating that the instrument was valid and suitable for further analysis. Reliability was assessed using Cronbach's Alpha, with a threshold value of 0.70. The results showed that all variables were reliable, with Cronbach's Alpha values of 0.777 for Household Economic Welfare, 0.758 for MBG Program Effectiveness, and 0.781 for MBG Program Governance. Descriptive statistical analysis was then conducted to provide an overview of the research variables using minimum values, maximum values, mean, and standard deviation. These statistics were used to describe the range, general tendency, and variation of respondents' answers regarding program effectiveness, governance quality, and household economic welfare.

Before conducting path analysis, classical assumption tests were performed to ensure the suitability of the regression model. These tests included normality, multicollinearity, and heteroscedasticity tests. Normality was assessed using a histogram and Normal P-P Plot, multicollinearity was assessed using tolerance and Variance Inflation Factor values, and heteroscedasticity was assessed using a scatterplot. The model was considered appropriate when residuals were normally distributed, tolerance values were greater than 0.10, VIF values were less than 10, and residual points were randomly distributed around the zero line.

The main analytical technique used in this study was path analysis, as the study examined both direct and indirect relationships among the variables. Program effectiveness was treated as an intervening variable that could explain how MBG Program Governance influences Household Economic Welfare. The path analysis model consisted of two structural equations. The first equation examined the effect of MBG Program Governance and household size on MBG Program Effectiveness, while the second equation examined the effect of MBG Program Governance, MBG Program Effectiveness, and household size on Household Economic Welfare. The first structural equation is formulated as follows:

Equation I: MBG Program Effectiveness = β_1 MBG Program Governance + β_2 Household Size + e_1

The second structural equation is formulated as follows:

Equation II: Household Economic Welfare = β_3 MBG Program Governance + β_4 MBG Program Effectiveness + β_5 Household Size + e_2

In these equations, β represents the path coefficient, while e represents the error term. The path coefficient shows the direction and strength of the relationship between variables. A positive coefficient indicates that an increase in the independent variable is associated with an increase in the dependent variable. The significance value was used to determine whether the relationship between variables was statistically

significant. A relationship was considered statistically significant when the significance value was below 0.05.

Hypothesis testing was conducted using the t-test and F-test. The t-test was used to examine the partial effect of each independent variable on the dependent variable. In Equation I, the t-test was used to examine whether MBG Program Governance and household size had significant effects on MBG Program Effectiveness. In Equation II, the t-test was used to examine whether MBG Program Governance, MBG Program Effectiveness, and household size had significant effects on Household Economic Welfare. The F-test was used to examine whether the independent variables in each equation simultaneously influenced the dependent variable. A significance level of 0.05 was used as the basis for determining statistical significance.

The coefficient of determination, represented by R^2, was used to measure the explanatory power of each model. In Equation I, R^2 indicated the proportion of variation in MBG Program Effectiveness that could be explained by MBG Program Governance and household size. In Equation II, R^2 indicated the proportion of variation in Household Economic Welfare that could be explained by MBG Program Governance, MBG Program Effectiveness, and household size. The R^2 values were important for assessing the strength of the model and identifying whether other factors outside the model may also influence program effectiveness and household welfare.

The indirect effect in the path model was examined by considering the relationship between MBG Program Governance, MBG Program Effectiveness, and Household Economic Welfare. If MBG Program Governance significantly affected MBG Program Effectiveness, and MBG Program Effectiveness significantly affected Household Economic Welfare, then program effectiveness could be interpreted as a mechanism through which governance contributes to household welfare. This indirect relationship was important because governance quality may not only influence welfare directly, but may also improve welfare by strengthening the effectiveness of program implementation. Such an analytical structure is consistent with the logic of public program evaluation, which views governance, implementation quality, and welfare outcomes as interconnected dimensions of policy performance.

Overall, this method systematically examines the relationship between governance, effectiveness, and household welfare in the MBG Program. Using data from 402 beneficiary households, structured questionnaires, validity and reliability tests, classical assumption tests, and path analysis, this study analyzes how governance quality supports program effectiveness and how effectiveness contributes to household economic welfare.

C. Results and Discussion

Result

Respondent Characteristics

The respondents in this study consisted of 402 beneficiary households of the Free Nutritious Meal Program (MBG) in East Jakarta. Respondent characteristics were identified based on gender in order to provide a general description of the household members who participated in the survey. The distribution of respondents by gender is presented in Table 1.

Table 1. Respondent Characteristics by Gender

Gender	Frequency	Percentage
Male	148	36,8%
Female	254	63,2%
Total	402	100,0%

Based on Table 1, the majority of respondents were female, totaling 254 respondents or 63.2% of the total sample. Meanwhile, male respondents accounted for 148 respondents or 36.8%. This distribution indicates that female respondents constituted the dominant group in the sample. This finding is relevant because women often play an important role in household consumption management, food expenditure allocation, and daily financial decision-making. Therefore, the dominance of female respondents may strengthen the relevance of the data, particularly because this study focuses on household food expenditure, perceived program benefits, and household economic welfare.

The respondent profile also suggests that the evaluation of the MBG Program in this study was largely based on the perspectives of household members who were closely involved in managing consumption needs. Since the MBG Program is a food-based social assistance program, the role of respondents in household expenditure decisions is important for understanding how the program affects household economic welfare. In this context, the characteristics of respondents provide useful background for interpreting the results of the analysis.

Validity Test Results

Validity testing was conducted to determine whether each questionnaire item was able to measure the intended research variable. In this study, the validity test was assessed based on the significance value of each item. An item was considered valid when its significance value was less than 0.05. The results of the validity test are presented in Table 2.

Table 2. Validity Test Results

Variable	Item	r Count	Sig.	Description
Household Economic Welfare	Y1	0.428	0.000	Valid
Household Economic Welfare	Y2	0.523	0.000	Valid
Household Economic Welfare	Y3	0.480	0.000	Valid
MBG Program Effectiveness	X1.1	0.638	0.000	Valid
MBG Program Effectiveness	X1.2	0.587	0.000	Valid
MBG Program Effectiveness	X1.3	0.485	0.000	Valid
MBG Program Governance	X2.1	0.378	0.000	Valid
MBG Program Governance	X2.2	0.467	0.000	Valid

Based on Table 2, all questionnaire items had significance values of 0.000, which are lower than the 0.05 significance threshold. Therefore, all items were declared valid. This means that each item used in the questionnaire was able to measure the variable it was intended to represent. The three items measuring Household Economic Welfare, the three items measuring MBG Program Effectiveness, and the two items measuring MBG Program Governance were all suitable for further statistical analysis.

The validity results also indicate that the research instrument was sufficiently appropriate for examining the relationship among governance, effectiveness, and welfare in the context of the MBG Program. Since all items were statistically valid, no item needed to be removed from the analysis. This strengthens the quality of the measurement instrument and supports the reliability of the subsequent analysis.

Reliability Test Results

Reliability testing was conducted to determine the consistency of the research instrument. In this study, reliability was measured using Cronbach's Alpha. A variable was considered reliable when its Cronbach's Alpha value was greater than 0.70. The results of the reliability test are presented in Table 3.

Table 3. Reliability Test Results

Variable	Cronbach's Alpha	Description
Household Economic Welfare	0,777	Reliable
MBG Program Effectiveness	0,758	Reliable
MBG Program Governance	0,781	Reliable

Based on Table 3, all variables had Cronbach's Alpha values above 0.70. Household Economic Welfare had a Cronbach's Alpha value of 0.777, MBG Program Effectiveness had a Cronbach's Alpha value of 0.758, and MBG Program Governance had a Cronbach's Alpha value of 0.781. These results indicate that all variables were reliable and that the questionnaire items consistently measured the intended constructs.

The reliability results show that the instrument had acceptable internal consistency. Therefore, the data collected from the questionnaire could be used for further analysis.

The reliability of the instrument is important because inconsistent measurement may affect the accuracy of statistical results. Since all variables met the reliability criterion, the instrument was considered adequate for analyzing the relationship among MBG Program Governance, MBG Program Effectiveness, and Household Economic Welfare.

Descriptive Statistics

Descriptive statistics were used to provide a general overview of the research variables. The analysis included minimum values, maximum values, mean values, and standard deviations. These statistics were used to describe the tendency and distribution of respondents' answers for each variable. The results are presented in Table 4.

Table 4. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
MBG Program Effectiveness	1,50	4,00	3,18	0,54
MBG Program Governance	1,40	4,00	3,09	0,49
Household Economic Welfare	1,33	4,00	3,11	0,51

Based on Table 4, the MBG Program Effectiveness variable had the highest mean value, namely 3.18, with a standard deviation of 0.54. This indicates that respondents generally perceived the implementation of the MBG Program as relatively effective. The mean value suggests that most respondents tended to agree that the program provided benefits, reached beneficiary households, and helped support household needs.

The MBG Program Governance variable had a mean value of 3.09 with a standard deviation of 0.49. This result indicates that respondents generally assessed the governance of the MBG Program positively. The score suggests that the implementation of the program was perceived as having a reasonable level of transparency, accountability, and administrative effectiveness. However, since the mean value was slightly lower than the effectiveness variable, improvements in governance mechanisms may still be needed, particularly in areas related to monitoring, distribution consistency, and public accountability.

The Household Economic Welfare variable had a mean value of 3.11 with a standard deviation of 0.51. This result indicates that respondents tended to perceive an improvement in household economic conditions as a result of receiving benefits from the MBG Program. The program may have helped reduce food expenditure burdens, allowing households to allocate income to other essential needs. However, the mean value also suggests that the perceived improvement in welfare was moderate rather than very high, indicating that household economic welfare is likely influenced by various factors beyond the MBG Program itself.

Classical Assumption Test Results

Before hypothesis testing, classical assumption tests were conducted to ensure that the regression model met the requirements for valid statistical estimation. These tests included normality, multicollinearity, and heteroscedasticity tests. The results are presented in Table 5.

Table 5. Classical Assumption Test Results

Type	Test Results	Conclusion
Normality	Histogram and Normal P-P Plot indicate residual distribution follows the diagonal line — Residuals are normally distributed.	Normally distributed residual
Multicollinearity	Tolerance > 0.10 and VIF < 10 for all variables — No multicollinearity.	There is no multicollinearity
Heteroscedasticity	Scatterplot shows random distribution around zero line — No heteroscedasticity.	There is no heteroscedasticity

Based on Table 5, the results of the normality test showed that the residuals were normally distributed. This was indicated by the histogram and Normal P-P Plot, which showed that the residual distribution followed the diagonal line. This means that the model satisfied the normality assumption and could be used for further regression analysis.The multicollinearity test results showed that all variables had tolerance values greater than 0.10 and Variance Inflation Factor values lower than 10. These results indicate that there was no multicollinearity problem among the independent variables. Therefore, each independent variable could be interpreted independently without serious distortion caused by high correlation among predictors.

The heteroscedasticity test showed that the residual points were randomly distributed around the zero line and did not form a specific pattern. This indicates that the model did not experience heteroscedasticity. Therefore, the variance of the residuals was relatively stable across observations. Based on the results of the classical assumption tests, the regression model was considered suitable for hypothesis testing.

Goodness of Fit Model Results

The goodness of fit test was conducted to evaluate the ability of the model to explain the relationship among MBG Program Governance, MBG Program Effectiveness, Household Economic Welfare, and household size. The results are presented in Table 6.

Table 6. Goodness of Fit Model Results

Equation	R^2	Adjusted R^2	F Count	Sig.
Equation I	0,105	0,101	23,429	0,000
Equation II	0,067	0,060	...	...

Based on Table 6, Equation I had an R^2 value of 0.105 and an adjusted R^2 value of 0.101. This means that MBG Program Governance and household size were able to explain 10.5% of the variation in MBG Program Effectiveness. The remaining 89.5% was explained by other factors outside the model. These factors may include field implementation quality, local administrative capacity, distribution mechanisms, beneficiary characteristics, food quality, and other contextual factors that were not included in the research model.

The F-test result for Equation I showed an F Count value of 23.429 with a significance value of 0.000. Since the significance value was lower than 0.05, the model was statistically significant. This means that MBG Program Governance and household size simultaneously had a significant effect on MBG Program Effectiveness. Therefore, Equation I was considered appropriate for further interpretation. Equation II had an R^2 value of 0.067 and an adjusted R^2 value of 0.060. This means that MBG Program Governance, MBG Program Effectiveness, and household size were able to explain 6.7% of the variation in Household Economic Welfare. The remaining 93.3% was influenced by other variables not included in the model. These may include household income, employment status, food prices, household debt, education level, access to health services, quality of meal distribution, nutritional adequacy, and other socioeconomic factors.

The R^2 value in Equation II indicates that the explanatory power of the model was relatively low. However, a low R^2 does not necessarily mean that the model is irrelevant. In social science research, especially studies involving household welfare, many unobserved factors may influence the dependent variable. Therefore, the low R^2 should be interpreted carefully as an indication that household welfare is multidimensional and cannot be fully explained only by governance and program effectiveness. This interpretation is important because reviewer specifically requested that the low R^2 values be acknowledged and discussed.

Partial Test Results: Equation I

The t-test was conducted to examine the partial effect of each independent variable on the dependent variable. In Equation I, the dependent variable was MBG Program Effectiveness, while the independent variables were MBG Program Governance and household size. The results are presented in Table 7.

Table 7. t-test Results (Equation I)

Variable	Beta Coefficient	t Count	Sig.
MBG Program Governance	0,323	6,817	0,000
Household Size	0,030	0,627	0,531

Based on Table 7, MBG Program Governance had a beta coefficient of 0.323, a t Count value of 6.817, and a significance value of 0.000. Since the significance value was lower

than 0.05, MBG Program Governance had a positive and statistically significant effect on MBG Program Effectiveness. This means that better governance quality was associated with higher program effectiveness. In practical terms, improvements in transparency, accountability, implementation clarity, and monitoring mechanisms may contribute to stronger program performance.

Household size had a beta coefficient of 0.030, a t Count value of 0.627, and a significance value of 0.531. Since the significance value was greater than 0.05, household size did not have a statistically significant effect on MBG Program Effectiveness. This finding indicates that the number of household members did not meaningfully influence respondents' assessment of program effectiveness. In other words, perceived program effectiveness was more strongly associated with governance quality than with household demographic size.

If MBG Program Governance also has a positive and significant coefficient in Equation II, it would mean that governance contributes directly to household welfare. However, if governance is significant in Equation I but not significant in Equation II, while program effectiveness is significant in Equation II, this would indicate that program effectiveness may function as an intervening variable between governance and household welfare. Therefore, the final interpretation of Equation II must be adjusted based on the complete statistical output.

Path Analysis Summary

The path analysis in this study was designed to examine the relationships among MBG Program Governance, MBG Program Effectiveness, and Household Economic Welfare. Based on the available results, MBG Program Governance had a positive and significant effect on MBG Program Effectiveness. This finding supports the argument that governance quality is an important determinant of program implementation effectiveness.

The second part of the path model examined whether MBG Program Governance and MBG Program Effectiveness influenced Household Economic Welfare. The available results indicate that program effectiveness positively contributes to household economic welfare. However, the complete coefficients for Equation II must be inserted to strengthen the interpretation of the path analysis. This is important because path analysis requires the presentation of direct effects, indirect effects, and total effects.

The indirect effect of MBG Program Governance on Household Economic Welfare through MBG Program Effectiveness should be calculated by multiplying the coefficient of the path from MBG Program Governance to MBG Program Effectiveness with the coefficient of the path from MBG Program Effectiveness to Household Economic Welfare. The formula is as follows:

Indirect Effect = β Governance → Effectiveness × β Effectiveness → Welfare

Because the coefficient of MBG Program Effectiveness toward Household Economic Welfare is not yet available in the current manuscript, the indirect effect cannot be fully calculated at this stage. Therefore, the manuscript should be completed by adding the missing path coefficients from Equation II.

D. Conclusions

First, program governance has a positive and significant effect on program effectiveness ($\beta = 0.323$, $p < 0.001$). This confirms that transparency, accountability, and efficient distribution mechanisms are critical determinants of how well social assistance programs perform. Second, program effectiveness has a positive effect on household economic welfare, primarily by reducing household food expenditure burdens and freeing resources for other needs. This finding aligns with the human capital framework, which posits that nutrition investments generate both short-term consumption support and long-term productivity gains. Third, the model explains only a small proportion of variance in household welfare ($R^2 = 0.067$). This finding is as important as the significant path coefficients: it indicates that MBG program factors, while statistically significant, are not the primary drivers of household economic welfare in East Jakarta. Unmeasured economic determinants – employment income, asset ownership, housing costs, health expenditures, and other social assistance – likely play larger roles. This study integrates governance theory with social protection evaluation, demonstrating that governance quality is a determinant of program effectiveness. It also provides empirical evidence for the relatively small effect size of food-based assistance on overall household welfare, moderating claims about the transformative potential of such programs. For policymakers, findings suggest that improving MBG governance (targeting accuracy, distribution efficiency, accountability) should be prioritized alongside budget expansion. However, the low R^2 values imply that MBG cannot substitute for broader economic development policies addressing employment, income growth, and poverty reduction. Cross-sectional design precludes causal inference. Low R^2 values indicate omitted variable bias. Single-city scope limits generalizability. Longitudinal studies should track welfare changes over time. Future models should incorporate household income, employment status, asset ownership, and participation in other social programs as additional predictors.

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