

Research Article



Simulating the Impact of the Free Nutritious Meal Program on Household Income Growth: A Social Accounting Matrix Approach

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Abstract

The Free Nutritious Meal Program (MBG) is one of the flagship initiatives of the Prabowo Gibran administration, designed to stimulate the local economy. However, the program faces a major challenge due to its high fiscal cost, which forces the government to reduce spending in other sectors. This study examines the net impact of MBG on household income growth after accounting for such budget cuts. The analysis employs the 2022 Social Accounting Matrix (65×65) and evaluates eight scenarios of positive and negative injections. The results show that without budget cuts, MBG contributes to economic growth of up to 5.01%, while household income rises by 4.95 to 5.17%. When budget cuts occur, household income contracts between 0.1 and 0.6%. The simulation reveals a consistent pattern where income growth is higher when more MBG funds are allocated to Sector A. Based on these results, three recommendations are proposed. First, adjust the total MBG budget to avoid excessive reductions in other sectors. Second, prioritize allocations to Agriculture, Forestry, and Fisheries to reduce income contraction and stabilize food prices. Third, ensure transparency in MBG budget implementation to prevent corruption.

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1. Introduction

The Sustainable Development Goals (SDGs) are a global agenda for implementing sustainable development in all aspects, including issues of hunger and malnutrition as stated in Goal 2, Zero Hunger. However, Indonesia still faces challenges in achieving this goal. According to data from the Ministry of Health [1], In 2024, the national stunting prevalence was 19.8%, with the highest rate found in Papua Pegunungan Province, reaching 40%. This stunting problem is rooted in the limited access to nutritious food. In 2024, Statistics Indonesia [2] recorded a national prevalence rate of inadequate food consumption of 8.27%, with the most affected areas largely located in Eastern Indonesia. This issue has drawn government attention, leading to the implementation of the national priority policy, the Nutritious Meal Program (Makan Bergizi Gratis/MBG). The MBG program aims to address stunting while also tackling inadequate food consumption, poor health and education quality, and to enhance worker productivity and competitiveness, increase employment opportunities, reduce inequality and poverty, and lower the unemployment rate [3], [4].

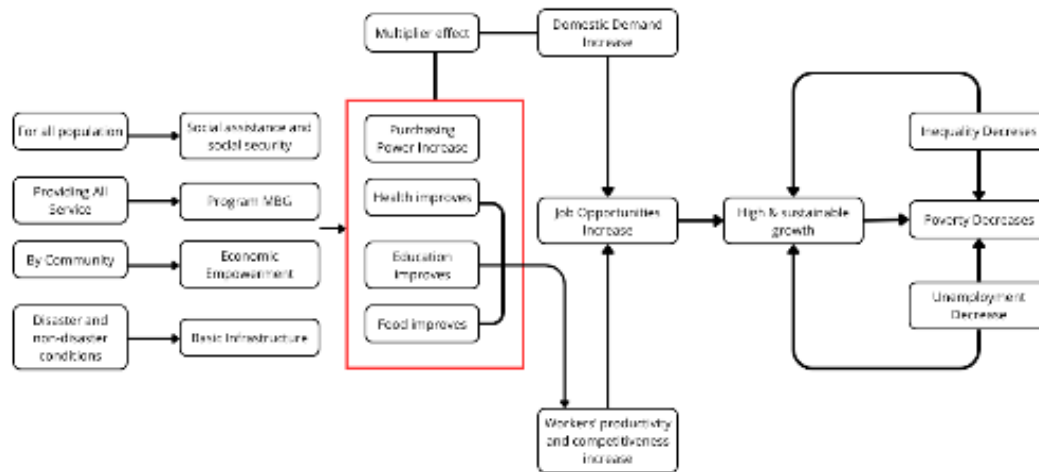
Based on the above framework, the government has set the ultimate goal of the MBG program to achieve high and sustainable economic growth. With a total budget of IDR 71 trillion in 2025, the government believes that the MBG program can absorb around 0.82 million workers and contribute to increasing Indonesia's economic growth by 0.1 percent. [5]. In relation to this, several previous studies have analyzed the impact of MBG on the economy. The Institute for Development of Economics and Finance (INDEF) [6] analyzed the IDR 71 trillion MBG budget in 2025



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under the MSME empowerment scheme and found that it could increase GDP by IDR 4,510 trillion or grow by 34.2%, raise MSME net income by 33.68%, absorb an average of three workers per MSME partner, and increase partner drivers' net income by 17%. Kurniawan & Miswa [7] stated that optimal food security and employment absorption can be achieved if, in implementing the MBG program, the government intervenes in the agriculture, forestry, and fisheries sectors.

Figure 1. Conceptual Framework of MBG Program



Source: BGN [3]

However, there are challenges due to limited fiscal space caused by the large budget requirements, while the government still needs substantial funds to pay debts and interest amounting to IDR 1,353.2 trillion. This situation forces the government to implement budget efficiency measures [8]–[10]. Budget efficiency occurs in almost all expenditure items, including ministry/institutional spending, program spending, and transfers to regions. Cuts in regional transfers lead to limited regional spending, disruption of local development programs, deterioration in public service quality, slower regional economic growth, increased tension between central and local governments due to conflicting with the spirit of fiscal decentralization, and widening interregional inequality [11]–[13].

In addition to fiscal challenges, the early implementation of the MBG program faced issues of food poisoning and rising food prices due to increased demand for food ingredients [14], [15]. The increase in food prices encourages people to sacrifice non-rice food consumption, such as meat and other protein sources [16] resulting in inadequate nutritional intake. CISDI [17] assessed that the government was not yet ready to implement MBG due to insufficient regulatory and governance frameworks. Even crucial documents such as technical guidelines were not published on the official BGN website but were instead circulated on a document-sharing platform, scribd.com. This raises questions about the government's effectiveness and seriousness in implementing the program.

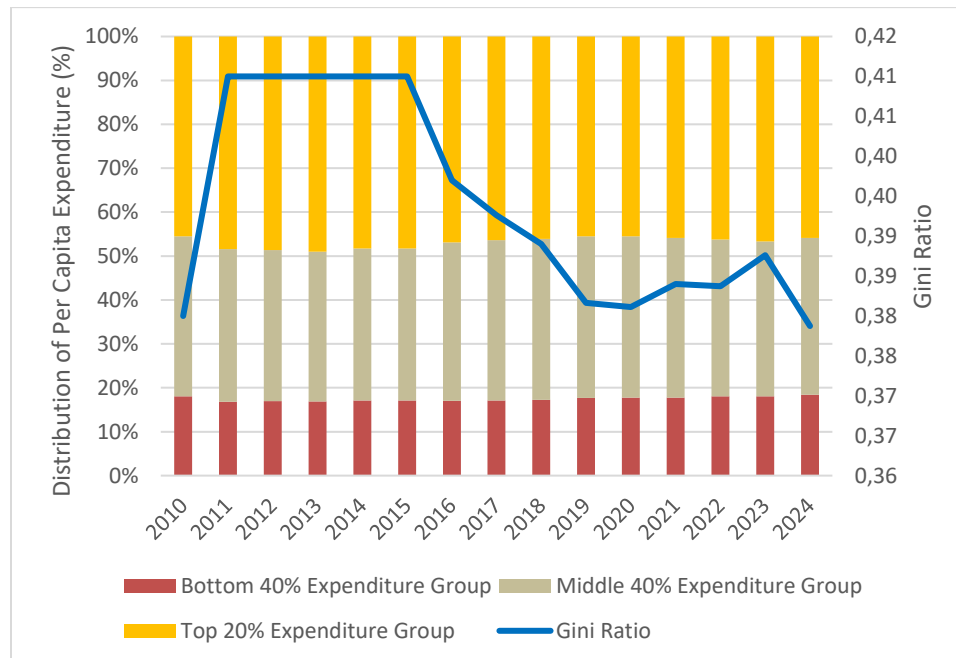
In the 2026 State Budget Draft (RAPBN), the government plans to increase the MBG budget to IDR 335 trillion [18]. However, this policy has sparked controversy as it may trigger broader budget efficiency measures. For illustration, the 2025 State Budget allocates IDR 71 trillion for the MBG program, with a previous proposal to increase it by an additional IDR 100 trillion. On the other hand, the total budget cuts mandated under Presidential Instruction No. 1 of 2025 amount to IDR 306.69 trillion. Moreover, the MBG budget will be classified under the Education function, accounting for 44% of the total national education budget. This plan raises concerns about a potential trade-off between fulfilling national nutrition needs and maintaining the quality of education services. Jackson et.al [19] found that school budget cuts have a negative impact on students' academic quality, where every \$1,000 reduction in funding leads to a 2.5 percent decline in academic performance. Baker & Knight [20] argue that money plays a crucial role in education; increasing school budgets positively affects students' academic achievement and future life outcomes, while budget reductions lead to a decline in student outcomes. Huda & Febriyani [21] stated that reallocating the



education budget to the MBG program would cause labor income to decline by up to IDR 27.03 trillion. This is due to a decrease in income among workers in the education sector amounting to IDR 41.55 trillion. Teachers and educational administrative staff are particularly affected since their sole source of income comes from the education budget.

The potential decline in labor income across certain sectors could worsen economic inequality. Based on data from Statistics Indonesia [22] shown in Figure 2, the top 20% of income earners in Indonesia contribute 45.9% of the national economy, while the bottom 40% only enjoy 18.4% of the economic share. This finding is supported by data from the World Inequality Database [23] which shows that the bottom 50% of the population holds only 12.4% of total income and 5.5% of total wealth, in stark contrast to the top 10%, who control 48% of income and 29.4% of total wealth. Furthermore, a study by Askar et al. [24] revealed that the wealth of the 50 richest Indonesians is equivalent to that of 50 million citizens, with the wealth of the top three billionaires increasing by 174% in just three years.

Figure 2. Distribution of Per Capita Expenditure Shares and Gini Index, 2010–2024



Source: Statistics Indonesia [22]

Referring back to the MBG program framework presented in Figure 1, the government believes that the MBG program can reduce economic inequality and promote inclusive economic growth. However, to date, no study has analyzed the impact of the MBG program's implementation on economic inequality. Therefore, this study aims to simulate and analyze the impact of the MBG program on economic inequality in Indonesia, viewed from household income growth across quintile groups using the Social Accounting Matrix (SAM). This study is expected to provide a comprehensive overview of the contribution of the MBG program and its budget reallocation to inclusive economic growth.

2. Methods

The analytical method employed in this study is the Social Accounting Matrix (SAM) approach. SAM is a data framework that integrates socio-economic variables, such as production activities, expenditures of economic agents, and income distribution [25]. The SAM table used in this study is the 2022 SAM Table in the form of a 65×65 matrix. In this SAM table, household are grouped into 5 quintile group. The analysis simulates the economic impact of MBG program through a series of positive and negative shocks. In general, the simulation scenarios are divided into two main categories: Scenario A and Scenario B. Scenario A represents the implementation of the MBG program without affecting other budget components. In this case, the government is assumed to provide additional fiscal injections to

sectors directly related to the MBG program, specifically Sector A (Agriculture, Forestry, and Fisheries) and Sector I (Accommodation and Food Service Activities).

Meanwhile, Scenario B represents the implementation of the MBG program with reallocation of the existing government budget, implying that the additional spending for MBG is financed by budget cuts in other sectors. Negative shocks refer to the Minister of Finance Regulation (PMK) No. 56/2025 concerning the Procedures for Expenditure Efficiency in the State Budget, which specifies the categories of expenditures subject to efficiency measures, such as office supplies, ceremonial activities, meetings and seminars, studies and analyses, training programs, professional service fees, printing and souvenirs, equipment rentals, application licenses, consultancy services, government assistance, maintenance, official travel, machinery, and infrastructure.

Although the regulation does not specify the nominal values or the affected economic sectors, this study maps the expenditure items mentioned in the PMK to the corresponding business fields, such as Manufacturing (Sector C), Wholesale and Retail Trade (Sector G), Transportation and Storage (H), Information and Communication (J), Education Services (P), and Public Administration, Defense, and Compulsory Social Security (O). The nominal value of negative injections per business field is based on the proportion of government final demand drawn from the Input-Output Table. It is assumed that the total nominal value of negative injections equals the total positive injections, amounting to IDR 335 trillion, except in sub-scenarios A1–A4, where no budget reallocation occurs. In total, this study applies eight simulation scenarios, comprising four sub-scenarios under Scenario A (A1-A4) and four sub-scenarios under Scenario B (B1-B4). The following are the eight injection scenarios applied in this study.

Table 1. Budget Injection Scenarios Without Budget Cuts

	Injection Percentage (%)				Injection Value (Trillion Rupiah)			
	A-1	A-2	A-3	A-4	A-1	A-2	A-3	A-4
Sector I	100	75	50	25	335	251.25	167.5	83.75
Sector A	0	25	50	75	0	83.75	167.5	251.25

Table 2. Budget Injection Scenarios With Budget Cuts

	Injection Percentage (%)				Injection Value (Trillion Rupiah)			
	B-1	B-2	B-3	B-4	B-1	B-2	B-3	B-4
Positive Injection								
Sector I	100	75	50	25	335	251.25	167.5	83.75
Sector A	0	25	50	75	0	83.75	167.5	251.25
Negative Injection								
Sector C	0.38	0.38	0.38	0.38	-1.28	-1.28	-1.28	-1.28
Sector G	0.05	0.05	0.05	0.05	-0.17	-0.17	-0.17	-0.17
Sector H	0.003	0.003	0.003	0.003	-0.01	-0.01	-0.01	-0.01
Sector J	0.36	0.36	0.36	0.36	-1.22	-1.22	-1.22	-1.22
Sector O	66.47	66.47	66.47	66.47	-222.69	-222.69	-222.69	-222.69
Sector P	32.73	32.73	32.73	32.73	-109.64	-109.64	-109.64	-109.64



2.1 Social Accounting Matrix Model

The Social Accounting Matrix (SAM) fundamentally records the flow of funds between various accounts within an economy, where the flows of incomes and expenditures for each account must be balanced. Breisinger et.al [26] explain that the SAM distinguishes between “activities” and “commodities,” where activities represent entities that produce goods and services, while commodities are the goods and services produced by these activities. This distinction is made because activities may produce multiple products, while a single product may also be produced by various activities. The SAM also differs from the input-output table, as it not only traces the flow of income and expenditure from activities and commodities but also contains comprehensive information on various institutions, such as households, firms, and the government. This serves as the main reason for using the SAM table in this study. In Indonesia, the Central Statistics Agency (Badan Pusat Statistik - BPS) compiles the Indonesian version of the SAM, which is called the Sistem Neraca Sosial Ekonomi (SNSE) or System of Socio-Economic Accounts. The SNSE is a square balance system matrix where the total values in the columns and rows must be equal. The entries in the rows represent receipts transactions, while the entries in the columns explain expenditures. The SNSE framework version 2022 takes the following form:

Table 3: 2022 SAM Framework

Classification of Account		Goods and Services (products)	Production (industry)	Generation of Income	Primary Allocation of Income	Secondary Distribution of Income	Use of Income	Capital	Financial	Rest of the World
		1	2	3	4	5	6	7	8	9
Goods and Services (products)	1		Intermediate Consumption				Pengeluaran konsumsi akhir	Investasi non finansial		Exports
Production (industry)	2	Output								
Generation of Income	3		Gross Value Added							Compensation of Employees from Abroad
Primary Allocation of Income	4			Domestic Income	Domestic Primary Income					Primary Income from Abroad

Classification of Account		Goods and Services (products)	Production (industry)	Generation of Income	Primary Allocation of Income	Secondary Distribution of Income	Use of Income	Capital	Financial	Rest of the World
		1	2	3	4	5	6	7	8	9
Secondary Distribution of Income	5				Gross National Income	Domestic Transfer				Current Transfers from Abroad
Use of Income	6					Disposable income	Adjustment for changes in pension entitlements (domestic)			Adjustment for changes in pension entitlements (abroad)
Capital	7						Gross Saving	Transfer of Capital and Acquisition of Non-Produced Assets (domestic)	Borrowing	
Financial	8							Lending		Net lending/net borrowing
Rest of the World	9	Imports		Compensation of Employees to Abroad	Primary Income to Abroad	Current Transfers to Abroad	Adjustment for changes in pension entitlements to Abroad	Transfers of Capital and Acquisition of Non-Produced Assets		



Classification of Account	Goods and Services (products)	Production (industry)	Generation of Income	Primary Allocation of Income	Secondary Distribution of Income	Use of Income	Capital	Financial	Rest of the World
	1	2	3	4	5	6	7	8	9
							Net Assets to Abroad		

Mathematically, the SAM equation can be written as follows:

$$y = Ay + x \quad (1)$$

Where y is the vector of total income, A represents the expenditure share matrix of each account relative to total expenditure, and x is the vector of exogenous injections. To determine the impact of changes in exogenous accounts on endogenous ones, the equation above can be rearranged as follows:

$$\begin{aligned}
 y &= Ay + x \\
 y - Ay &= x \\
 (I - A)y &= x \\
 y &= (I - A)^{-1}x \\
 y &= M_a x
 \end{aligned} \quad (2)$$

The matrix I represents the identity matrix, while M_a is the multiplier matrix, also known as the Leontief inverse matrix. This matrix indicates the total impact of each unit of injection.

2.2 Multiplier Decomposition

To understand the transmission mechanism of the MBG program's impact on household income, the M_a matrix is decomposed into several components that represent different rounds of income circulation. This decomposition divides the total impact into two components: the Open Loop Multiplier and the Closed Loop Multiplier [27]. The Open Loop Multiplier illustrates the effect of changes in household income resulting from increased demand for production factors by sectors that receive shocks and their supplier sectors.

$$\Delta y_2 = M_{a2} \times \Delta x \quad (3)$$

The Closed Loop Multiplier describes the repeated multiplier effect that occurs when newly earned household income is spent on non consumption, which in turn stimulates further production and generates additional household income.

$$\Delta y_3 = M_{a3} \times \Delta x \quad (4)$$

The total impact is obtained by summing the injections (Δy_1) and changes from all components, which can be expressed as follows.

$$\Delta y_{total} = \Delta y_1 + \Delta y_2 + \Delta y_3 \quad (5)$$

However, since the injections are applied only to the production sectors, $\Delta y_1 = 0$, so equation (5) can be rewritten as follows.

$$\Delta y_{total} = \Delta y_2 + \Delta y_3 \quad (6)$$

Household income growth is measured by dividing the total impact received by households by the initial total household income value presented in the SAM table.

2.3 Gini Ratio

The Gini ratio is an aggregate measure of inequality, ranging from 0 (perfect equality) to 1 (perfect inequality). It is calculated by dividing the area between the 45-degree line and the Lorenz curve by the total area under the 45-degree line [28]. However, in this study, the calculation is conducted using the trapezoidal rule approach [29] which can be expressed as follows:

$$G = 1 - \sum_{i=0}^{n-1} h_i (y_i + y_{i+1}) \quad (7)$$

Where h_i represents the population proportion and $y_i + y_{i+1}$ represents the cumulative income proportion. In this study, the pre-MBG Gini ratio is based on the calculation using formula (7), rather than the official data recorded by Statistics Indonesia (BPS).

2.4 Employment Multiplier

The employment multiplier measures the change in employment resulting from a shock in the production sector. The employment multiplier (EM) is obtained by multiplying the labor coefficient vector (l_i) with the Leontief inverse matrix (M_a).

$$EM_j = \sum_i l_i M_a \quad (8)$$

The labor coefficient is calculated as the proportion of sectoral employment to the total sectoral input, expressed as follows:

$$l_i = \frac{\text{Total labor in sector } i}{\text{Total input of sector } i} \quad (9)$$

The employment impact (ΔL) is then derived by multiplying the employment multiplier with the vector of shocks (Δx), as shown below:

$$\Delta L = EM_j \times \Delta x \quad (10)$$

In this study, the labor coefficient is calculated using data from the 2020 Input-Output Table and the number of workers by employment sector as of February 2025.

This section describes the methods used in this study. The author needs to describe the reasons used to justify the use of the method and adequately describe it as well as why other alternative methods are not selected. This section is also used to describe the types and sources of data used and the process of analysis.

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3. Results, Analysis, and Discussions

3.1 The Impact of the MBG Program on Changes in Food Prices

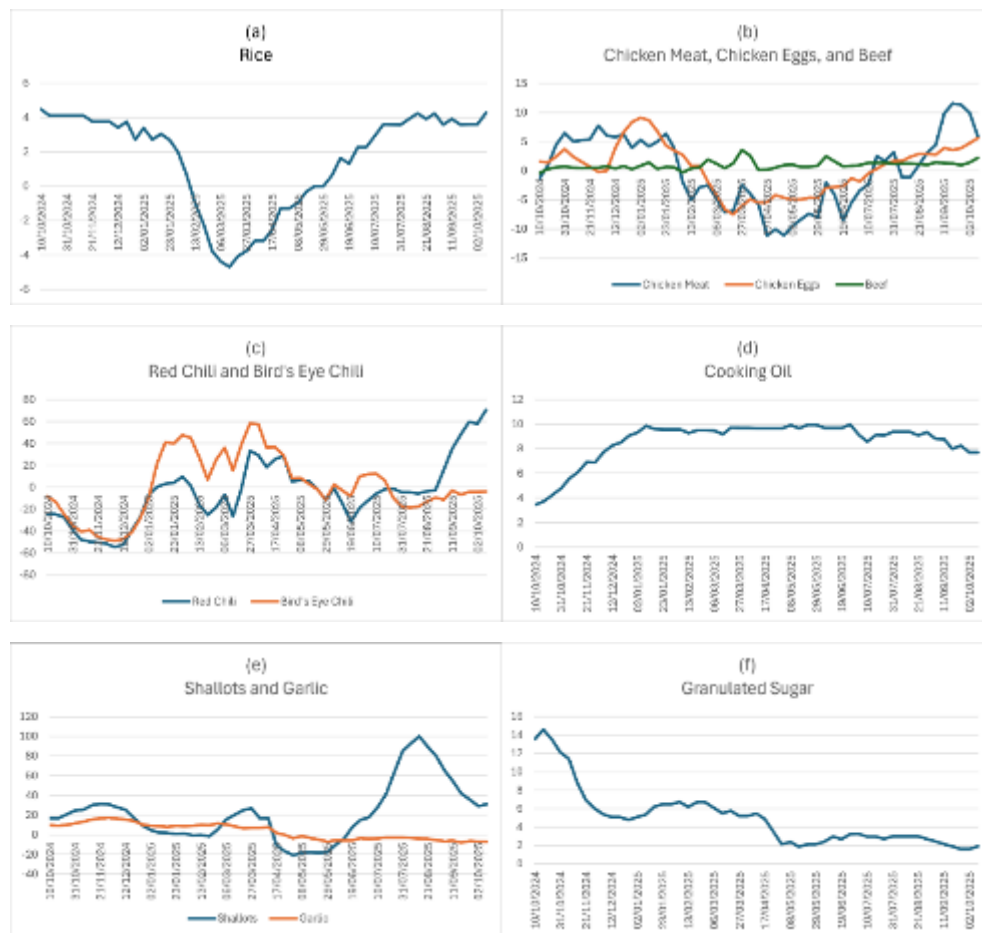
Based on data from Bank Indonesia [30], several food commodities have experienced an upward price trend, including rice, chicken meat, chicken eggs, beef, red chili, bird's eye chili, cooking oil, shallots, and sugar. For rice, since the end of 2024, prices have risen, then declined in February and March 2025, coinciding with the harvest period. However, afterward, rice prices rose again to above 4%. In Figure 3b, the rate of change in chicken meat and egg prices shows high volatility. Prices increased at the end of 2024 until early 2025 by around 7–8%, then declined in



March before rising again in July 2025. Notably, chicken meat prices surged by more than 10% in mid-September 2025. The increase in chicken and egg prices was driven by a decline in corn production, which led to higher animal feed costs [31]. This was further exacerbated by rising demand, one of which came from the MBG program [15]. Meanwhile, the rate of increase in beef prices remained relatively stable, indicating that beef prices were not affected by the MBG program.

Furthermore, as shown in Figure 3c, the prices of red chili and bird's eye chili exhibited high volatility. Over the past three months, red chili prices have continued to increase. This was caused by high rainfall accompanied by strong winds, which affected red chili productivity. In addition, some farmers shifted from cultivating curly red chili to bird's eye chili, leading to a slight decline in bird's eye chili prices [32]. Throughout the year, the price of cooking oil continued to increase, ranging between 7–9%. This rise was reportedly due to distribution issues and the absence of a long-term stock availability strategy [33]. In Figure 3e, shallot prices consistently increased, even exceeding 60%. The price surge was caused by disrupted production due to weather conditions and pest infestations [34]. Moreover, demand has also increased, partly driven by the MBG program. For garlic, the year-on-year calculation shows a downward price trend of up to -7.1%. However, in October 2025, garlic prices remained around IDR 39,200/kg, higher than in September 2025 at IDR 38,800/kg. Budiman [35] reported indications of cartel practices in import licensing, leading to limited supply. As shown in Figure 3f, the increase in sugar prices has slowed down. This condition indicates that the MBG program has not had a significant effect on sugar prices, which is reasonable given that the program focuses on providing nutritious meals and thus places limited emphasis on sugar intake among children.

Figure 3. National price changes (%) of several food commodities in traditional markets (YoY).



Source: Author estimation, processed from Bank Indonesia [30]

3.2 Simulation of the MBG Program's Impact on Household Income

Simulation of the MBG Program's Impact Without Budget Reallocation (Scenario A)

Before examining household income growth, it is necessary to review the income creation pathway. Based on the simulation results in Table 4, all components of income experienced an increase, including labor compensation, business surplus, and tax revenue, with the highest increase occurring in Scenario A-4, reaching IDR 1,012.94 trillion. Labor compensation grew within the range of 5.28 to 5.31 percent, with the highest growth in Scenario A-4 and the lowest in Scenario A-1. This indicates that Sector A has a greater multiplier effect than Sector I in terms of labor absorption. This phenomenon is reasonable, considering that Sector A is labor-intensive.

Tax revenue experienced the highest growth in Scenario A-1 and gradually declined as the share of MBG funds allocated to Sector I decreased (while Sector A became more dominant). Sector I has higher tax intensity because it is subject to Value Added Tax. It also generates higher value added than Sector A, resulting in higher tax rates. Moreover, businesses in Sector I are generally more formalized than those in Sector A and therefore subject to income tax. This explains why tax revenue recorded the highest growth in Scenario A-1 and the lowest in Scenario A-4.

Business surplus followed a trend similar to labor compensation, where the greater the dominance of Sector A, the higher the growth of business surplus. This occurs because injections into Sector A stimulate the growth of micro, small, and medium enterprises (MSMEs) with relatively low incomes, allowing the generated value added to be retained as business surplus rather than absorbed as tax. In contrast, when injections are dominated by Sector I, the higher tax burden reduces the retained business surplus. Therefore, based on these simulation results, in budgeting the MBG program, the government should strengthen its intervention in the upstream sector (agriculture) to generate a greater income multiplier effect.

Table 4. Impact of the MBG Program on Income Generation (Scenario A)

Scenario	Compensation of Employees		Gross Operating Surplus (including Mixed Income)		Net Taxes on Other Production		Total (IDR Trillion)
	IDR (Trillion)	%	IDR (Trillion)	%	IDR (Trillion)	%	
A-1	IDR 366.78	5.28%	IDR 559.00	4.79%	IDR 52.15	5.34%	IDR 977.93
A-2	IDR 367.51	5.29%	IDR 573.02	4.91%	IDR 49.07	5.02%	IDR 989.60
A-3	IDR 368.24	5.30%	IDR 587.05	5.03%	IDR 45.98	4.70%	IDR 1,001.27
A-4	IDR 368.97	5.31%	IDR 601.07	5.15%	IDR 42.89	4.39%	IDR 1,012.94

Source: Author estimation

Table 5 provides a further illustration of the impact of the MBG program on employment creation. The simulation results show that total employment increases by more than 11 million persons, or grows by over 8 percent, with the highest growth observed in sub-scenario A-4, reaching 8.58 percent or approximately 12.5 million new jobs. Furthermore, there is a clear pattern indicating that employment growth rises in line with the increased budget allocation to the agricultural sector, underscoring the sector's vital role in labor absorption. In this scenario, no employment loss occurs since no sector receives a negative injection. Such strong employment growth is expected to positively influence household income.

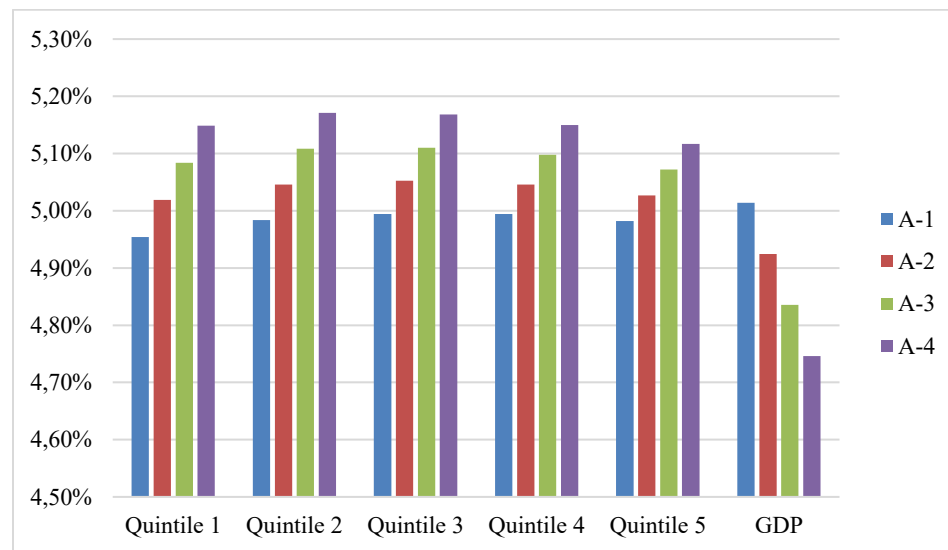


Table 5. Impact of the MBG Program on Employment (Scenario A)

Scenario	Employment Gain (L^+) in persons	Employment Loss (L^-) in persons	Net Change (ΔL)	Employment %
A-1	11,716,060.89	0	11,716,060.89	8.04
A-2	11,979,860.90	0	11,979,860.90	8.22
A-3	12,243,660.90	0	12,243,660.90	8.40
A-4	12,507,460.90	0	12,507,460.90	8.58

Figure 4 shows the income growth of all household quintile groups and the economic growth after the injection of the MBG program. All household quintile groups experience higher income growth as the injection into sector A becomes more dominant, a condition that contrasts with the decline in GDP growth. This indicates that in the structure of the Indonesian economy, economic growth is not necessarily felt directly by households. In scenario A-1, the injection occurs only in sector I, which has a lower capacity to absorb labor compared to sector A. Based on Table 4, the growth of labor compensation is the lowest in this scenario. This causes household income growth in this scenario to be lower than in the others. The condition is different for GDP growth, where sector I has higher value added than sector A, resulting in higher productivity that will be recorded as GDP growth. In addition, sector I bears a higher tax burden, which means that although productivity increases, households do not fully enjoy it because part of the income is absorbed as tax revenue. On the contrary, in scenario A-4 where the injection is dominated by sector A, more job creation occurs, leading to higher labor compensation and increased household income. On the other hand, sector A has lower value added than sector I, resulting in lower GDP growth than in the other scenarios. However, because of this lower value added, the tax burden paid is also lower, allowing households to enjoy a larger portion of their income as disposable income. This condition reflects the tradeoff that occurs between pursuing household income growth and aggregate economic growth.

Figure 4. Economic Growth and Household Income Growth without Budget Reallocation



Source: Author estimation

The transmission path of the MBG program toward household income can be observed in Table 6. This table decomposes household income growth, which was previously shown in Figure 4, into the open loop effect (Δy_2) and the closed loop effect (Δy_3). Based on Table 6, household income growth is dominated by the closed loop effect. For example, in Scenario A-4 for Quintile 1, the total growth of 5.15 percent is driven mainly by the closed loop contribution of 3.74 percent, which is much larger than the open loop contribution of 1.41 percent. This condition

illustrates that the effectiveness of the MBG program in increasing household income does not come from the open loop effect, which represents the initial income received, but rather from the circulation effect that occurs when the additional income is spent again and stimulates further economic activity.

The analysis of the open loop effect shows that the growth of y_2 is relatively similar across all scenarios. This indicates that the production and income generation mechanisms are fundamentally non-distributive and therefore do not significantly contribute to reducing income inequality and poverty. Hence, if the MBG program aims to reduce inequality, it must consider the subsequent consumption effect represented by the closed loop. The closed loop effect for upper quintiles tends to be smaller than for lower quintiles, indicating that the lower quintiles have a higher marginal propensity to consume, meaning a larger share of additional income is spent again. This finding shows that lower income groups play an essential role in sustaining economic circulation. Therefore, the most appropriate intervention is one directed toward sectors that involve a large proportion of lower quintile households, namely sector A [36].

Table 6: Multiplier Impact of MBG in Scenario A

Household		IDR Trillion				Growth (%)			
		A-1	A-2	A-3	A-4	A-1	A-2	A-3	A-4
Quintile 1	Δy_{total}	65.81	66.67	67.54	68.40	4.95%	5.02%	5.08%	5.15%
	Δy_2	18.61	18.64	18.67	18.70	1.40%	1.40%	1.41%	1.41%
	Δy_3	47.20	48.03	48.87	49.70	3.55%	3.62%	3.68%	3.74%
Quintile 2	Δy_{total}	145.46	147.29	149.11	150.94	4.98%	5.05%	5.11%	5.17%
	Δy_2	41.13	41.20	41.27	41.34	1.41%	1.41%	1.41%	1.41%
	Δy_3	104.34	106.09	107.85	109.60	3.57%	3.63%	3.69%	3.75%
Quintile 3	Δy_{total}	277.59	280.81	284.03	287.25	4.99%	5.05%	5.11%	5.17%
	Δy_2	78.39	78.54	78.68	78.82	1.41%	1.41%	1.42%	1.42%
	Δy_3	199.19	202.27	205.35	208.43	3.58%	3.64%	3.69%	3.75%
Quintile 4	Δy_{total}	411.97	416.24	420.52	424.79	4.99%	5.05%	5.10%	5.15%
	Δy_2	116.17	116.39	116.62	116.85	1.41%	1.41%	1.41%	1.41%
	Δy_3	295.80	299.85	303.90	307.94	3.59%	3.63%	3.68%	3.73%
Quintile 5	Δy_{total}	856.96	864.69	872.43	880.16	4.98%	5.03%	5.07%	5.12%
	Δy_2	241.18	241.69	242.19	242.70	1.40%	1.41%	1.41%	1.41%
	Δy_3	615.78	623.01	630.23	637.46	3.58%	3.62%	3.66%	3.71%

Source: Author estimation

Table 7 presents the changes in the Gini ratio across all Scenario A cases. In general, the Gini ratio before and after the implementation of the MBG program does not show a significant change. However, the direction of the change in each scenario remains meaningful. Based on the calculations in Table 7, there is a clear trend of decreasing Gini ratio values as a larger proportion of MBG program funds is allocated to sector A. Among the four scenarios within the A group, only Scenario A-1 shows an increase in the Gini ratio, indicating a rise in income inequality. This occurs because the injection is entirely directed toward sector I while neglecting sector A, which functions as the upstream

sector and plays a major role in the economic chain of lower income communities. This finding is consistent with the results in Table 6 which show that scenarios dominated by injections into sector A generate a larger closed loop effect.

Table 7: Change in Gini Ratio

Scenario	Before MBG	After MBG	$\Delta(\times 10^{-4})$
A-1	0.42064699	0.42065003	0.03
A-2	0.42064699	0.42062138	-0.26
A-3	0.42064699	0.42059275	-0.54
A-4	0.42064699	0.42056415	-0.83

Source: Author estimation

Simulation of the MBG Program's Impact with Budget Reallocation (Scenario B)

Scenario B represents the case where the implementation of the MBG program is accompanied by budget cuts in other expenditure components. This condition has the potential to reduce or even eliminate the positive effects of MBG that were previously observed in Scenario A. Table 8 presents the net impact of the MBG program on income generation, in which the positive injection from MBG is financed by reductions in other government programs. The results in the table show that almost all scenarios indicate that Scenario B generates a negative impact on aggregate income creation, except for Scenario B-4, which records a total income creation of IDR 3.62 trillion. This condition illustrates that in most cases (B-1, B-2, and B-3), the multiplier effect of the sectors experiencing budget cuts is greater than that of the recipient sectors. The negative trend can only be mitigated under Scenario B-4, where most of the funds are directed to sector A. This finding further reinforces the importance of the government paying greater attention to sector A.

Table 8: Impact of the MBG program on Income Generation (Scenario B)

Scenario	Compensation of Employees		Gross Surplus (including Mixed Income)		Net Taxes on Other Production		Total
	IDR (Trillion)	%	IDR (Trillion)	%	IDR (Trillion)	%	
B-1	-IDR 81.89	- 1.18%	IDR 36.14	0.31%	IDR 14.36	1.47%	-IDR 31.39
B-2	-IDR 81.16	- 1.17%	IDR 50.17	0.43%	IDR 11.27	1.15%	-IDR 19.72
B-3	-IDR 80.43	- 1.16%	IDR 64.19	0.55%	IDR 8.19	0.84%	-IDR 8.05
B-4	-IDR 79.69	- 1.15%	IDR 78.21	0.67%	IDR 5.10	0.52%	IDR 3.62

Source: Author estimation

Although total income decreases overall, a breakdown by income type shows that only labor compensation experiences a decline, while business surplus and tax revenue remain positive. The decrease in labor compensation occurs because the sectors most affected by the negative shocks are sectors O and P, both of which absorb a considerable number of workers. When these sectors contract, wage reductions and job losses occur. However, these sectors are not high-profit sectors, so their decline does not offset the business surplus and tax revenue generated by the sectors receiving positive injections. The trend remains consistent with Scenario A, where both labor compensation

and business surplus improve as a larger portion of MBG funds is allocated to sector A, while tax revenue moves in the opposite direction.

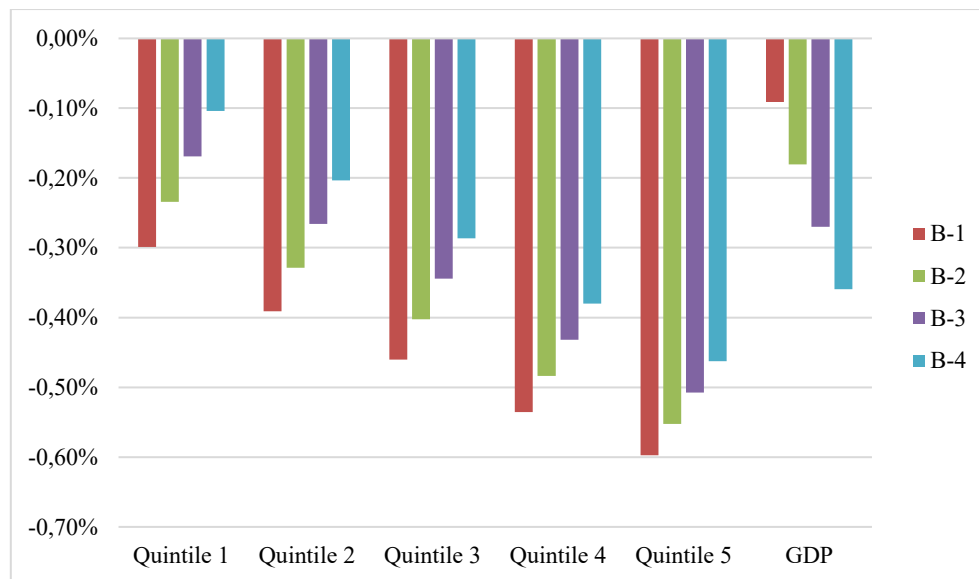
Table 9. Impact of the MBG Program on Employment (Scenario B)

Scenario	Employment Gain (L^+) in persons	Employment Loss (L^-) in persons	Net Employment Change (ΔL)	%
B-1	3,959,663.37	-2,879,728.88	1,079,934.49	0.74
B-2	4,269,510.02	-2,925,775.52	1,343,734.49	0.92
B-3	4,585,736.04	-2,978,201.54	1,607,534.50	1.10
B-4	4,932,157.63	-3,060,823.13	1,871,334.50	1.28

Source: Author estimation

Table 9 illustrates the impact of the MBG program on employment under the scenario of a negative shock to other sectors. Despite the shock, the overall employment condition remains positive, with a net employment increase ranging from 1.08 million to 1.87 million workers, or a growth of 0.74%–1.28%. Similar to Scenario A, this scenario also shows a pattern where net employment continues to rise as a larger share of MBG program spending is allocated to Sector A. However, although the aggregate employment condition remains positive, this finding should be interpreted cautiously. The data in Table 8 showing negative labor compensation indicate that the wages in sectors experiencing job losses are higher than those in sectors experiencing job gains. Furthermore, in real-world conditions, labor mobility across sectors faces barriers such as skills, knowledge, experience, and other factors [37], [38], making career switching between different sectors more difficult.

Figure 5. Economic Growth and Household Income Growth After Considering Budget Reallocation



Source: Author estimation

The phenomenon presented in Table 8 and Table 9 naturally affects household income growth and economic growth, as illustrated in Figure 5. Based on the figure, all scenarios show negative household income growth and GDP growth, indicating a decline in both household income and GDP. In Scenario B, the government once again faces a trade-off between pursuing aggregate economic growth and household income growth. The decline in labor compensation leads to lower household income. Thus, although the aggregate net employment change is positive, household income still

declines, indicating that wages received by workers in sectors experiencing employment gains are lower than those received by workers in sectors experiencing employment losses. However, there is a visible trend showing that the contraction becomes smaller as a larger share of the MBG program funds is allocated to sector A. This finding highlights the role of sector A as an economic buffer, even during times of economic crisis [39]–[42]. On the other hand, sector A has relatively low value added compared to other sectors [43], [44], which makes it insufficient to fully offset the contraction occurring in other sectors.

Table 10. Multiplier Impact of MBG in Scenario B

Household		IDR Trillion				Growth (%)			
		B-1	B-2	B-3	B-4	B-1	B-2	B-3	B-4
Quintile 1	Δy_{total}	-3.97	-3.11	-2.25	-1.38	-	0.30%	0.23%	0.17%
	Δy_2	-1.49	-1.46	-1.43	-1.40	-	0.11%	0.11%	-0.11%
	Δy_3	-2.48	-1.65	-0.81	0.02	-	0.19%	0.12%	0.06%
Quintile 2	Δy_{total}	-11.41	-9.59	-7.76	-5.94	-	0.39%	0.33%	0.27%
	Δy_2	-3.22	-3.15	-3.08	-3.01	-	0.11%	0.11%	-0.10%
	Δy_3	-8.20	-6.44	-4.69	-2.93	-	0.28%	0.22%	0.16%
Quintile 3	Δy_{total}	-25.58	22.36	19.14	15.92	-	0.46%	0.40%	0.34%
	Δy_2	-6.00	-5.86	-5.72	-5.58	-	0.11%	0.11%	-0.10%
	Δy_3	-19.57	16.50	13.42	10.34	-	0.35%	0.30%	0.24%
Quintile 4	Δy_{total}	-44.19	39.91	35.64	31.36	-	0.54%	0.48%	0.43%
	Δy_2	-8.68	-8.45	-8.23	-8.00	-	0.11%	0.10%	-0.10%
	Δy_3	-35.50	31.46	27.41	23.36	-	0.43%	0.38%	0.33%
Quintile 5	Δy_{total}	102.76	95.03	87.30	79.57	-	0.60%	0.55%	0.51%
	Δy_2	-17.63	17.13	16.62	16.11	-	0.10%	0.10%	-0.09%
	Δy_3	-85.13	77.90	70.68	63.45	-	0.49%	0.45%	0.41%

Source: Author estimation

Table 10 presents the decomposition of the net impact of the MBG program on household income growth. As also illustrated in Figure 5, the table shows that overall, Scenario B produces a net negative effect on all household income

groups. The worst condition occurs for the richest group in Scenario B-1, which experiences an income decline of up to 0.6%. The open loop effect (Δy_2) shows relatively uniform results, ranging from about -0.09% to -0.11%. This relatively even loss in the open loop effect occurs due to a significant decline in labor compensation, as all negatively injected sectors are sources of income for all quintiles. In other words, the decrease in labor compensation uniformly suppresses initial income.

Similar to Scenario A, the closed loop component (Δy_3) provides the dominant effect within the multiplier mechanism. The table shows that the higher the income quintile, the greater the percentage of closed loop losses. This indicates that wealthier groups bear a larger share of the income loss caused by the multiplier effect compared to poorer groups. Although richer households have a lower marginal propensity to consume, their initially higher income levels make their absolute income losses much larger, which in turn amplifies the consumption multiplier loss (Δy_3). Middle and upper household groups also tend to be more dependent on sectors experiencing negative injections than lower-income households, as poorer households rely more heavily on sector A. Furthermore, there is a consistent pattern across all scenarios, where the closed loop effect continues to improve as the proportion of funds allocated to sector A increases. In fact, in Scenario B-4, the first quintile even records a positive closed loop effect of 0.001%.

Based on Table 11, all scenarios show a decline in the Gini ratio, indicating a trend toward greater economic equality. However, this occurs because the highest income quintile experiences a larger percentage loss than the lowest quintile. Although the Gini ratio decreases in all sub-scenarios, this is not the intended outcome. The expected economic equality should come from enabling lower income households to grow and catch up with higher income households, not from the decline of the wealthiest group. In the end, Scenario B shows that implementing the MBG program together with major budget cuts in other sectors is an unfavorable step, as it causes negative effects on both household income growth and aggregate economic growth. This loss indicates that the multiplier effect of the prioritized sectors is smaller than that of the sectors that experience budget reductions. Therefore, the economic objective stated in the program framework, which is to achieve high and sustainable economic growth, becomes difficult to achieve.

Table 11: Change in Gini Ratio

Scenario	Before MBG	After MBG	$\Delta(\times 10^{-4})$
B-1	0.420646988	0.420273526	-3.73
B-2	0.420646988	0.420243475	-4.04
B-3	0.420646988	0.420213455	-4.34
B-4	0.420646988	0.420183466	-4.64

Source: Author estimation

4. Conclusion, Recommendation, and Limitations

4.1 Conclusion

This study demonstrates that the MBG program has a significant impact on the economy, particularly in promoting household income growth and reducing economic inequality, provided that it does not involve budget cuts in other sectors. In Scenario A, the MBG program can boost household income growth by approximately 4.95%–5.17% and GDP growth by 4.75%–5.01%. Regarding income distribution, although the Gini ratio does not change significantly, it still shows a downward trend, indicating a mild improvement in equity. Household income growth and economic equality achieve their best performance when most MBG funds are allocated to stimulate Sector A. Conversely, Scenario B illustrates that implementing the MBG program by reallocating funds through budget cuts in other sectors is a misguided policy decision. In Scenario B, both household income growth and overall economic growth experience



contraction, suggesting that the negative shock outweighs the positive one. Nevertheless, under such circumstances, Sector A continues to serve as an economic buffer that mitigates the adverse effects of the negative shock. Although Scenario B records a larger decline in the Gini ratio than Scenario A, this outcome is not desirable, as the reduction in inequality results from a decline in the income of higher-income groups rather than an improvement in the economic conditions of lower-income households.

4.2 Recommendations

Based on the research findings, the following recommendations can be made.

1. **Reevaluate the MBG program, particularly regarding its target beneficiaries.** Currently, the MBG program requires an excessively large budget, leading to the reallocation of funds from other expenditure components to finance the program. However, such a policy has adverse effects on the economy. The MBG program should instead focus on more targeted groups, including pregnant women, malnourished children, children from low-income families, and children living in priority areas. This approach aims to reduce the overall budget requirement, thereby avoiding large-scale budget reallocations. According to the calculation by Askar et al. [11] if the MBG program is properly targeted, the required budget would amount to IDR 117.93 trillion, which is considerably lower than the IDR 335 trillion allocated in the draft state budget (RAPBN).
2. **Allocate a specific portion of the MBG budget to stimulate the Agriculture, Forestry, and Fisheries sector (Sector A).** This sector has a high multiplier effect and significantly influences household income, particularly among lower-income households. Sector A also serves as an economic buffer capable of mitigating the negative impact of budget cuts. Moreover, stimulating this sector helps increase the food supply, ensuring that food prices remain stable and affordable for the public. Price stability is also essential to prevent the MBG budget from ballooning due to rising food costs..
3. **Ensure transparency in program implementation, particularly in budget utilization, to prevent corruption.** Any form of leakage, whether through corruption or inefficiency, can reduce the program's positive impact on the economy [45].

4.3 Research Limitations

In this study, several methodological and data limitations should be considered when interpreting the findings.

1. **This study employs a static multiplier model operating under a fixed-price assumption.** Such a simulation method does not accommodate dynamic variables or processes that evolve over time. The model cannot capture market dynamics such as changes in input and output prices or shifts in consumption and production responses within a given period. Consequently, the simulation results reflect short-term impacts and should not be used as a benchmark for assessing the long-term effects of the MBG program. Therefore, future research is expected to apply a Computable General Equilibrium (CGE) model to better capture dynamic interactions among variables.
2. **The use of aggregated data limits the analysis to a broader scope and prevents a more detailed or regional examination.** The Social Accounting Matrix (SAM) data used in this study are national-level and classify households only by income quintile. The total household income calculated here represents the aggregate sum for each quintile, without considering more detailed aspects such as household size. Moreover, since the SAM table used is national, it is less representative for assessing impacts on specific regions, particularly given Indonesia's highly centralized economy. In addition, income from micro, small, and medium enterprises (MSMEs) cannot be accurately measured because the data aggregates them with medium and large businesses within the same sector.
3. **This study does not consider the political-economic complexities underlying government budget decisions.** In Scenario B, the negative shock is derived from the assumed proportion of government Final Demand in the Input-Output Table rather than from actual budget cut data. This approach was necessary due to the difficulty of mapping real budget cuts to the sectoral structure of the SAM and the limited availability

of detailed fiscal data. However, the use of such assumed shock specifications may introduce potential bias in estimating the magnitude of the negative impacts.

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